MEMORANDUM TO:

The Honorable Mayor and
Members of the City Council
City of Jacksonville Beach, Florida

Council Members:

The following Agenda of Business has been prepared for consideration and action at the Regular Meeting of the City Council.

OPENING CEREMONIES: INVOCATION, FOLLOWED BY SALUTE TO THE FLAG

CALL TO ORDER

ROLL CALL

APPROVAL OF MINUTES

20-015 Council Briefing held on January 21, 2020

20-016 Regular Council Meeting held on January 21, 2020

ANNOUNCEMENTS

COURTESY OF THE FLOOR TO VISITORS

MAYOR AND CITY COUNCIL

20-017 Discuss City Manager’s Annual Performance Evaluation

CITY CLERK

CITY MANAGER

20-018 Approve the Purchase of Replacement Workstations for the Police Department Communications Center
Approve an Amount Not to Exceed $2,915,000 to Burns & McDonnell for the Lump Sum Contract Price for All Remaining Engineering Services, Procurement of All Remaining Materials, and Construction for the Design-Build Contract for Sampson Substation Autotransformer No. 2 Replacement Project

RESOLUTIONS

RESOLUTION NO. 2048-2020 (Continued from January 21, 2020, City Council meeting)

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, ESTABLISHING AND ADOPTING A CODE OF ETHICS FOR PUBLIC OFFICIALS; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES, RESOLUTIONS AND OFFICIAL DECISIONS, AND PROVIDING FOR AN EFFECTIVE DATE.

ORDINANCES

ORDINANCE NO. 2020-8131 (Second Reading) (Public Hearing)

AN ORDINANCE AMENDING CHAPTER 34, ARTICLE IV, SECTION 34-41 AND ARTICLE VIII, DIVISION 2, SECTION 34-392 OF THE LAND DEVELOPMENT CODE OF ORDINANCES OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, AMENDING THE DEFINITION OF HOUSEHOLD PETS TO INCLUDE FEMALE CHICKENS, AND AMENDING THE SITE DEVELOPMENT STANDARDS ACCESSORY USES AND STRUCTURES TO PERMIT FEMALE CHICKENS IN RESIDENTIAL ZONING DISTRICTS, ADDING CATS, DOGS, HAMSTERS AND BIRDS AS EXAMPLE HOUSEHOLD PETS; PROVIDING FOR THE REPEAL OF ALL ORDINANCES AND OFFICIAL ACTS IN CONFLICT WITH THIS ORDINANCE; PROVIDING FOR SEVERABILITY; PROVIDING FOR CODIFICATION; AND PROVIDING FOR AN EFFECTIVE DATE.

ORDINANCE NO. 2020-8132 (Second Reading) (Public Hearing)

AN ORDINANCE OF THE CITY OF JACKSONVILLE BEACH, FLORIDA AMENDING CHAPTER 5, ANIMALS AND FOWL, ADDING ARTICLE IV, BACKYARD HENS, PROVIDING PURPOSE AND INTENT; PROVIDING DEFINITIONS; PROVIDING FOR GENERAL REQUIREMENTS; REQUIRING PERMITS; PROVIDING FOR PERMITTED ZONING LOCATIONS; PROVIDING FOR ENFORCEMENT; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES; AND PROVIDING FOR AN EFFECTIVE DATE.
ORDINANCE NO. 2019-8117 (First Reading) (Public Hearing)

AN ORDINANCE TO AMEND AN ORDINANCE ENACTING AND ESTABLISHING A COMPREHENSIVE LAND DEVELOPMENT REGULATION AND OFFICIAL ZONING MAP FOR THE INCORPORATED AREA OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, AS AUTHORIZED BY CHAPTER 163.3202, FLORIDA STATUTES, BY AMENDING ARTICLE VIII. SITE DEVELOPMENT STANDARDS DIVISION 4. SIGN STANDARDS TO PERMIT AND PROVIDE STANDARDS FOR OFF-SITE EMERGENCY WAYFINDING SIGNS FOR EMERGENCY SERVICES ONLY, FOR THE INCORPORATED AREA OF THE CITY, AND TO PROVIDE FOR CODIFICATION, SEVERABILITY, CONFLICTS, AND AN EFFECTIVE DATE. (deferred from November 4, 2019, City Council meeting)

ADJOURNMENT

NOTICE

In accordance with Section 286.0105, Florida Statutes, any person desirous of appealing any decision reached at this meeting may need a record of the proceedings. Such person may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

The public is encouraged to speak on issues on this Agenda that concern them. Anyone who wishes to speak should submit the request to the City Clerk or to the recording secretary prior to the beginning of the meeting. These forms are available at the entrance of the City Council Chambers for your convenience.

In accordance with the Americans with Disabilities Act and Section 286.26, Florida Statutes, persons with disabilities needing a special accommodation to participate in this meeting should contact the City Clerk's Office at (904) 247-6299, extension 10, no later than one business day before the meeting.
The Council Briefing began at 5:30 P.M.

The following City Council Members were in attendance:

**Mayor:** William C. Latham

**Council Members:** Keith Doherty  
Christine Hoffman  
Georgette Dumont  
Cory Nichols  
Sandy Golding  
Phil Vogelsang (late)

Also present were City Manager Mike Staffopoulos and City Attorney Chris Ambrosio.

**Purpose of Briefing**

The purpose of the briefing was to update the Council Members about ongoing items in the City.

**City Attorney**

**Permanent and Primary Special Magistrate for Code Enforcement Hearings**

Mr. Ambrosio explained the need for a permanent, regular Special Magistrate and a regular schedule for hearings. He asked the Council to authorize him to identify a law firm that would supply qualified attorneys to provide these services. They would also keep a contract with an outside alternate. The meetings would be scheduled for the fourth Wednesday of each month at 2:00 P.M.

Mr. Ambrosio stated he looked into two law firms already and noted a Special Magistrate was prohibited from serving in that capacity for two municipalities because it was considered a public office. One of the firms he had considered had this issue, and the other had a $3,000 per month retainer. He stated they could draft an RFQ to advertise.

Mr. Ambrosio estimated each hearing entailed approximately three to five hours of work, including communications and drafting orders. He stated if there were no hearing in a particular month, the contract would indicate no payment was due.

Council Members suggested additional options including hiring one attorney [not a firm] to be the primary Special Magistrate and retain their current alternate, or inquiring if the current alternate was interested in becoming the primary Special Magistrate and then looking for a new alternate.

Mr. Staffopoulos said Mr. Ambrosio wished Council’s authorization to explore possible combinations and come back with a recommendation. Council agreed.

**Revisions to the Purchasing Policy and Code**

Mr. Staffopoulos stated staff wished to revise the purchasing policy. Mr. Ambrosio reported the policy [manual] and code both required revision because they failed to address certain topics. He had already met with staff and begun to address the deficiencies and inefficiencies. He stated the
policy and code would ensure fairness in procurement, help protect the city, provide guidance to staff, and enable a standardization for all departments. Examples of topics to be covered included: insurances and bonds, and standardization of solicitation documents.

Mr. Ambrosio noted several Florida municipalities had outstanding purchasing codes, and they could utilize a lot of their language.

Mr. Ambrosio informed the Council the process would take over a year. Mr. Ambrosio stated they could subcontract some of the work, but staff would need to work with the contractor. He stated this was among his “top 10” large projects in terms of need because the code was so deficient, and the manual was so outdated.

Mr. Staffopoulos recalled they had created a matrix of City Council priorities in September and said if they agreed the purchasing policy and code needed to be added, he would discuss it with Mr. Ambrosio and other directors to determine how to allocate resources to achieve those goals in the most reasonable timeframe.

Mr. Staffopoulos said he and Mr. Ambrosio would determine where on the matrix this item should be. They would return to the Council to discuss where they would need to contract services.

**City Manager**

**Other topics**

Mr. Staffopoulos informed the Council of the following:

- Per the annual Police Statistics report, there was a roughly 10% increase in calls for service and dispatched officers for service. Chief Smith would address the Council in the future to explain the statistics.
- The community visioning process would begin on January 23, 2020, at City Hall. There would be a total of six meetings.
- The ordinance cleanup package that had been presented and denied in the Fall of 2018 would come back to Council.
- In April or May, he would present them with the budget assumptions prior to preparation of the budget for their input.
- Brazilian Pepper had been identified in Cradle Creek Preserve, and they were working with Felicia Boyd, Program and Outreach Director from the Timucuan Parks Foundation to address the problem before it became too invasive.
- Director of Beaches Energy, Allen Putnam had been voted president of the Florida Municipal Electric Association.
- He agreed to send the legislative updates to Council members.
- A Council member wished to attend the Florida League of Cities’ Action Days in Tallahassee with Mayor Latham. Mayor Latham, Mr. Nichols, and Ms. Golding indicated they would attend.
- JFRD, with whom they contracted for fire service, handled EMS special event assignments differently, and charged differently, from how Jacksonville Beach did.
Community Redevelopment Agency (CRA) Discussion with Redevelopment Attorney Cliff Shepard

Mr. Mann stated Mr. Shepard had done legal consulting work for the CRA since 2011. He stated the CRA had approved the contract with Mr. Shepard’s firm to consolidate and update the existing plan. This should take approximately 130 hours and cost $25,000 to $30,000. The contract must be approved by the CRA and the City Council. Mr. Mann stated the new 2039 CRA expiration date was 17 years sooner than the date indicated in the previous legislative session.

Mr. Shepard explained the Council must vote to recognize the original or new expiration date in order to adopt their plan(s). For clarity, they should vote for each plan separately.

Mr. Shepard confirmed a very small percentage of Florida municipalities had CRA boards that had members separate from their elected officials.

Mr. Staffopoulos recalled Council wanted to reserve time to discuss Council issues. Time for this was currently scheduled every four months, and he asked if Council wanted to change the schedule. The Council agreed to reserve time during Mr. Staffopoulos’s briefing once per month.

The Council discussed vacation rentals, and Mr. Ambrosio reported there had been very few applications submitted, even though the deadline was January 31.

Ms. Golding stated Neptune Beach wanted to purchase a beacon for the crosswalk from Jacksonville Beach to Neptune Beach in front of Fletcher High School, and she had suggested they ask Atlantic Beach to participate in approving the design and paying for it. Mr. Staffopoulos was attending the meeting with the city managers of the three beach communities the following day and agreed to bring this up with them.

Mr. Ambrosio noted the lack of claims against the city for injuries in their parks and attributed this to Parks and Recreation’s adherence to maintenance, repair, and inspections.

Mr. Ambrosio announced they would hold a Workers’ Compensation seminar in March to educate departments about Workers’ Compensation laws and requirements.

The briefing adjourned at 6:52 P.M.

Submitted by: Jodilynn Byrd
Administrative Assistant

Approved:

__________________________
William C. Latham, MAYOR

Date: __________________________
Minutes of Regular City Council Meeting
held Monday, January 21, 2020, at 7:00 P.M.
in the Council Chambers, 11 North 3rd Street,
Jacksonville Beach, Florida

OPENING CEREMONIES:
Council Member Vogelsang provided the Invocation, followed by the salute to the flag.

Mayor Latham called for a moment of silence in memory of Ann Thomas, wife of former
Beaches Energy Services employee Sam Thomas, who had passed away recently.

CALL TO ORDER:
Mayor Latham called the meeting to order at 7:01 P.M.

ROLL CALL:
Mayor: William C. Latham

Council Members: Keith Doherty, Georgette Dumont, Sandy Golding
Christine Hoffman, Cory Nichols, Phil Vogelsang

Also present were City Manager Mike Staffopoulos, City Attorney Chris Ambrosio. And City
Clerk Laurie Scott.

APPROVAL OF MINUTES:
Motion: It was moved by Ms. Hoffman, seconded by Mr. Vogelsang, and passed unanimously
to approve the following minutes:
- Council Briefing held on December 16, 2019
- Regular Council Meeting held on December 16, 2019

ANNOUNCEMENTS:
Ms. Golding visited the Neptune Beach Elementary School class of Mrs. Johnson, who participates
in FIRST LEGO League, where students use Legos to learn problem solving and teamwork. They
had worked on solving the problem of the pier repair and recommended using decking with holes
in it to allow water to drain off. The students would be competing on January 25, 2020.

Ms. Hoffman said there had been Martin Luther King (MLK) events over the past weekend: a
Breakfast at St. Paul’s By-the-Sea Episcopal Church put together by several area churches and a
service at Saint Andrews AME Church.

Mr. Nichols visited the Jacksonville Beach Golf Course and saw the 157 trees they had received
through the City of Jacksonville tree mitigation program, a $300,000 value. He said staff had done
great a job selecting and planting the trees.

Ms. Dumont said the MLK Breakfast at St. Andrews had been excellent. She reminded residents
the City was holding visioning sessions and advised them to look at the City’s website for dates.
She stated Deck the Chairs had been a great event, and she enjoyed the holiday celebration and
lunch with city staff.

Mayor Latham said the churches had done a great job with the MLK events and said Bishop Percy
Golden was the driving force behind the prayer vigil and the “Beloved Community” concept.
Mayor Latham had also participated in honoring the National Elementary School Honor Society
recipients at Jacksonville Beach Elementary School. He said Deck the Chairs and the Tuba Christmas music concert had been great.

COURTESY OF THE FLOOR TO VISITORS:
Mayor Latham extended Courtesy of the Floor to Visitors.

- Ken Marsh, 2011 Gail Avenue, spoke about the city's great amenities but said the downtown needed work. He claimed the spike in all measures of the downtown safety statistics were not caused by residents, but by people coming in to visit the downtown. He suggested the Vision Plan be executed as soon as possible and include a strategy for reducing CAPE officers.

MAYOR AND CITY COUNCIL:

CITY CLERK:
Item #20-003 - Appointment of One Regular Member to the Board of Adjustment

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to reappoint Jeff Truhlar to the Board of Adjustment.

Roll Call Vote: Ayes – Doherty, Dumont, Golding, Hoffman, Nichols, Vogelsang and Mayor Latham
The motion passed unanimously.

CITY MANAGER:
Item #20-004 - Appointment of Fifth Member to the General Employees’ Pension Board

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to reappoint Brandon Maresma to serve as a trustee as the fifth member on the General Employees’ Retirement System Board, new two-year term, to expire December 31, 2021.

Roll Call Vote: Ayes – Dumont, Golding, Hoffman, Nichols, Vogelsang, Doherty and Mayor Latham
The motion passed unanimously.

Item #20-005 - Accept the Monthly Financial Reports for the Month of December 2019

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to accept the monthly financial reports for the month of December 2019.

Roll Call Vote: Ayes – Golding, Hoffman, Nichols, Vogelsang, Doherty, Dumont and Mayor Latham
The motion passed unanimously.

Item #20-006 - Approve Adding a Second Full-Time Accounting Technician in the Finance Department
Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to approve the addition of one full-time Accounting Technician in the Finance Department at an estimated cost of $67,464.

Roll Call Vote: Ayes – Hoffman, Nichols, Vogelsang, Doherty, Dumont, Golding and Mayor Latham
The motion passed unanimously.

Item #20-007 - Approve the Dedication to the City and Acceptance for Maintenance of the Public Infrastructure Improvements (Potable Water and Sewer Improvements) Constructed by AB Beach Blvd., LLC. (950 10th Street S.)

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to approve the dedication to the City and acceptance for maintenance of the public infrastructure improvements for 950 10th Street South Phase 2 as described in the memorandum from the Public Works City Engineer dated January 13, 2020.

Roll Call Vote: Ayes – Nichols, Vogelsang, Doherty, Dumont, Golding, Hoffman and Mayor Latham
The motion passed unanimously.

Item #20-008 - Award City Bid No. 1920-02, Sanitary Sewer LS-29 Rehabilitation to PBM Constructors, Inc., for Construction Services, and Authorize Construction Administration Services with the Project Design Firm, Four Waters Engineering, Inc.

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to award City Bid No. 1920-02, Sanitary Sewer LS-29 Rehabilitation to PBM Constructors, Inc., for construction services, and authorize construction administration services with the project design firm, Four Waters Engineering, Inc. as described in the memorandum from the Public Works Engineer dated January 13, 2020.

Roll Call Vote: Ayes – Vogelsang, Doherty, Dumont, Golding, Hoffman, Nichols and Mayor Latham
The motion passed unanimously.

Item #20-009 - Public Hearing and City Council Approval of Projects for Inclusion in the FY 2020-2021 Community Development Block Grant (CDBG) Application to the City of Jacksonville

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to approve the Mayor and City Manager to submit a Community Development Block Grant application of fiscal year 2020-2021 as described in the memorandum from the Director of Parks and Recreation dated January 10, 2020.

Mr. Staffopoulos explained the grant is through the City of Jacksonville, and Jacksonville Beach is a sub-recipient. The funds are used to staff and run the Carver Center.
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Roll Call Vote: Ayes – Doherty, Dumont, Golding, Hoffman, Nichols, Vogelsang and Mayor Latham
The motion passed unanimously.

RESOLUTIONS:
Item #20-010 – RESOLUTION NO. 2048-2020

Mayor Latham requested the City Clerk read Resolution No. 2048-2020 by title only, whereupon Ms. Scott read the following:

“A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, ESTABLISHING AND ADOPTING A CODE OF ETHICS FOR PUBLIC OFFICIALS; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES, RESOLUTIONS AND OFFICIAL DECISIONS, AND PROVIDING FOR AN EFFECTIVE DATE.”

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to adopt Resolution number 2048-2020 establishing and adopting a Code of Ethics for Public Officials for the City of Jacksonville Beach.

Mr. Staffopoulos stated they had made some changes pursuant to Mr. Ambrosio’s opinion. Changes were summarized in the agenda memo.

Ms. Golding felt this was very important for Council members and board members. She suggested amending the language to state: “Should any public officials become aware of potential conflicts with this code, they may bring attention to the City Manager, City Attorney or City Council.” Mr. Staffopoulos said this would ensure appointed officials or any board members would understand if something was brought to their attention, they had the authority and responsibility to bring it to the appropriate party.

Mr. Ambrosio agreed to amend the language, as discussed.

Motion: It was moved by Ms. Golding and seconded by Mr. Doherty, to table this item so the City Attorney could incorporate her suggested change.

Voice Vote: Ayes – 7
Nays – 0
The motion passed unanimously.

Item #20-011 – RESOLUTION NO. 2049-2020

Mayor Latham requested the City Clerk read Resolution No. 2049-2020 by title only, whereupon Ms. Scott read the following:

“A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, ESTABLISHING THE RATE FOR ATTORNEY FEES TO BE SOUGHT BY THE CITY ATTORNEY FOR
REIMBURSEMENT UNDER THE CITY CHARTER CHAPTER VI, SECTION 37, AND AS AUTHORIZED BY CONTROLLING CASE LAW."

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to adopt Resolution number 2049-2020 directing the City Attorney to seek reimbursement of the City Attorney's legal services at the prevailing, reasonable hourly rate in which the City, Beaches Energy Services, and the Police Department are a party.

Mr. Staffopoulos said Mr. Ambrosio had brought this to the Council to allow him to seek reasonable rates for his time when litigating or prosecuting for the City. Mr. Ambrosio said the funds recovered would be put back into the City funds.

Roll Call Vote: Ayes – Dumont, Golding, Hoffman, Nichols, Vogelsang, Doherty and Mayor Latham
The motion passed unanimously.

ORDINANCES:
Item #20-012 – ORDINANCE NO. 2019-8130 (Second Reading) (Public Hearing)

Mayor Latham requested the City Clerk read Ordinance No. 2019-8130 by title only, whereupon Ms. Scott read the following:

"AN ORDINANCE AMENDING CHAPTER 8, "CEMETERIES," OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, CODE OF ORDINANCES BY AMENDING SECTION 8-1. "LOTS-PURCHASE EASEMENT FORM;" PROVIDING FOR FINDINGS; DELETING THE TERM "LINEAL;" ADDING THE TERM "COLLATERAL HEIRS;" REVISION THE PURCHASE EASEMENT FORM; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES, AND PROVIDING FOR AN EFFECTIVE DATE."

Public Hearing:
Mayor Latham asked if anyone wished to speak on this item. No one came forward.

Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to adopt Ordinance 2019-8130 following a second reading to revise the Form of Burial Easement to eliminate reference to "lineal descendants" and add "collateral heirs" to enable transfer of burial rights to all descendants and collateral heirs as described in the memorandum from the Director of Parks and Recreation dated December 23, 2019.

Roll Call Vote: Ayes – Golding, Hoffman, Nichols, Vogelsang, Doherty, Dumont and Mayor Latham
The motion passed unanimously.

Item #20-013 - ORDINANCE NO. 2020-8131 (First Reading) (Public Hearing)
Mayor Latham requested the City Clerk read Ordinance No. 2020-8131 by title only, whereupon Ms. Scott read the following:
"AN ORDINANCE AMENDING CHAPTER 34, ARTICLE IV, SECTION 34-41 AND ARTICLE VIII, DIVISION 2, SECTION 34-392 OF THE LAND DEVELOPMENT CODE OF ORDINANCES OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, AMENDING THE DEFINITION OF HOUSEHOLD PETS TO INCLUDE FEMALE CHICKENS, AND AMENDING THE SITE DEVELOPMENT STANDARDS ACCESSORY USES AND STRUCTURES TO PERMIT FEMALE CHICKENS IN RESIDENTIAL ZONING DISTRICTS, ADDING CATS, DOGS, HAMSTERS AND BIRDS AS EXAMPLE HOUSEHOLD PETS; PROVIDING FOR THE REPEAL OF ALL ORDINANCES AND OFFICIAL ACTS IN CONFLICT WITH THIS ORDINANCE; PROVIDING FOR SEVERABILITY; PROVIDING FOR CODIFICATION; AND PROVIDING FOR AN EFFECTIVE DATE."

Mr. Staffopoulos stated Item 20-013 and 20-014 were companion items. Ordinance No. 2020-8131 related to the Land Development Code and Ordinance No. 2020-8132 related to the Code of Ordinances.

Mayor Latham read the following:

“This ordinance for the amendment of the Land Development Code is before this Council for a public hearing and consideration on its first reading. Under the laws of the State of Florida, an ordinance which changes the actual list of permitted, conditional, or prohibited uses within a zoning category, or which otherwise changes the text of the Land Development Code, is a ‘quasi-legislative’ proceeding. A quasi-legislative proceeding means that a governing body is acting in its rule-making capacity.

It is the duty of the Council to arrive at sound decisions regarding the use of property within the City. This includes receiving citizen input regarding the proposed uses within a zoning category.

The application has been reviewed by Staff and the Planning Commission for consistency with other portions of the Land Development Code and the Comprehensive Plan. The Council may hear from all interested parties in the legislative determination of an amendment to the text of the Land Development Code.

The Council’s decision on a text amendment application is based on the criteria set forth in Section 34-211 of the Land Development Code. Each member of the Council has been provided a copy of the criteria."

Public Hearing:
Mayor Latham opened the public hearing on Ordinance No. 2020-8131.

No one came forward to speak.

Mayor Latham closed the public hearing and read the following:

“Before requesting a motion on this ordinance, beginning with myself, each of the members is requested to indicate for the record both the names of persons and the substance of any ex parte
communications regarding this application. An *ex parte* communication refers to any meeting or discussion with a person or citizen who may have an interest in this decision, which occurred outside of the public hearing process.”

Council Members Doherty, Dumont, Hoffman, Nichols, Vogelsang, and Mayor Latham stated they had no ex-parte communication.

Ms. Golding stated she spoke with Alexious Gamel, Katrina Lane and Lindsay Haga, who all support the ordinance, in person and on the phone.

**Motion:** It was moved by Ms. Golding and seconded by Mr. Vogelsang, to adopt Ordinance number 2020-8131 to amend sections 34-41 and 34-392 of the Jacksonville Beach Land Development Code related to permitting hens as household pets.

**Discussion:** Mayor Latham read the following statement for the record:

“Before opening the floor for discussion or questions by the Council, please be reminded that our decision will be based on the criteria set forth in the Land Development Code, Staff’s report, the recommendation of the Planning Commission and the public input at all hearings.”

Ms. Golding stated this was in line with ordinances in Neptune Beach and Atlantic Beach, and she supported it.

Mayor Latham opposed this because he could not imagine anyone wanting to live next door to a property keeping chickens with the attendant noise and odors. He suggested a pilot program for one year.

**Roll Call Vote:** Ayes – Hoffman, Nichols, Vogelsang, Doherty, Dumont, and Golding  
Nays - Mayor Latham  
The motion passed 6-1.

**Item 20-014** ORDINANCE NO. 2020-8132 (First Reading) (Public Hearing)  
Mayor Latham requested the City Clerk read Ordinance No. 2020-8132 by title only, whereupon Ms. Scott read the following:

> “AN ORDINANCE OF THE CITY OF JACKSONVILLE BEACH, FLORIDA AMENDING CHAPTER 5, ANIMALS AND FOWL, ADDING ARTICLE IV. BACKYARD HENS, PROVIDING PURPOSE AND INTENT; PROVIDING DEFINITIONS; PROVIDING FOR GENERAL REQUIREMENTS; REQUIRING PERMITS; PROVIDING FOR PERMITTED ZONING LOCATIONS; PROVIDING FOR ENFORCEMENT; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES; AND PROVIDING FOR AN EFFECTIVE DATE.”

**Public Hearing:**  
Mayor Latham asked if anyone wished to speak on this item. No one came forward.
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Motion: It was moved by Ms. Hoffman and seconded by Mr. Vogelsang, to adopt Ordinance number 2020-8132 to amend Chapter 5, “Animals and Fowl” of the city Code of Ordinances creating a new subsection related to regulating the keeping of hens as household pets on residential property.

Roll Call Vote: Ayes – Nichols, Vogelsang, Doherty, Dumont, Golding, and Hoffman.  
Nays - Mayor Latham  
The motion passed 6-1.

ADJOURNMENT:  
There being no further business, the meeting adjourned at 7:40 P.M.

Submitted by: Laurie Scott  
City Clerk

Approval:

William C. Latham, MAYOR

Date: 

CC200121 mins Page 8 of 8
MEMORANDUM

TO: Mayor and City Council

FROM: Ann Meuse, Director of Human Resources

SUBJECT: City Manager Annual Performance Evaluation and Merit Increase

DATE: January 29, 2020

ACTION REQUESTED
Discuss City Manager's annual performance evaluation and approve merit increase, if recommended.

BACKGROUND
On January 27, 2020, the City Manager completed his first year of employment with the City of Jacksonville Beach. As stipulated in his contract, the City Council is required to review the City Manager's job performance at least once annually. On December 16, 2019, the City Council met and established a process for the City Manager's review and scheduled a briefing for February 3, 2020 to discuss the City Manager's performance. The City Council also requested that an agenda item be placed on the February 3, 2020 City Council agenda regarding the City Manager's performance and approval of a merit increase, if recommended.

RECOMMENDATION
Discuss City Manager's annual performance evaluation and approve merit increase.
MEMORANDUM

TO: Michael J. Staffopoulos, City Manager
FROM: Gene Paul N. Smith, Chief of Police
SUBJECT: Purchase of Replacement Workstations for the Police Department Communications Center
DATE: January 17, 2020

ACTION REQUESTED
Approve the purchase of replacement workstations for the Police Department Communications Center.

BACKGROUND
The Jacksonville Beach Police Department Communications Center workstations are approximately 17 years old. The existing workstations are ergonomically designed and are capable of adjustments which adapt to each user's physical specifications; these adjustments are made via electric motor. Some of the parts to these workstations need to be replaced due to failing motors and normal wear and tear. Since the workstations are 17 years old and have become obsolete, the replacement parts are no longer available. The cost of four new workstations is $59,999.50.

The City of Jacksonville is providing the City of Jacksonville Beach 50% of the cost (up to $7,500 per workstation) to replace the aging workstations using excess fees collected by the State of Florida that have been designated for capital expenses to support and maintain the countywide 9-1-1 system. Jacksonville recently assisted both Atlantic Beach and Neptune Beach with replacement of their furniture to support this overall goal. Therefore, the City of Jacksonville will reimburse the City of Jacksonville Beach 50% of the cost ($29,999.75) for four new workstations.

Funds for the City of Jacksonville Beach's portion are available in the General Fund and will be included in the FY2020 mid-year budget modification.

RECOMMENDATION
Approve the purchase of replacement workstations for the Police Department Communications Center as described in a January 17, 2020, memorandum from Police Chief Gene Paul N. Smith to City Manager Michael J. Staffopoulos.
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<td></td>
<td></td>
<td>Panel Frame items being reused below:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Panel Frame 48h x 30w Qty - 4</td>
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<td></td>
<td>Panel Frame 48h x 36w Qty - 3</td>
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<td>Panel Frame 48h x 42w Qty - 3</td>
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<td>Panel Frame 48h x 60w Qty - 6</td>
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<td></td>
<td>Reusing all Base Covers YES</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Xybix Systems, Inc.
8207 SouthPark Circle
Littleton, CO 80120
Phone: 303-683-5656
Fax: 303-683-5454
Kelley

Terms: NET 30

Quote To:
Acct: JACBEAJAFL
Pam Atkinson
Jacksonville Beach Police Department
1460 Shelter Ave
Jacksonville Beach FL 32250
USA
Phone: (904) 270-1683

Ship To: Jacksonville Beach Police Department
101 South Penman Rd
Jacksonville Beach
FL 32250

Sales Person: HALLEY BARBA
Rep Phone: 800-788-2810
Email: halleyb@xybix.com

NASPO 05715
EAGLE LINE

9 30.19 Adjusted pricing to meet customer budget. KLS
09.27.19- Drawing R2. Remove mobile peds. Heat only My Climate. SN
Updated panel system price, customer is reusing panel frames.
09.14.19 TP
08.12.19- Drawing R1- SN

PLEASE NOTE. OPTIONAL ITEMS ARE NOT INCLUDED IN THE TOTAL PRICE.

PLEASE CONTACT XYBIX TO HAVE ANY OPTIONAL ITEMS INCLUDED IN THE FINAL PRICE.

FREIGHT & INSTALLATION CHARGES WILL BE ADJUSTED ACCORDINGLY.

Xybix is not registered to collect sales tax in the state of FL and any sales tax due on your transaction will need to be paid directly by you to your State agency (this is commonly referred to as USE Tax).
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>QTY</th>
<th>EA</th>
<th>Unit Price</th>
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<tbody>
<tr>
<td>2.00</td>
<td>Panel Frame Connector 48h - 2way 90d Qty - 5</td>
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<td>3.00</td>
<td>Adj. Table Worksurface - Corner Dual Surface - 75L x 78R 10 RV - Cable Management Included Qty - 1</td>
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</tr>
<tr>
<td>3.00</td>
<td>L5 Table Base</td>
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<tr>
<td>4.00</td>
<td>Monitor Mount 2 - Rollievision - Corner Dual Surface - 75L x 78R 10 RV - 16127 - Std VESA Mount 2 Hi 2 Knuckle Qty = 4 Total $2700</td>
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<tr>
<td>5.00</td>
<td>Ext Cable Monitor - TBD</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5.01</td>
<td>Lift Case additional Energy Chains NO PULL</td>
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<td>5.02</td>
<td>Energy Chain 22-46 Monitor Surface</td>
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<td>Power Bar - 10 Outlet With Orange Sticker</td>
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<td>7.00</td>
<td>Task Light Pair LUX2 LED My Climate</td>
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<td>8.00</td>
<td>Shelf Under Surface 19W x 9D - Metal</td>
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<td>Shelf Under Surface USB Charging Upgrade Assembly</td>
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<td>9.00</td>
<td>Stand Alone Forced Air Heat 250W X2 = 500W</td>
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<tr>
<td>10.00</td>
<td>Flip Top Return Worksurface - 18Wx36D</td>
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<td></td>
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<tr>
<td>10.01</td>
<td>Flip Top Return Worksurface - 24Wx36D</td>
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<td>10.02</td>
<td>Flip Top Return Worksurface - 30Wx36D</td>
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<td>Return Worksurface - 30Wx36D</td>
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<tr>
<td>11.00</td>
<td>Cable Bridge Corner Angled Left Side</td>
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<tr>
<td>11.01</td>
<td>Cable Bridge Corner Angled Right Side</td>
<td></td>
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<td>Quantity</td>
<td>Unit</td>
<td>Price</td>
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<td>-----------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------</td>
<td>------</td>
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<td>-------</td>
</tr>
<tr>
<td>11.02</td>
<td>CPU Cabinet - ERGO ACCESS Under Work Surface 18Wx33D With Flip Top Hinge</td>
<td>3.0</td>
<td>EA</td>
<td>$1,218.00</td>
<td>$3,654.00</td>
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<tr>
<td>11.03</td>
<td>CPU Cabinet - ERGO ACCESS Under Work Surface 24Wx33D With Flip Top Hinge</td>
<td>3.0</td>
<td>EA</td>
<td>$1,463.00</td>
<td>$4,389.00</td>
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<tr>
<td>11.04</td>
<td>CPU Cabinet - ERGO ACCESS Under Work Surface 30Wx33D With Flip Top Hinge</td>
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<td>$1,478.00</td>
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<td>16.00</td>
<td>Storage Cabinet - Under WS W/Toekick - 30W, 28H, 22D</td>
<td>1.0</td>
<td>EA</td>
<td>$1,051.00</td>
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<tr>
<td>90.00</td>
<td>Installers Kit Eagle Line</td>
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<td>EA</td>
<td>$0.00</td>
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<tr>
<td>99.00</td>
<td>Other Charges &amp; Services</td>
<td>1.0</td>
<td>EA</td>
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<td>$0.00</td>
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<td><strong>Line(24) - Miscellaneous Charge -</strong></td>
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</tr>
<tr>
<td></td>
<td>Freight - Full Truck Non-Taxable</td>
<td></td>
<td></td>
<td>$4,895.00</td>
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<tr>
<td></td>
<td>Installation - Non-Taxable</td>
<td></td>
<td></td>
<td>$6,100.00</td>
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</tr>
</tbody>
</table>

**List Price Total:** $98,009.00  
**Lines Total:** $49,004.50  
**Line Miscellaneous Charges Total:** $10,995.00  
**Quote Total:** $59,999.50

**Note 1:**  
All quoted taxes are estimated. Any applicable taxes, fees, permits, etc. must be added to this quote.

**Note 2:**  
Where installation is listed on quote it is based in non-union labor and on one trip for installation only. Client is responsible for the coordination of Technicians and other Vendors/Contractors. Waiting time will be charged at the rate of $75 per man hour straight time and $115 per man hour for OT plus subsistence expenses. Additionally, this quote is based upon a remodel in an existing space and/or new building - completely finished with a Certificate of Occupancy. Any project where the General Contractor is still on the job is subject to additional charges.

We appreciate this opportunity to provide this quote. Our goal is to substantially improve your working conditions for your valuable staff. We look forward to meeting with you to review this proposal in detail. In the meantime please don’t hesitate to call us with any questions.
FINISH SELECTIONS

Panel Trim: Black
Panel Fabric Upper: COLOR
Panel Fabric Lower: COLOR
3D Laminate Counter: COLOR
3D Laminate Drawer & Door Front: COLOR
Melamine: COLOR
Edgeband: COLOR
Handle: COLOR

REV DESCRIPTION DATE
0 Drawing Creation 07.24.19
1 New Layout 08.09.19

Sign Off Approval: Furniture orders and product installation shall not proceed until the Client has given approval to these documents. Approval of the Client shall constitute approval of the drawings for contracts, scope of work and all dimensions regarded by the Client as being necessary to the use of space, furnishings, and equipment. Furniture orders, or product installations authorized by the Client from these documents, shall be interpreted by Xybix as approval in full to these documents by the Client. Revisions after approval shall result in additional costs.

Signature: Date:

Title:

Opportunity: 0021490  
Drawing Name: COVER PAGE  
Scale: 12" = 1'-0"  
SIGN-OFF INITIALS:

Sheet: 1 of 4
# EXTENSION CABLE CONNECTIONS

## CABLE TYPE

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>QTY Needed</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA</td>
<td>3</td>
<td>25 ft, 2mm 24mm Extension BNC connector, for power only</td>
</tr>
<tr>
<td>DVI-D</td>
<td>2</td>
<td>25 ft, 2mm 24mm Extension BNC connector, for power only</td>
</tr>
<tr>
<td>HDMI</td>
<td>2</td>
<td>25 ft, 2mm 24mm Extension BNC connector, for power only</td>
</tr>
<tr>
<td>DisplayPort</td>
<td>1</td>
<td>25 ft, 2mm 24mm Extension BNC connector, for power only</td>
</tr>
<tr>
<td>DB-9</td>
<td>1</td>
<td>6 ft, 2mm 24mm Extension BNC connector, for power only</td>
</tr>
<tr>
<td>USB</td>
<td>1</td>
<td>6 ft, 2mm 24mm Extension BNC connector, for power only</td>
</tr>
<tr>
<td>AUDIOP</td>
<td>1</td>
<td>6 ft, 2mm 24mm Extension BNC connector, for power only</td>
</tr>
</tbody>
</table>

## DATA DOCK

For Keyboard, Mouse and Phone connection. Data Dock USB Cables are exclusively sold through Xybix only.

Standard Data Dock System will include:
1. CAT6 coupler
2. Dual-USB Ports (8 ports total)

## STANDARD SHOWN

![Cable Connections Diagram]

## OPTIONAL ITEMS

### ADDITIONAL DATA DOCK CABLES

Indicate the number of each cable to be included in addition to the standard Data Dock.

<table>
<thead>
<tr>
<th>Cable Type</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB</td>
<td></td>
</tr>
<tr>
<td>CAT6</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** These cables will be charged separately.

**NOTE:** There are only 5 available spaces for these options.

<table>
<thead>
<tr>
<th>Power-Only USB</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location: shelf under monitor surface</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If different cable connector types are required, it is your responsibility to contact your designer or sales rep.

*** You agree that any changes to this order following receipt of sign-off drawing and PO may result in additional cost that will be expensed to the client ***
MEMORANDUM

TO: Mike Staffopoulos, City Manager

FROM: Allen Putnam, Director of Beaches Energy Services

SUBJECT: RFP No. 08-1819 Phase 2 – Remaining Design-Build Services for Sampson Substation Autotransformer No. 2 Replacement

DATE: January 22, 2020

ACTION REQUESTED

Approve an amount not to exceed $2,915,000 to Burns & McDonnell for the lump sum contract price for all remaining engineering services, procurement of all remaining materials, and construction for the design-build Contract for Sampson Substation Autotransformer No. 2 Replacement Project.

BACKGROUND

All three (3) autotransformers at our Sampson substation (TR1, TR2 and TR3) were taken out of service due to unplanned repairs throughout 2018. All three (3) transformers are currently back in service, but TR1 & TR2 are nearing 40 years of service. Beaches Energy Services procured a replacement transformer for TR2 earlier this year. This transformer is substantially manufactured and is now in the process of being tested.

In October 2019, the City Council authorized Beaches Energy to begin contract negotiations with Burns & McDonnell to determine a mutually agreed upon price to complete this design-build project. In December 2019, the City Council authorized Beaches Energy to issue a Purchase Order not to exceed $150,000 to Burns & McDonnell to complete preliminary engineering necessary to obtain accurate material quotes and construction subcontractor bids with minimal risk built into the overall contract price.

Burns and McDonnell evaluated the material quotes and construction bids and selected the most economical options with respect to price and the project schedule. After estimating their engineering and project management effort on a time and materials basis, they proposed a lump sum price in the amount of $2,650,000. Beaches Energy added a 10% contingency in the amount of
MEMORANDUM
RFP No. 08-1819 Phase 2 – Remaining Design-Build Services for Sampson Substation Autotransformer No. 2 Replacement
January 22, 2020

$265,000 to account for any unforeseen issues that would be out of the control of Beaches Energy Services, Burns & McDonnell or any of its subcontractors. This contingency will not be utilized unless Beaches Energy authorizes a Change Order.

The “Design-Build”, or “Engineer, Procure & Construct” (EPC) approach, as it is also referred, was selected by Beaches Energy to facilitate a project that is fully managed by a single firm such that the City is provided with the most economical and timely project delivery available. Leidos Engineering is providing oversight of the project as our Owner’s Engineer to ensure that all decisions are in the best interest of Beaches Energy and the customers that we serve.

Engineering and procurement are scheduled to start immediately upon receiving City Council approval. Construction is scheduled to start in July and be completed in October 2020 barring any unforeseen significant weather delays or outage request approvals from the Florida Reliability Coordinating Council Reliability Coordinator.

Sufficient funding is available in the Electric Utility Fund operating reserves. The budget will be amended as part of the FY2020 mid-year budget adjustment. (410-12-1229-531-63-563000 - E20T03)

RECOMMENDATION

Approve an amount not to exceed $2,915,000 to Burns & McDonnell for the lump sum Contract price for all remaining activities associated with the design-build Contract for Sampson Substation Autotransformer No. 2 Replacement Project.
January 28, 2020

Mr. Jamison Parker
Beaches Energy Services
1460 Shetter Avenue
Jacksonville Beach, FL 32250

Re: Sampson T2 Transformer Replacement Project – EPC

Mr. Parker,

Thank you for the opportunity to provide Beaches Energy Services with our Lump Sum Proposal related to the Sampson T2 Transformer Replacement Project. This lump sum proposal includes all engineering, procurement construction and testing for the above-mentioned project. We are submitting this proposal electronically for your review and approval.

Burns & McDonnell has assembled a very experienced team to execute this project. As you know, we are eager to maintain our long-lasting partnership with Beaches Energy Services, and we believe this project presents a great opportunity to continue that partnership.

Please feel free to contact me at (321) 280-5818 or via email at emartinez@burnsmcd.com if you have any questions about our proposal. We appreciate your consideration and look forward to working with you on this project.

Sincerely,

[Signature]

Richard Mahaley
Vice-President / Orlando
Office Manager

Cc: Stacy Price, Regional Global Practice Manager
Matthew Kapusta, Department Manager, Orlando Office
Esteban Martinez, Project Manager
Sampson Transformer T2 Replacement Scope of Work
Revision 0

Engineering Scope

Burns & McDonnell (BMcD) will develop a full engineering package for the Sampson T2 Replacement Project based on the previously developed 30% Engineering Package. The engineering package consists of all physical, civil and protection/controls drawings needed for the project.

The project scope consists of replacing the existing 230/138kV T2 Transformer with an owner provided 230/138kV Autotransformer. The scope also includes replacing two (2) 230kV line disconnect switches, one (1) 230kV transformer disconnect switch, and two (2) 138kV transformer disconnect switches.

The project is a full EPC (turnkey) project. The Engineering packages will consist of the following:

- Plan and Section Views
- Foundation Layout to include the following equipment:
  - New T2 Transformer Slab
  - Existing Transformer Temporary Location Slab
  - Station Service Transformer including the Automatic Transfer Switches Foundations
  - Oil Containment Curb including SPCC Plan
  - Station Service Transformer Foundation
  - AC Panel Foundations
- Grounding Layout
- Conduit Layout
- AC Station Service One Line
- DC Station Service One Line
- AC and DC Schematics
- AC and DC Wiring Diagrams
- Custom Relay Panel Layout including BOM
- Preliminary Cable List
- SSVT Addition including low side upgrade
- Relay Settings
- Survey Support
- Miscellaneous Materials Specifications
**Procurement**

As part of this proposal, BMcD scope includes the procurement of the materials listed under BMcD in the 30% Bill of Materials spreadsheet (see Attachment 1). This includes the following:

- Bus and Cable Connectors
- Power and Controls Cables
- Steel Structures
- AC Panelboards
- Automatic Transfer Switches
- Safety Switches
- Relay Panel Inserts
- Misc. Control Equipment
- Station Service Voltage Transformer (SSVT)

BMcD did competitive bids for all procurement packages and evaluated each bid for both technical and commercial compliance. A recommendation was presented to BES for each of the packages and these recommendations were accepted.

**Subcontractors**

BMcD has partnered with C&C Powerline Inc. to perform all construction work for this project. C&C Powerline Inc. attended a site visit with BMcD and BES to discuss the project scope and identify any potential issues that might be encountered during the project execution phase. BMcD then provided a 30% Design Bid Package as the basis for C&C Powerline Inc. to develop their pricing.

BMcD then met with C&C Powerline Inc. to discuss the project schedule and confirm everything needed was included in their price. A summary of the construction scope is below:

- Furnish labor, equipment and supervision
- Install all foundations per plans and specs
- Installation of conduits and grounding
- Removal and replacement of five (5) disconnect switches
- Remove and relocate existing T2 transformer
- Install control cables per schedule
- Furnish electricians to support the P&C testing done by others
- Installation of the SSVT equipment
• Install all low voltage AC equipment
• Install all bus and fittings
• Test control cables
• Cut existing relay panel to retro fit new relay panel

C&C Powerline also provided option pricing for the following scope:
• Remove, dispose and haul nine (9) concrete poles that are currently inside the fence line
• Fifty (50) control cable removals within the control house
• Fifty (50) control cable removals from the control house to the yard equipment

BES stated these two options will be exercised as part of this project.

For the Testing and Commissioning scope of work, BMcD partnered with HeatSinc to perform all testing and commissioning for the disconnect switches and relay panel additions, as well as the controls portion of the Transformer installation.

Schedule

BMcD has put together a Level 1 Schedule for the execution of the project. The schedule includes all activities starting from Proposal Due Date to Final Completion and Project Close-out (see Schedule attached to this Scope of Work).

Schedule assumes outages will be made available in support of the provided dates:

• Outage T1 – Disconnect Switches: July 7, 2020-July 10, 2020
• Nightly Outage – Line Switch 8G57: July 13, 2020-July 14, 2020
• Nightly Outage – Line Switch 8G5: July 16, 2020-July 17, 2020
• Outage T2 – Disconnect Switch and Transformer: July 20, 2020-August 21, 2020

Construction Mobilization Date is scheduled for May 29, 2020 with a Construction Demobilization Date of August 28, 2020.

Lump Sum Price

BMcD has included all engineering, procurement, construction, testing and commissioning, project management and construction management in the Scope of Work of the Project. These costs were presented to BES as part of the open book process. After discussion, BMcD and BES have agreed to a total lump sum project price of Two Million Six Hundred Fifty Thousand Dollars ($2,650,000.00) for the performance of the Work, subject to additions and deductions by Change Order in accordance with the Agreement.
BMcD is providing a Milestone Payment Schedule as part of the Agreement.

**Assumptions and Clarifications**

BMcD is including the following Assumptions and Clarifications as part of this proposal:

- No permits are needed for the execution of this Work therefore permitting effort is not included.
- Equipment provided by BES will be available in support of the Schedule.
- Outage dates will be available as requested in the Schedule. Any delay or outage postponement has not been accounted for in this Proposal.
- Outages except the line disconnect switches are assumed to be done during regular working hours of 7am to 5:30pm Monday-Friday.
- No road work or repairs are included.
- No dewatering is included in the Proposal.
- No contaminated soil encountering or removal/disposal is included.
- Auto-transformer T2 delivery, installation, dressing and manufacture testing to be performed by others.
- Project Award will be executed prior to February 18, 2020 as our equipment bids validity expires after this date.
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<th>Activity Name</th>
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<td>21-Aug-20</td>
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<td>11 Disconnect Switch Testing/Commissioning</td>
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<td>Lessons learned</td>
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<td>12-Oct-20</td>
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<td>A2110</td>
<td>Closeout Documents to Owner</td>
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<td>13-Oct-20</td>
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Agreement
DESIGN-BUILD AGREEMENT FOR SAMPSON SUBSTATION
AUTOTRANSFORMER NO. 2 REPLACEMENT 2019
FOR CITY OF JACKSONVILLE BEACH d/b/a BEACHES ENERGY SERVICES

This Design-Build Agreement ("Agreement") is entered into by and between the City of Jacksonville Beach (d/b/a Beaches Energy Services), 11 North 3rd Street, Jacksonville Beach, FL 32250 ("Client"), and Burns & McDonnell Engineering Company, Inc., a Missouri corporation headquartered at 9400 Ward Parkway, Kansas City, MO 64114 ("Contractor") (each a "Party", and together the "Parties"), effective as of February 4, 2020 ("Effective Date"), and shall govern the Parties’ performance, obligations, and rights in connection with the design and construction of the Client’s Sampson substation autotransformer No. 2 replacement located at 2725 County Road 210 St. Johns, FL 32259 (the "Project"), awarded in accordance with the Client’s RFP # 08-1819.

In consideration of the mutual covenants and obligations contained herein, Client and Contractor agree as follows:

1. **Scope of Work.** Contractor shall provide all supervision, labor, tools, materials and equipment to perform or cause to be performed all services described in Exhibit A, as well as clarifications and assumptions, for the Project ("Work").

2. **Contract Documents.** The Contract Documents consist of this Agreement, any agreed Change Orders and amendments to the Agreement, and any attachment, drawings and specifications prepared by Contractor and approved by Client depicting the Work, all of which are a part of the agreement between the Parties as if fully repeated herein.

3. **Compensation.** Client shall pay Contractor the firm-fixed price sum of **Two Million Six Hundred Fifty Thousand Dollars** ($2,650,000.00) for the performance of the Work, subject to additions and deductions by Change Order in accordance with the Agreement ("Contract Price"). The Contract Price includes applicable sales, use and consumer taxes mandated by law. Additional Contract Price details are as set forth in Exhibit B.

4. **Invoicing.** Following execution of the Agreement, Contractor shall submit to Client an application for payment ("Application for Payment") requesting payment for the portion of the Work furnished and completed previously and remaining unpaid on a milestone basis as set forth in Exhibit B. Each such Application for Payment shall be accompanied by conditional lien waivers (in the form set forth in Exhibit E) from Contractor’s subcontractors who perform any Work and suppliers who provide any materials or equipment for the Project through the date of the Application for Payment.

5. **Payment.** As a condition precedent for any payment due under this Agreement, the Contractor shall submit to the Client a proper Application for Payment requesting payment for services rendered and due hereunder on a milestone basis. Payment shall be made within thirty (30) days after the date on which Client receives the invoice. If a portion of any Application for Payment is disputed, Client shall pay the undisputed portion by the due date and then advise Contractor in writing, within seven (7) days of receipt of Contractor’s Application for Payment,
of the basis for withholding any disputed portion. Timely payment is a material part of the consideration of the Agreement. Payments due and unpaid by Client shall bear interest commencing the day after payment is due at the rate of one and one-half percent (1.5%) per month until paid. Client reserves the right, in the event a claim is made against Client arising out of the performance of the Work, to withhold payments due to or which may become due to Contractor in such amounts as are necessary to protect the Client from liability retained by or transferred to Contractor in the Agreement. When the grounds for withholding payments are removed, payment of such withheld amounts shall be made.

6. **Changes.** The Agreement may only be amended, supplemented or modified by a written modification or change to this Agreement executed by both Parties ("Change Order"). Client may direct Contractor to perform changed or additional Work prior to issuing a Change Order; provided that, such direction shall be in writing and Contractor's performance of such Work prior to receiving a Change Order shall not prejudice Contractor's right to an equitable adjustment in Contract Price and/or Contract Time. No adjustment in price or time will be made without prior written approval from Client.

7. **Warranty.** Contractor agrees to provide the construction portion of the Work in accordance with the requirements of the Contract Documents consistent with good construction industry standards and practices. Contractor's professional services (including, as applicable to the Work, design, architecture, engineering, surveying, planning and management) shall be performed consistent with customarily accepted professional practice with the degree of skill, care, and diligence, which a professional of the same type would exercise under the same or similar circumstances, in the same locale, and in conformance with the Contract Documents. During the Warranty Period defined below, the Contractor warrants to Client that construction Work performed under the Agreement will be of good quality and construction workmanship will be free from defects not otherwise inherent in the quality required or permitted. During the Warranty Period, the Contractor warrants to Client all materials and equipment furnished by Contractor as part of the Work shall be new (unless otherwise specified in the Contract Documents), of good quality, and in conformance with the Contract Documents. For equipment procured by Contractor, Contractor shall assign all manufacturer's warranties to Client upon Substantial Completion and payment in full, except for the value of punch list work. Client agrees to look to the manufacturer for any recourse related to the quality or performance of such procured equipment. Contractor shall assist Client in obtaining performance by such manufacturer(s) during the Warranty Period, but shall have no liability for defect in such equipment. Upon written notice from Client received during the Warranty Period, Contractor agrees to correct any defective Work. This warranty excludes damage or defect caused by Client's abuse, modifications performed by third parties, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. Contractor's warranty obligations shall begin on the date when the Work is ready to be energized, as agreed by both Parties on the certificate of substantial completion ("Substantial Completion"), and such duration shall end twelve (12) months thereafter ("Warranty Period"). The warranties and remedies provided herein are in lieu of all other warranties, whether express or implied, including the warranties of merchantability and fitness for a particular purpose. All Contractor liability shall end upon expiration of the Warranty Period.
The Parties understand and acknowledge that Client is providing certain equipment and/or work for the Project through Client’s separate vendors and contractors, as further described in Exhibit C ("Client-Provided Equipment"), the delivery, condition, and schedule of which will have a direct impact on Contractor’s Work and the Project schedule. The roles, obligations and liabilities of Client’s separate vendors, contractors, and other third parties under separate agreements with Client related to the Project remain solely with those parties. Contractor does not guarantee the performance of or warrant the work, work product, or deliverables of any of Client’s separate vendors or other contractors. Contractor only warrants its construction Work related to the Client-Provided Equipment or separate work, and Client shall look solely to its separate vendors and contractors for the warranty and other obligations related to the Client-Provided Equipment.

8. **Intellectual Property Rights.** Contractor shall retain all ownership rights, title, and interest in and to all drawings, specifications, reports and related documentation, all information, processes, data, compilations, designs, and other material prepared, owned, licensed to, or developed by Contractor or existing before execution of this Agreement in performance of the Work ("Work Product"). Subject to Client’s payment of the Contract Price, Contractor hereby grants to Client an irrevocable (except in the event of a breach of this license) non-exclusive, royalty-free license to utilize the Work Product to the extent necessary for the construction, operation, maintenance, or repair of the Project for which they were prepared and intended. Client shall not acquire any rights to any of Contractor’s or its subcontractors’ proprietary computer software that may be used in connection with the Work except as may be separately agreed. The Work Product entails instruments of service in respect to the Project, and Client shall not reuse the Work Product on any other project. If Client alters or uses the Work Product in violation of this restriction, and without the express written consent of the Contractor, then to the fullest extent permitted by law, Client shall defend, indemnify and hold harmless Contractor, its design consultants and subcontractors from and against any and all claims, damages, liabilities, losses, and expenses, including reasonable attorneys’ fees, to the extent resulting from the unauthorized use or alteration of the Work Product.

9. **Non-Infringement.** Contractor represents that (1) the Work will not infringe or misappropriate any intellectual property rights of any third party; (2) the Contractor has all rights and licenses necessary to convey to Client the ownership of or license rights to use, as required under the Agreement, all intellectual property rights in drawings, specifications and other materials delivered to Client and (3) no drawings, specifications and other materials delivered to Client, nor their use by Client, will infringe or constitute an infringement or misappropriation of any intellectual property rights of any third party. Client represents that Client either possesses or will obtain permission regarding any and all necessary rights in intellectual property or other proprietary rights for any information including, but not limited to, all reports, plans or specifications prepared by others provided to the Contractor which Contractor has need to use, copy or adapt for performance of the Work. Client grants to Contractor (and its subcontractors and suppliers) a perpetual, worldwide, non-exclusive, paid-up, transferable license to use, copy, or modify such intellectual property solely as needed to enable Contractor (or its subcontractors and suppliers, as applicable) to perform the Work. Contractor’s obligations under this paragraph will not apply to any drawing, product, specification, or other materials selected, requested, or controlled by Client.
10. Contractor General Indemnity. EXCEPT AS SET FORTH BELOW, TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR AGREES TO INDEMNIFY AND DEFEND CLIENT FROM AND AGAINST COSTS, DAMAGES, AND EXPENSE (INCLUDING REASONABLE ATTORNEYS’ FEES AND LITIGATION COSTS) INCURRED BY CLIENT ARISING FROM BODILY INJURY (INCLUDING DEATH) OR THIRD PARTY PROPERTY DAMAGE BUT ONLY TO THE EXTENT CAUSED BY THE NEGLIGENT OR WRONGFUL ACTS OR OMISSIONS OF CONTRACTOR OR ANYONE FOR WhOSE ACTS CONTRACTOR IS LIABLE.

11. Contractor Professional Indemnity. TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR AGREES TO INDEMNIFY CLIENT AGAINST COSTS, DAMAGES, AND EXPENSE (INCLUDING REASONABLE ATTORNEYS’ FEES AND LITIGATION COSTS) RESULTING FROM CLAIMS BY THIRD PARTIES FOR PERSONAL INJURY (INCLUDING DEATH) OR PROPERTY DAMAGE TO THE EXTENT CAUSED BY THE NEGLIGENT ACTS OR OMISSIONS OF CONTRACTOR IN THE PERFORMANCE OF PROFESSIONAL DESIGN AND ENGINEERING SERVICES AS PART OF THE WORK UNDER THE AGREEMENT. THE INDEMNITY OBLIGATION UNDER THIS PARAGRAPH SHALL NOT INCLUDE A DUTY TO DEFEND, AND CONTRACTOR SHALL NOT BE OBLIGATED TO INDEMNIFY CLIENT FOR ITS RESPECTIVE NEGLIGENCE OR WILLFUL MISCONDUCT.

12. Client General Indemnity. TO THE FULLEST EXTENT PERMITTED BY LAW, CLIENT AGREES TO INDEMNIFY AND DEFEND CONTRACTOR FROM AND AGAINST COSTS, DAMAGES, AND EXPENSES (INCLUDING REASONABLE ATTORNEYS’ FEES AND LITIGATION COSTS TO THE EXTENT PERMITTED BY FLORIDA LAW) INCURRED BY CONTRACTOR ARISING FROM BODILY INJURY (INCLUDING DEATH) OR THIRD PARTY PROPERTY DAMAGE BUT ONLY TO THE EXTENT CAUSED BY THE NEGLIGENT OR WRONGFUL ACTS OR OMISSIONS OF CLIENT, ITS SEPARATE CONTRACTORS, OR ANYONE FOR WHOM ACTS CLIENT IS OR MAY BE LIABLE. NOTHING CONTAINED IN THIS AGREEMENT IS IN ANY WAY INTENDED TO BE A WAIVER OF THE LIMITATION PLACED UPON THE CITY OF JACKSONVILLE BEACH’S (CITY) OR BEACHES ENERGY SERVICES’ (BES) LIABILITY, RIGHTS OR REQUIREMENTS AS SET FORTH IN SECTION 768.28, FLORIDA STATUTES. ADDITIONALLY, THE CITY AND BES DO NOT WAIVE SOVEREIGN IMMUNITY, OR THE LIMITATIONS AFFORDED THE CITY AND BES AS TO ATTORNEY’S FEES, INVESTIGATIVE COSTS AND PRE-JUDGMENT INTEREST.

13. Intellectual Property Indemnity. EACH PARTY AGREES TO DEFEND AND INDEMNIFY THE OTHER PARTY AND ITS RESPECTIVE OFFICERS, DIRECTORS, OR EMPLOYEES FROM ALL LIABILITY, COSTS, EXPENSE, OR DAMAGES (INCLUDING REASONABLE ATTORNEY’S FEES) CAUSED BY A BREACH OF THE NON-INFRINGEMENT WARRANTY IN THIS AGREEMENT ARISING OUT OF ANY THIRD PARTY CLAIM THAT THE OTHER PARTY INFRINGED OR MISAPPROPRIATED ANY INTELLECTUAL PROPERTY RIGHT OF ANY THIRD
PARTY. Contractor will have no obligation to defend or indemnify Client, or others for any loss or liability arising from any suit or proceeding based on or arising out of a configuration or modification, product, equipment, or material made, specified, or requested by Client; the use of the items delivered or supplied by Contractor or Client in a process or application specified, requested, or controlled by Client or any third parties; or the use by Client of the items delivered or supplied by Contractor in combination with other equipment, software, or materials not supplied by Contractor where such combination give rise to the claim of infringement.

14. Insurance. Before commencing the Work, as part of the Contract Price and a condition of payment, Contractor shall purchase and maintain insurance as described below with an A.M. Best financial strength rating of “A-VII” or better, that will protect Contractor from claims, alleging bodily injury or property damage caused by the Work performed by Contractor.

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>Coverage Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial General Liability</td>
<td>$1,000,000 each occurrence and annual aggregate.</td>
</tr>
<tr>
<td>Business Auto Liability</td>
<td>$1,000,000 per accident</td>
</tr>
<tr>
<td>Worker’s Compensation</td>
<td>Statutory</td>
</tr>
<tr>
<td>Employer’s Liability</td>
<td>$1,000,000 each accident/each employee/policy limit</td>
</tr>
<tr>
<td>Professional Liability</td>
<td>$1,000,000 per claim and annual aggregate</td>
</tr>
<tr>
<td>Contractor’s Pollution Liability</td>
<td>$1,000,000 Per Claim Limit; $1,000,000 Aggregate Policy Limit</td>
</tr>
<tr>
<td>Builder’s Risk Insurance</td>
<td>Full Value of Lump Sum Contract Price</td>
</tr>
</tbody>
</table>

a. Contractor shall furnish Client with certificates of insurance evidencing insurance coverage as required herein. Contractor’s insurance shall remain in effect for the Warranty Period, with exception of the Builders Risk Insurance which will expire at Substantial Completion. Contractor shall promptly notify the Client of any change in insurance coverage or policy terms that would be in direct conflict with the requirements herein during the duration of this Agreement and the Warranty Period.

b. Contractor shall be responsible for all deductibles and retentions with regard to its insurance. In the case of loss or damage or other event that requires notice or other action under the terms of any insurance coverage described above, Contractor will be solely responsible for taking such action. Client shall be responsible for all deductibles and retentions with regard to its insurance.

c. Contractor shall provide and maintain Builder’s Risk insurance for the full amount of the Work on a replacement cost basis during construction and until Substantial Completion of the Work. Contractor shall be responsible for all deductibles for the Builder’s Risk insurance except to the extent Client or a force majeure event (i.e., catastrophic loss) is the cause of covered damage.
d. Client shall either self-insure or obtain and maintain its own liability insurance for protection against claims arising out of the performance of this Agreement, including without limitation, loss of use and claims, losses, and expenses arising out of the Client’s errors or omissions. Client shall purchase and maintain property insurance for the full replacement value of the existing property at the Project site and its contents or self-insure the property and its contents at the Project site. Contractor shall have no risk of loss or liability for damage to any existing property or the contents at the Project, the Project site, or the Work upon Substantial Completion (as evidenced by the mutually agreed Certificate of Substantial Completion). Upon Substantial Completion of the Work, Client shall obtain or maintain property insurance on or self-insure the completed Project, including the Work. The Client, and any other user or owner of the property procuring property insurance related to the Project site or completed Work, shall waive all rights against Contractor and subcontractors and suppliers of any tier for damages caused by fire or other causes of loss insured in whole or in part under any property insurance provided or maintained by Client or such other user or owner, or that could be covered by property insurance if self-insured. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

15. Termination for Convenience. Notwithstanding anything contained herein to the contrary, Client shall have the right to terminate this Agreement at any time and for any reason, without cause, upon at least thirty (30) days prior written notice to Contractor. If Client elects to terminate the Work under this provision, Contractor shall be entitled to compensation for all Work performed prior to such termination and all related charges and expenses accrued at the time of termination including, without limitation, the reasonable cost of terminating existing subcontracts, reasonable demobilization costs, reasonable costs of any incidental or “close-out” work necessary and approved by the Client, cancellation charges for materials or equipment on order or under rental in connection with the Work at the time of termination and which cannot, despite Contractor’s diligent efforts, be avoided or cancelled.

16. Termination for Cause. Either Party shall have the right to terminate this Agreement at any time due to the other Party’s material breach of any provision. In the event of such breach, the non-breaching Party shall send the breaching Party written notice of breach describing how the Party breached this Agreement. If the breaching Party does not cure such breach within ten (10) days of receiving such notice, then the non-breaching Party may declare the breaching Party in default; provided, however, if such breach cannot be reasonably cured within ten (10) days, the breaching Party shall not be in default unless such Party fails to commence to cure such breach within ten (10) days and fails to diligently continue to pursue such cure through completion. Upon default by either Party, the non-breaching Party may immediately terminate this Agreement by written notice.

17. Disputes. The Parties agree that all claims, disputes and disagreements (“issue”) in relation to their performance and obligations pursuant to this Agreement shall be attempted to be resolved by meet and confer sessions between representatives of each of the Parties within fifteen (15) days of providing first notice to the other Party of the issue. The meet and confer session may include any other necessary persons that could facilitate a solution
to the issue. If a meet and confer session does not resolve the issue to the satisfaction of the Parties, the Parties shall endeavor to settle the dispute by mediation under the Construction Industry Mediation Rules of the American Arbitration Association before recourse to formal dispute resolution in the form of a lawsuit (or otherwise as mutually agreed). The Parties agree to conclude such mediation within ninety (90) days of filing the request, unless otherwise agreed in writing. Mediation may include third parties who agree to participate in writing. The Parties agree to share the mediator’s fee and any filing fees equally, but each Party shall bear its own attorneys’ fees. Any Party shall have the right to seek such relief or remedy as may be provided by this Agreement or by Florida law for any issues which are not first resolved by mediation. This provision does not negate or waive the provisions concerning termination or cancellation of the Agreement.

18. Limits of Liability

a. In no event shall Client or Contractor be liable to the other Party for any special, incidental, exemplary or consequential damages including, but not limited to, delay, disruption, loss of product, loss of anticipated profits or revenue, loss of use of the equipment or system, non-operation or increased expense of operation of other equipment or systems, cost of capital, or cost of purchase or replacement equipment, systems or power, whether arising in contract, tort, strict liability, warranty or otherwise.

b. To the fullest extent permitted by law, Client’s aggregate liability to Contractor for any and all claims, losses, and damages relating to or arising from the Client’s obligations under this Agreement, that are found to be caused by the Client, shall be limited to the value of the Contract Price. Provided, however, that this clause shall not apply to or limit Client’s responsibility to make payments to Contractor for Work properly performed in accordance with this Agreement.

c. To the fullest extent permitted by law, Contractor’s aggregate liability to the Client for any and all claims, losses, and damages relating to or arising from the Work under this Agreement, that are found to be caused by the Contractor or its subcontractors, shall be limited to two times the total Contract Price actually received by Contractor, not to exceed Five Million Dollars ($5,000,000).

d. **Pursuant to Fla. Stat. § 558.035, Individual Employees and Agents of Contractor May Not Be Held Individually Liable for Negligence.** Therefore, as applicable to professional services performed as part of the Work by or through Contractor under this Agreement, Client agrees not to sue any individual employee, agent, officer or director of Contractor (nor of Contractor’s applicable subcontractors) in their individual capacity for negligence, warranty, or any other breach of contract associated with this Agreement. Individual employees, agents, officers or directors of Contractor (or of Contractor’s
applicable subcontractors) shall be intended third party beneficiaries of any limitation of liability set forth in this Agreement.

19. **Compliance with Laws.** Contractor shall comply with applicable laws pertaining to occupational safety and health; protection of persons and property from death, injury or damage; the environment and the use, handling, storage, labeling and disposal of toxic or hazardous materials; labor and employment conditions; wages and hours; workmen’s compensation and unemployment insurance, and affirmative action and equal employment opportunity; in the performance of its Work.

20. **Safety.** Contractor shall be responsible for, and have control over, initiating, maintaining, and supervising safety precautions and programs for its Work and will control, supervise, and direct the construction means, methods, techniques, sequences and procedures and coordinate its Work. Contractor shall provide and comply with at all times a safety plan in accordance with **Exhibit D - Contractor Safety Plan.** Contractor shall comply with Client-specific safety requirements set forth in the Contract Documents. Contractor shall report to Client, in writing, safety-related injury, damage, or accidents arising from the and, to the extent mandated by applicable law, to the appropriate authorities having jurisdiction over safety-related matters involving the Project or the Work. When on site, Client and its agents or invitees agree to abide by Contractor’s Project Site safety rules and directives. In the event Client desires to bring its invitees or other guests to the Site prior to substantial completion of the Work, Client shall: (i) indemnify Contractor from any claims made by Client or its agents, employees, invitees, or others for property damage or personal injury, and (ii) provide or cause to be provided to Contractor a release on Contractor’s approved release form prior to entry of the Site.

21. **Cooperation.** Throughout the duration of the Agreement, the Parties shall reasonably cooperate with one another and each Party shall perform its responsibilities and obligations under the Agreement to avoid delay or interference with the other Party’s timely and efficient performance of its obligations under the Agreement in accordance with the agreed schedule.

22. **Site Access.** Client shall provide Contractor proper and safe access to the Site at reasonable times as is necessary for performance of the Work. Client is responsible for securing and executing all necessary agreements with the property owner and/or adjacent land or property owners that are necessary to enable Contractor to perform the Work.

23. **Client’s Responsibilities.** The Contractor is entitled to reasonably rely on the information furnished by the Client. Client shall provide at the Client’s expense and with reasonable promptness: information describing the physical characteristics of the Site, including data or drawings depicting existing conditions, reports, and investigations; tests, inspections, and other reports dealing with environmental matters, hazardous conditions, and other existing conditions; specifications for the Client-Provided Equipment; and any other information or services requested in writing by the Contractor that are relevant to Contractor’s performance of the Work. Utility details shall include available services, lines at the Site, and adjacent thereto and connection points. The information shall include
public and private information, exact locations and dimensions, and benchmarks that can be used by the Contractor in laying out the Work. Client shall, throughout the performance of the Work, cooperate with Contractor and perform its responsibilities, obligations and services in a timely manner to facilitate Contractor’s timely and efficient performance of the Work and so as not to delay or interfere with Contractor’s performance of its obligations under the Contract Documents.

24. **Permits.** Except for those permits and fees related to the Work which are the responsibility of the Contractor as set forth in Exhibit A, the Client shall secure and pay for all other permits, approvals, easements, assessments and fees required for the development, construction, use or occupancy of permanent structures or for permanent changes in existing facilities, including the building permit.

25. **Separate Contractors.** Client is responsible for all work performed on the Project or at the Site by its own forces, or by any separate contractors or others it hires. Client shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Contractor in order to enable Contractor to timely complete the Work. Notwithstanding anything contained in the Contract Documents to the contrary, the Client and the Client’s separate contractors assume all risk of loss or damage to any and all of their property or the Work and any loss of use or occupancy thereof caused by them or anyone for whom they are responsible, and hereby release the Contractor and its agents, employees, insurers, sureties and subcontractors therefrom.

26. **Differing Site Conditions.** Concealed or latent physical conditions or subsurface conditions at the Site that differ from the observable conditions at the Site in areas that Contractor was provided access to including, without limitation, the presence of underground utilities, historically significant artifacts, or any hazardous wastes or materials are collectively referred to herein as “Differing Site Conditions.” If Differing Site Conditions are encountered, the Contractor shall notify the Client, in writing, and Contractor shall be entitled to a Change Order equitably adjusting the Contract Price and/or Contract Time, as appropriate.

27. **Hazardous Conditions.**

   a. Contractor is not responsible for any hazardous conditions encountered at the Site. Upon encountering any hazardous conditions, Contractor will stop Work immediately in the affected area and duly notify Client and, if required by the law, government or quasi-government entities with jurisdiction over the Project or Site. Upon receiving notice of the presence of suspected hazardous conditions, Client shall take the necessary measures required to confirm that the hazardous conditions are remediated or rendered harmless. Contractor shall not be obligated to resume work in the affected area until Client provides written confirmation that the hazardous conditions are remediated or rendered harmless.

   b. Contractor shall not be obligated to resume Work at the affected area of the Project until after the Client provides it with written certification that: (i) the hazardous conditions have been removed or rendered harmless, and (ii) all necessary
approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site. To the fullest extent permitted by law, the Client shall defend, indemnify, and hold harmless the Contractor, its subcontractors and suppliers of any tier, and the agents, officers, directors and employees of each of them, from and against any and all direct claims, damages, losses, costs and expenses, including but not limited to reasonable attorneys' fees, costs and expenses arising out of or incurred in connection with any and all hazardous conditions, except to the extent that damages are caused by the gross negligence or reckless disregard of Contractor, its subcontractors, and suppliers.

28. Site. Contractor shall keep the Contractor's work area at the Site free from accumulation of waste materials or rubbish caused by operations under the Agreement. At completion of the Work, Contractor shall remove from the Site any waste materials, rubbish, Contractor's tools, equipment, machinery and excess materials generated or used by Contractor.

29. Delays. Delays that are outside the reasonable control of the Party thereby affected shall include, without limitation, delays generally recognized as events of force majeure, unusual weather, Differing Site Conditions, failure of a Party to provide access, notice, approvals, or submittals required by the Contract Documents within the time specified therein, and delays directly caused by any applicable government agency or regulatory authority (collectively, "Excusable Delays"). The affected Party shall notify the other Party in writing of any actual or anticipated Excusable Delay in accordance with the Notice provisions of this Agreement. Contractor shall be entitled to a Change Order equitably adjusting the Contract Price and/or Contract Time, as appropriate. In no event will Contractor be liable for any delay damages.

   a. Any information or services to be provided by the Client shall be provided in a timely manner so as not to delay the Work.

   b. In the event the Work includes installation of materials or equipment furnished by the Client or others, it shall be the responsibility of the Client or others to examine the items so provided and thereupon handle, store, and install the items, unless otherwise provided in the Agreement, with such skill and care as to provide a satisfactory and proper installation Loss or damage to such items shall be the responsibility of the Client.

30. Financial Evidence. Prior to commencement of the Work, and upon additive change orders (if any), the Client shall provide reasonable evidence that Client has made financial arrangements to fulfill its obligations under this Agreement by way of appropriation for this public project.

31. Punch List. No later than ten (10) business days after Substantial Completion, the Client, Client's consultant, and Contractor shall inspect the Work to identify items that are satisfactorily completed and portions that are not completed or that need minor fixes, and then develop a single list of tasks and items required of the Contractor to render complete
and acceptable all of the Work in accordance with the Agreement (the “punch list”). The punch list items must be completed and accepted by the Client before the release of final payment.

32. Relationship of Parties. Contractor in performing its obligations under the Agreement shall be deemed an independent contractor and nothing herein shall be construed as creating, at any time, the relationship of joint venturers, partners, principal/agent or employer/employee between the Parties hereto.

33. Subcontractors. Contractor is responsible for managing its subcontractors and its responsibility to the Client for such subcontractors and their respective employees and other person or entities in their performance of portions of the Work for, or on behalf of, the Contractor or any of its subcontractors.

34. Labor Sources. Contractor may engage temporary staffing agencies or obtain assistance from its affiliates and subsidiaries, including Burns & McDonnell International Inc. and Burns & McDonnell Engineering India Pvt. Ltd. (“Labor Sources”), in its own reasonable discretion to fulfill Contractor’s performance obligations under this Agreement. The Parties agree that any contracts between Contractor and any Labor Sources are not subcontract as that term is used in this Agreement. Personnel from Labor Sources shall be considered agents of Contractor and able to act on behalf of Contractor within the scope of the authority granted such personnel according to job function and billing classification. Contractor shall remain fully responsible for all Work performed by Labor Sources and shall not be relieved of any obligations under this Agreement by virtue of delegating duties to such Labor Sources. No contract between Contractor and any Labor Sources shall bind or purport to bind Client or give any Labor Sources a right to seek compensation or damages from the Client under this Agreement.

35. Choice of Law. The Agreement shall be subject to, interpreted and enforced according to the laws of the State of Florida without regard to any conflicts of law provisions. Venue and jurisdiction for any and all disputes relating to his Agreement and the Work contemplated herein shall be in Duval County, Florida.

36. Severability. The invalidity or unenforceability of any portion(s) or provision(s) of the Agreement shall in no way affect the validity or enforceability of any other portion(s) thereof. Any invalid or unenforceable provision(s) shall be severed from the Agreement and the balance of the Agreement shall be construed and enforced as if the Agreement did not contain the particular portion(s) or provision(s) held to be invalid and/or unenforceable.

37. Confidentiality. The Parties agree that, during the term of the Agreement and thereafter for a term of two (2) years, neither Party will, directly or indirectly, disclose or use any Confidential Information for any purpose without the prior written approval of the other Party except to the extent reasonably required to perform the Work and then only in compliance herewith. The receiving Party shall protect Confidential Information at least to the same extent as it would protect its own similar information. If necessary to perform the Work, Contractor may disclose Confidential Information to third parties, but only to
such persons that have agreed in writing to maintain the confidentiality of such Confidential Information. All Confidential Information disclosed to, used, or acquired by Party in connection with the Agreement shall be and remain exclusive property of the disclosing Party. Contractor may retain a copy of all information upon which the Work is based for record purposes. For any breach of the Agreement regarding Confidential Information, disclosing Party shall be entitled to seek injunctive or other equitable relief to remedy or prevent any such breach or threatened breach. Such remedy shall not be the exclusive remedy for any breach of this section, but shall be in addition to all other rights and remedies available at law or in equity. Notwithstanding anything contained in the Agreement, the receiving Party’s liability to the Disclosing Party in connection with the Agreement shall be limited to direct damages and shall exclude any other liability, including without limitation liability for special, indirect, punitive, or consequential damages in contract, tort, warranty, strict liability or otherwise. The Client is a public entity and at all times shall have no liability to Contractor for complying with the Public Records Laws of Florida or a court of competent jurisdiction with respect to records produced relating to this Agreement and pursuant to the applicable laws; provided, however, that Contractor may mark its confidential, financial, and proprietary information as such to attempt protection from release and defend itself against such disclosure or production as allowed by Florida law.

38. Florida Public Records Law.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR’S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT LAURIE SCOTT, CITY CLERK, CITY OF JACKSONVILLE BEACH, 11 N. 3RD STREET, JACKSONVILLE BEACH, FLORIDA 32250, OFFICE: (904) 247-6299, email address lscott@jaxbchfl.net.

The CONTRACTOR shall comply with public records laws of Florida, specifically to:
1. Keep and maintain public records required by the public agency to perform the service.
2. Upon request from the public agency’s custodian of public records, provide the public agency with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in this chapter or as otherwise provided by law.
3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the public agency.
4. Upon completion of the contract, transfer, at no cost, to the public agency all public records in possession of the contractor or keep and maintain public records required by the public agency to perform the service. If the contractor transfers all public records to the public agency upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from
public records disclosure requirements. If the contractor keeps and maintains public records upon completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the public agency, upon request from the public agency’s custodian of public records, in a format that is compatible with the information technology systems of the public agency.

39. Integration. Except as set forth below, the Agreement represents the entire and integrated agreement between the Client and Contractor and supersedes prior negotiations, representations or agreements, either written or oral for the Project. The Parties understand and agree that this Agreement shall not supersede that certain Contract Agreement for Professional Services executed by the Parties dated February 1, 2016 (the “CAPS”); provided, however, that any engineering, design, or procurement services provided by Contractor for the Project pursuant to purchase orders issued under such CAPS prior to execution of this Agreement shall be considered to have been performed under this Agreement, and any responsibilities and liabilities for such services shall be governed solely by this Agreement. Those purchase order number(s) are set forth as follows: PO#200726 dated 12/31/2019.

40. Notices. All notices, requests, demands and other communications which are required or may be given under this Agreement, including all documents delivered pursuant to this Agreement shall be in writing and shall be deemed to have been duly given when received if personally delivered; sent by U.S. Mail; when transmitted if transmitted by telecopy, electronic or digital transmission method; the business day after it is sent, if sent for next business day delivery to a domestic address by recognized overnight delivery service (e.g. Federal Express or UPS); and upon receipt, if sent by certified or registered mail, return receipt requested. All communications related to this Agreement shall be to the persons assigned as each Party’s respective representative set forth below, or to such other persons as the Parties may specify in writing.

Client’s Representative:
Allen Putnam
1460 Shetter Avenue
Jacksonville Beach, FL 32250
Phone: 904-247-6281
E-mail: Aputnam@beachcsenergy.com

Contractor’s Representative:
Burns & McDonnell Engineering Company, Inc.
Attn: Richard Mahaley, Vice President
2301 Maitland Center Parkway, Suite 400
Maitland, FL 32751
Phone: (321) 280-5950
E-mail: rmahalel@burnsmcc.com
41. **Interpretation.** The various documents comprising the Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards. In the event of any conflict between the terms and conditions set forth in a Change Order and this Agreement, the terms and conditions of the Change Order shall prevail. Inconsistent, conflicting or supplemental terms and conditions or other terms and conditions which have not been negotiated and mutually agreed between the parties (including, without limitation, purported limitations on liability, waivers of rights and remedies, and variations from any of the warranty, guarantee, indemnity and liability provisions of this Agreement) which may be contained in any proposal, Change Order, standard purchase order issued by Client, or other direction shall be of no force or effect and shall be superseded by the terms and conditions of this Agreement unless the document expressing such terms clearly states that any such terms or conditions shall replace or modify this Agreement and the Parties mutually agree in writing on the change.

42. **Waiver.** No failure or delay by a Party in exercising any right, power or remedy will operate as a waiver of that right, power or remedy, and no waiver will be effective unless it is in writing and signed by an authorized representative of the waiving Party. If a Party waives any right, power or remedy, the waiver will not waive any successive or other right, power or remedy that Party may have.

43. **Assignment.** Neither party shall assign this Agreement and any rights or obligations hereunder (by contract, acquisition, merger, operation of law or otherwise) in whole or in part, without the prior written consent of the other party, which consent shall not be unreasonably withheld. Any attempt to assign any rights or obligations hereunder without appropriate consent shall be deemed void. There are no third-party beneficiaries of this Agreement. No Party other than the Parties themselves has any rights or remedies under this Agreement.

**Exhibits to this Agreement are attached following the signature page**

The following exhibits are attached hereto and incorporated herein:

- Exhibit A – Scope of Work
- Exhibit B – Contract Price and Milestones
- Exhibit C – Client-Provided Equipment and Information
- Exhibit D – Contractor Safety Plan
- Exhibit E – Lien Waiver Forms

[Signature page follows]
IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the Effective Date stated above on the first page.

CLIENT: City of Jacksonville Beach

By: ________________________________
   Charlie Latham

Title: _____________________________

Date Signed: _______________________

CITY MANAGER:

______________________________
   Michael Staffapoulos

CITY CLERK:

______________________________
   Laurie Scott

Address for Providing Notice:

CLIENT

Allen Putnam, Director
Beaches Energy Services
1460 Shetter Avenue
Jacksonville Beach, FL 32250
Phone Number: 904-247-6281
Facsimile Number: 904-247-6120
Email: aputnam@beachesenergy.com

CONTRACTOR: Burns & McDonnell Engineering Company, Inc.

By: ________________________________
   ________________________________
   ________________________________
   ________________________________

Witness Attesting to Contractor’s Signature:

By: ________________________________
   ________________________________
   ________________________________
   ________________________________

Address for Providing Notice:

CONTRACTOR

Richard Mahaley, Vice President
Burns & McDonnell Engineering Co., Inc.
2301 Maitland Center Parkway, Suite 400
Maitland, FL 32751
Phone: (321) 280-5950
Fax: (321) 280-5809
Email: rmahale@burnsmcd.com
Agreement
This Design-Build Agreement ("Agreement") is entered into by and between the City of Jacksonville Beach (d/b/a Beaches Energy Services), 11 North 3rd Street, Jacksonville Beach, FL 32250 ("Client"), and Burns & McDonnell Engineering Company, Inc., a Missouri corporation headquartered at 9400 Ward Parkway, Kansas City, MO 64114 ("Contractor") (each a "Party", and together the "Parties"), effective as of February 4, 2020 ("Effective Date"), and shall govern the Parties’ performance, obligations, and rights in connection with the design and construction of the Client’s Sampson substation autotransformer No. 2 replacement located at 2725 County Road 210 St. Johns, FL 32259 (the "Project"), awarded in accordance with the Client’s RFP # 08-1819.

In consideration of the mutual covenants and obligations contained herein, Client and Contractor agree as follows:

1. **Scope of Work.** Contractor shall provide all supervision, labor, tools, materials and equipment to perform or cause to be performed all services described in Exhibit A, as well as clarifications and assumptions, for the Project ("Work").

2. **Contract Documents.** The Contract Documents consist of this Agreement, any agreed Change Orders and amendments to the Agreement, and any attachment, drawings and specifications prepared by Contractor and approved by Client depicting the Work, all of which are a part of the agreement between the Parties as if fully repeated herein.

3. **Compensation.** Client shall pay Contractor the firm-fixed price sum of Two Million Six Hundred Fifty Thousand Dollars ($2,650,000.00) for the performance of the Work, subject to additions and deductions by Change Order in accordance with the Agreement ("Contract Price"). The Contract Price includes applicable sales, use and consumer taxes mandated by law. Additional Contract Price details are as set forth in Exhibit B.

4. **Invoicing.** Following execution of the Agreement, Contractor shall submit to Client an application for payment ("Application for Payment") requesting payment for the portion of the Work furnished and completed previously and remaining unpaid on a milestone basis as set forth in Exhibit B. Each such Application for Payment shall be accompanied by conditional lien waivers (in the form set forth in Exhibit E) from Contractor’s subcontractors who perform any Work and suppliers who provide any materials or equipment for the Project through the date of the Application for Payment.

5. **Payment.** As a condition precedent for any payment due under this Agreement, the Contractor shall submit to the Client a proper Application for Payment requesting payment for services rendered and due hereunder on a milestone basis. Payment shall be made within thirty (30) days after the date on which Client receives the invoice. If a portion of any Application for Payment is disputed, Client shall pay the undisputed portion by the due date and then advise Contractor in writing, within seven (7) days of receipt of Contractor’s Application for Payment.
of the basis for withholding any disputed portion. Timely payment is a material part of the consideration of the Agreement. Payments due and unpaid by Client shall bear interest commencing the day after payment is due at the rate of one and one-half percent (1.5%) per month until paid. Client reserves the right, in the event a claim is made against Client arising out of the performance of the Work, to withhold payments due to or which may become due to Contractor in such amounts as are necessary to protect the Client from liability retained by or transferred to Contractor in the Agreement. When the grounds for withholding payments are removed, payment of such withheld amounts shall be made.

6. **Changes.** The Agreement may only be amended, supplemented or modified by a written modification or change to this Agreement executed by both Parties ("Change Order"). Client may direct Contractor to perform changed or additional Work prior to issuing a Change Order; provided that, such direction shall be in writing and Contractor’s performance of such Work prior to receiving a Change Order shall not prejudice Contractor’s right to an equitable adjustment in Contract Price and/or Contract Time. No adjustment in price or time will be made without prior written approval from Client.

7. **Warranty.** Contractor agrees to provide the construction portion of the Work in accordance with the requirements of the Contract Documents consistent with good construction industry standards and practices. Contractor’s professional services (including, as applicable to the Work, design, architecture, engineering, surveying, planning and management) shall be performed consistent with customarily accepted professional practice with the degree of skill, care, and diligence, which a professional of the same type would exercise under the same or similar circumstances, in the same locale, and in conformance with the Contract Documents. During the Warranty Period defined below, the Contractor warrants to Client that construction Work performed under the Agreement will be of good quality and construction workmanship will be free from defects not otherwise inherent in the quality required or permitted. During the Warranty Period, the Contractor warrants to Client all materials and equipment furnished by Contractor as part of the Work shall be new (unless otherwise specified in the Contract Documents), of good quality, and in conformance with the Contract Documents. For equipment procured by Contractor, Contractor shall assign all manufacturer’s warranties to Client upon Substantial Completion and payment in full, except for the value of punch list work. Client agrees to look to the manufacturer for any recourse related to the quality or performance of such procured equipment. Contractor shall assist Client in obtaining performance by such manufacturer(s) during the Warranty Period, but shall have no liability for defect in such equipment. Upon written notice from Client received during the Warranty Period, Contractor agrees to correct any defective Work. This warranty excludes damage or defect caused by Client’s abuse, modifications performed by third parties, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. Contractor’s warranty obligations shall begin on the date when the Work is ready to be energized, as agreed by both Parties on the certificate of substantial completion ("Substantial Completion"), and such duration shall end twelve (12) months thereafter ("Warranty Period"). The warranties and remedies provided herein are in lieu of all other warranties, whether express or implied, including the warranties of merchantability and fitness for a particular purpose. All Contractor liability shall end upon expiration of the Warranty Period.
The Parties understand and acknowledge that Client is providing certain equipment and/or work for the Project through Client’s separate vendors and contractors, as further described in Exhibit C (“Client-Provided Equipment”), the delivery, condition, and schedule of which will have a direct impact on Contractor’s Work and the Project schedule. The roles, obligations and liabilities of Client’s separate vendors, contractors, and other third parties under separate agreements with Client related to the Project remain solely with those parties. Contractor does not guarantee the performance of or warrant the work, work product, or deliverables of any of Client’s separate vendors or other contractors. Contractor only warrants its construction Work related to the Client-Provided Equipment or separate work, and Client shall look solely to its separate vendors and contractors for the warranty and other obligations related to the Client-Provided Equipment.

8. **Intellectual Property Rights.** Contractor shall retain all ownership rights, title, and interest in and to all drawings, specifications, reports and related documentation, all information, processes, data, compilations, designs, and other material prepared, owned, licensed to, or developed by Contractor or existing before execution of this Agreement in performance of the Work (“Work Product”). Subject to Client’s payment of the Contract Price, Contractor hereby grants to Client an irrevocable (except in the event of a breach of this license) non-exclusive, royalty-free license to utilize the Work Product to the extent necessary for the construction, operation, maintenance, or repair of the Project for which they were prepared and intended. Client shall not acquire any rights to any of Contractor’s or its subcontractors’ proprietary computer software that may be used in connection with the Work except as may be separately agreed. The Work Product entails instruments of service in respect to the Project, and Client shall not reuse the Work Product on any other project. If Client alters or uses the Work Product in violation of this restriction, and without the express written consent of the Contractor, then to the fullest extent permitted by law, Client shall defend, indemnify and hold harmless Contractor, its design consultants and subcontractors from and against any and all claims, damages, liabilities, losses, and expenses, including reasonable attorneys’ fees, to the extent resulting from the unauthorized use or alteration of the Work Product.

9. **Non-Infringement.** Contractor represents that (1) the Work will not infringe or misappropriate any intellectual property rights of any third party; (2) the Contractor has all rights and licenses necessary to convey to Client the ownership of or license rights to use, as required under the Agreement, all intellectual property rights in drawings, specifications and other materials delivered to Client and (3) no drawings, specifications and other materials delivered to Client, nor their use by Client, will infringe or constitute an infringement or misappropriation of any intellectual property rights of any third party. Client represents that Client either possesses or will obtain permission regarding any and all necessary rights in intellectual property or other proprietary rights for any information including, but not limited to, all reports, plans or specifications prepared by others provided to the Contractor which Contractor has need to use, copy or adapt for performance of the Work. Client grants to Contractor (and its subcontractors and suppliers) a perpetual, worldwide, non-exclusive, paid-up, transferable license to use, copy, or modify such intellectual property solely as needed to enable Contractor (or its subcontractors and suppliers, as applicable) to perform the Work. Contractor’s obligations under this paragraph will not apply to any drawing, product, specification, or other materials selected, requested, or controlled by Client.
10. **Contractor General Indemnity.** EXCEPT AS SET FORTH BELOW, TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR AGREES TO INDEMNIFY AND DEFEND CLIENT FROM AND AGAINST COSTS, DAMAGES, AND EXPENSE (INCLUDING REASONABLE ATTORNEYS’ FEES AND LITIGATION COSTS) INCURRED BY CLIENT ARISING FROM BODILY INJURY (INCLUDING DEATH) OR THIRD PARTY PROPERTY DAMAGE BUT ONLY TO THE EXTENT CAUSED BY THE NEGLIGENT OR WRONGFUL ACTS OR OMISSIONS OF CONTRACTOR OR ANYONE FOR WHOM ACTS CONTRACTOR IS LIABLE.

11. **Contractor Professional Indemnity.** TO THE FULLEST EXTENT PERMITTED BY LAW, CONTRACTOR AGREES TO INDEMNIFY CLIENT AGAINST COSTS, DAMAGES, AND EXPENSE (INCLUDING REASONABLE ATTORNEYS’ FEES AND LITIGATION COSTS) RESULTING FROM CLAIMS BY THIRD PARTIES FOR PERSONAL INJURY (INCLUDING DEATH) OR PROPERTY DAMAGE TO THE EXTENT CAUSED BY THE NEGLIGENT ACTS OR OMISSIONS OF CONTRACTOR IN THE PERFORMANCE OF PROFESSIONAL DESIGN AND ENGINEERING SERVICES AS PART OF THE WORK UNDER THE AGREEMENT. THE INDEMNITY OBLIGATION UNDER THIS PARAGRAPH SHALL NOT INCLUDE A DUTY TO DEFEND, AND CONTRACTOR SHALL NOT BE OBLIGATED TO INDEMNIFY CLIENT FOR ITS RESPECTIVE NEGLIGENCE OR WILLFUL MISCONDUCT.

12. **Client General Indemnity.** TO THE FULLEST EXTENT PERMITTED BY LAW, CLIENT AGREES TO INDEMNIFY AND DEFEND CONTRACTOR FROM AND AGAINST COSTS, DAMAGES, AND EXPENSES (INCLUDING REASONABLE ATTORNEYS’ FEES AND LITIGATION COSTS TO THE EXTENT PERMITTED BY FLORIDA LAW) INCURRED BY CONTRACTOR ARISING FROM BODILY INJURY (INCLUDING DEATH) OR THIRD PARTY PROPERTY DAMAGE BUT ONLY TO THE EXTENT CAUSED BY THE NEGLIGENT OR WRONGFUL ACTS OR OMISSIONS OF CLIENT, ITS SEPARATE CONTRACTORS, OR ANYONE FOR WHOM ACTS CLIENT IS OR MAY BE LIABLE. NOTHING CONTAINED IN THIS AGREEMENT IS IN ANY WAY INTENDED TO BE A WAIVER OF THE LIMITATION PLACED UPON THE CITY OF JACKSONVILLE BEACH’S (CITY) OR BEACHES ENERGY SERVICES’ (BES) LIABILITY, RIGHTS OR REQUIREMENTS AS SET FORTH IN SECTION 768.28, FLORIDA STATUTES. ADDITIONALLY, THE CITY AND BES DO NOT WAIVE SOVEREIGN IMMUNITY, OR THE LIMITATIONS AFFORDED THE CITY AND BES AS TO ATTORNEY’S FEES, INVESTIGATIVE COSTS AND PRE-JUDGMENT INTEREST.

13. **Intellectual Property Indemnity.** EACH PARTY AGREES TO DEFEND AND INDEMNIFY THE OTHER PARTY AND ITS RESPECTIVE OFFICERS, DIRECTORS, OR EMPLOYEES FROM ALL LIABILITY, COSTS, EXPENSE, OR DAMAGES (INCLUDING REASONABLE ATTORNEY’S FEES) CAUSED BY A BREACH OF THE NON-INFRINGEMENT WARRANTY IN THIS AGREEMENT ARISING OUT OF ANY THIRD PARTY CLAIM THAT THE OTHER PARTY INFRINGED OR MISAPPROPRIATED ANY INTELLECTUAL PROPERTY RIGHT OF ANY THIRD
PARTY. Contractor will have no obligation to defend or indemnify Client, or others for any loss or liability arising from any suit or proceeding based on or arising out of a configuration or modification, product, equipment, or material made, specified, or requested by Client; the use of the items delivered or supplied by Contractor or Client in a process or application specified, requested, or controlled by Client or any third parties; or the use by Client of the items delivered or supplied by Contractor in combination with other equipment, software, or materials not supplied by Contractor where such combination give rise to the claim of infringement.

14. Insurance. Before commencing the Work, as part of the Contract Price and a condition of payment, Contractor shall purchase and maintain insurance as described below with an A.M. Best financial strength rating of “A-VII” or better, that will protect Contractor from claims, alleging bodily injury or property damage caused by the Work performed by Contractor.

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>Coverage Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial General Liability</td>
<td>$1,000,000 each occurrence and annual aggregate.</td>
</tr>
<tr>
<td></td>
<td>• Additional Insured Coverage</td>
</tr>
<tr>
<td>Business Auto Liability</td>
<td>$1,000,000 per accident</td>
</tr>
<tr>
<td></td>
<td>• Additional Insured Coverage</td>
</tr>
<tr>
<td>Worker’s Compensation</td>
<td>Statutory</td>
</tr>
<tr>
<td>Employer’s Liability</td>
<td>$1,000,000 each accident/each employee/policy limit</td>
</tr>
<tr>
<td>Professional Liability</td>
<td>$1,000,000 per claim and annual aggregate</td>
</tr>
<tr>
<td>Contractor’s Pollution Liability</td>
<td>$1,000,00 Per Claim Limit; $1,000,000 Aggregate Policy Limit</td>
</tr>
<tr>
<td>Builder’s Risk Insurance</td>
<td>Full Value of Lump Sum Contract Price</td>
</tr>
</tbody>
</table>

a. Contractor shall furnish Client with certificates of insurance evidencing insurance coverage as required herein. Contractor’s insurance shall remain in effect for the Warranty Period, with exception of the Builders Risk Insurance which will expire at Substantial Completion. Contractor shall promptly notify the Client of any change in insurance coverage or policy terms that would be in direct conflict with the requirements herein during the duration of this Agreement and the Warranty Period.

b. Contractor shall be responsible for all deductibles and retentions with regard to its insurance. In the case of loss or damage or other event that requires notice or other action under the terms of any insurance coverage described above, Contractor will be solely responsible for taking such action. Client shall be responsible for all deductibles and retentions with regard to its insurance.

c. Contractor shall provide and maintain Builder’s Risk insurance for the full amount of the Work on a replacement cost basis during construction and until Substantial Completion of the Work. Contractor shall be responsible for all deductibles for the Builder’s Risk insurance except to the extent Client or a force majeure event (i.e., catastrophic loss) is the cause of covered damage.
d. Client shall either self-insure or obtain and maintain its own liability insurance for protection against claims arising out of the performance of this Agreement, including without limitation, loss of use and claims, losses, and expenses arising out of the Client’s errors or omissions. Client shall purchase and maintain property insurance for the full replacement value of the existing property at the Project site and its contents or self-insure the property and its contents at the Project site. Contractor shall have no risk of loss or liability for damage to any existing property or the contents at the Project, the Project site, or the Work upon Substantial Completion (as evidenced by the mutually agreed Certificate of Substantial Completion). Upon Substantial Completion of the Work, Client shall obtain or maintain property insurance on or self-insure the completed Project, including the Work. The Client, and any other user or owner of the property procuring property insurance related to the Project site or completed Work, shall waive all rights against Contractor and subcontractors and suppliers of any tier for damages caused by fire or other causes of loss insured in whole or in part under any property insurance provided or maintained by Client or such other user or owner, or that could be covered by property insurance if self-insured. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

15. Termination for Convenience. Notwithstanding anything contained herein to the contrary, Client shall have the right to terminate this Agreement at any time and for any reason, without cause, upon at least thirty (30) days prior written notice to Contractor. If Client elects to terminate the Work under this provision, Contractor shall be entitled to compensation for all Work performed prior to such termination and all related charges and expenses accrued at the time of termination including, without limitation, the reasonable cost of terminating existing subcontracts, reasonable demobilization costs, reasonable costs of any incidental or “close-out” work necessary and approved by the Client, cancellation charges for materials or equipment on order or under rental in connection with the Work at the time of termination and which cannot, despite Contractor’s diligent efforts, be avoided or cancelled.

16. Termination for Cause. Either Party shall have the right to terminate this Agreement at any time due to the other Party’s material breach of any provision. In the event of such breach, the non-breaching Party shall send the breaching Party written notice of breach describing how the Party breached this Agreement. If the breaching Party does not cure such breach within ten (10) days of receiving such notice, then the non-breaching Party may declare the breaching Party in default; provided, however, if such breach cannot be reasonably cured within ten (10) days, the breaching Party shall not be in default unless such Party fails to commence to cure such breach within ten (10) days and fails to diligently continue to pursue such cure through completion. Upon default by either Party, the non-breaching Party may immediately terminate this Agreement by written notice.

17. Disputes. The Parties agree that all claims, disputes and disagreements (“issue”) in relation to their performance and obligations pursuant to this Agreement shall be attempted to be resolved by meet and confer sessions between representatives of each of the Parties within fifteen (15) days of providing first notice to the other Party of the issue. The meet and confer session may include any other necessary persons that could facilitate a solution.
to the issue. If a meet and confer session does not resolve the issue to the satisfaction of the Parties, the Parties shall endeavor to settle the dispute by mediation under the Construction Industry Mediation Rules of the American Arbitration Association before recourse to formal dispute resolution in the form of a lawsuit (or otherwise as mutually agreed). The Parties agree to conclude such mediation within ninety (90) days of filing the request, unless otherwise agreed in writing. Mediation may include third parties who agree to participate in writing. The Parties agree to share the mediator’s fee and any filing fees equally, but each Party shall bear its own attorneys’ fees. Any Party shall have the right to seek such relief or remedy as may be provided by this Agreement or by Florida law for any issues which are not first resolved by mediation. This provision does not negate or waive the provisions concerning termination or cancellation of the Agreement.

18. **Limits of Liability**

   a. In no event shall Client or Contractor be liable to the other Party for any special, incidental, exemplary or consequential damages including, but not limited to, delay, disruption, loss of product, loss of anticipated profits or revenue, loss of use of the equipment or system, non-operation or increased expense of operation of other equipment or systems, cost of capital, or cost of purchase or replacement equipment, systems or power, whether arising in contract, tort, strict liability, warranty or otherwise.

   b. To the fullest extent permitted by law, Client’s aggregate liability to Contractor for any and all claims, losses, and damages relating to or arising from the Client’s obligations under this Agreement, that are found to be caused by the Client, shall be limited to the value of the Contract Price. Provided, however, that this clause shall not apply to or limit Client’s responsibility to make payments to Contractor for Work properly performed in accordance with this Agreement.

   c. To the fullest extent permitted by law, Contractor’s aggregate liability to the Client for any and all claims, losses, and damages relating to or arising from the Work under this Agreement, that are found to be caused by the Contractor or its subcontractors, shall be limited to two times the total Contract Price actually received by Contractor, not to exceed Five Million Dollars ($5,000,000).

   d. **PURSUANT TO FLA. STAT. § 558.035, INDIVIDUAL EMPLOYEES AND AGENTS OF CONTRACTOR MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.** Therefore, as applicable to professional services performed as part of the Work by or through Contractor under this Agreement, Client agrees not to sue any individual employee, agent, officer or director of Contractor (nor of Contractor’s applicable subcontractors) in their individual capacity for negligence, warranty, or any other breach of contract associated with this Agreement. Individual employees, agents, officers or directors of Contractor (or of Contractor’s
applicable subcontractors) shall be intended third party beneficiaries of any limitation of liability set forth in this Agreement.

19. **Compliance with Laws.** Contractor shall comply with applicable laws pertaining to occupational safety and health; protection of persons and property from death, injury or damage; the environment and the use, handling, storage, labeling and disposal of toxic or hazardous materials; labor and employment conditions; wages and hours; workmen’s compensation and unemployment insurance, and affirmative action and equal employment opportunity; in the performance of its Work.

20. **Safety.** Contractor shall be responsible for, and have control over, initiating, maintaining, and supervising safety precautions and programs for its Work and will control, supervise, and direct the construction means, methods, techniques, sequences and procedures and coordinate its Work. Contractor shall provide and comply with at all times a safety plan in accordance with **Exhibit D** - Contractor Safety Plan. Contractor shall comply with Client-specific safety requirements set forth in the Contract Documents. Contractor shall report to Client, in writing, safety-related injury, damage, or accidents arising from the and, to the extent mandated by applicable law, to the appropriate authorities having jurisdiction over safety-related matters involving the Project or the Work. When on site, Client and its agents or invitees agree to abide by Contractor’s Project Site safety rules and directives. In the event Client desires to bring its invitees or other guests to the Site prior to substantial completion of the Work, Client shall: (i) indemnify Contractor from any claims made by Client or its agents, employees, invitees, or others for property damage or personal injury, and (ii) provide or cause to be provided to Contractor a release on Contractor’s approved release form prior to entry of the Site.

21. **Cooperation.** Throughout the duration of the Agreement, the Parties shall reasonably cooperate with one another and each Party shall perform its responsibilities and obligations under the Agreement to avoid delay or interference with the other Party’s timely and efficient performance of its obligations under the Agreement in accordance with the agreed schedule.

22. **Site Access.** Client shall provide Contractor proper and safe access to the Site at reasonable times as is necessary for performance of the Work. Client is responsible for securing and executing all necessary agreements with the property owner and/or adjacent land or property owners that are necessary to enable Contractor to perform the Work.

23. **Client’s Responsibilities.** The Contractor is entitled to reasonably rely on the information furnished by the Client. Client shall provide at the Client’s expense and with reasonable promptness: information describing the physical characteristics of the Site, including data or drawings depicting existing conditions, reports, and investigations; tests, inspections, and other reports dealing with environmental matters, hazardous conditions, and other existing conditions; specifications for the Client-Provided Equipment; and any other information or services requested in writing by the Contractor that are relevant to Contractor’s performance of the Work. Utility details shall include available services, lines at the Site, and adjacent thereto and connection points. The information shall include
public and private information, exact locations and dimensions, and benchmarks that can be used by the Contractor in laying out the Work. Client shall, throughout the performance of the Work, cooperate with Contractor and perform its responsibilities, obligations and services in a timely manner to facilitate Contractor’s timely and efficient performance of the Work and so as not to delay or interfere with Contractor’s performance of its obligations under the Contract Documents.

24. **Permits.** Except for those permits and fees related to the Work which are the responsibility of the Contractor as set forth in Exhibit A, the Client shall secure and pay for all other permits, approvals, easements, assessments and fees required for the development, construction, use or occupancy of permanent structures or for permanent changes in existing facilities, including the building permit.

25. **Separate Contractors.** Client is responsible for all work performed on the Project or at the Site by its own forces, or by any separate contractors or others it hires. Client shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Contractor in order to enable Contractor to timely complete the Work. Notwithstanding anything contained in the Contract Documents to the contrary, the Client and the Client’s separate contractors assume all risk of loss or damage to any and all of their property or the Work and any loss of use or occupancy thereof caused by them or anyone for whom they are responsible, and hereby release the Contractor and its agents, employees, insurers, sureties and subcontractors therefrom.

26. **Differing Site Conditions.** Concealed or latent physical conditions or subsurface conditions at the Site that differ from the observable conditions at the Site in areas that Contractor was provided access to including, without limitation, the presence of underground utilities, historically significant artifacts, or any hazardous wastes or materials are collectively referred to herein as “Differing Site Conditions.” If Differing Site Conditions are encountered, the Contractor shall notify the Client, in writing, and Contractor shall be entitled to a Change Order equitably adjusting the Contract Price and/or Contract Time, as appropriate.

27. **Hazardous Conditions.**

   a. Contractor is not responsible for any hazardous conditions encountered at the Site. Upon encountering any hazardous conditions, Contractor will stop Work immediately in the affected area and duly notify Client and, if required by the law, government or quasi-government entities with jurisdiction over the Project or Site. Upon receiving notice of the presence of suspected hazardous conditions, Client shall take the necessary measures required to confirm that the hazardous conditions are remediated or rendered harmless. Contractor shall not be obligated to resume work in the affected area until Client provides written confirmation that the hazardous conditions are remediated or rendered harmless.

   b. Contractor shall not be obligated to resume Work at the affected area of the Project until after the Client provides it with written certification that: (i) the hazardous conditions have been removed or rendered harmless, and (ii) all necessary
approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site. To the fullest extent permitted by law, the Client shall defend, indemnify, and hold harmless the Contractor, its subcontractors and suppliers of any tier, and the agents, officers, directors and employees of each of them, from and against any and all direct claims, damages, losses, costs and expenses, including but not limited to reasonable attorneys’ fees, costs and expenses arising out of or incurred in connection with any and all hazardous conditions, except to the extent that damages are caused by the gross negligence or reckless disregard of Contractor, its subcontractors, and suppliers.

28. **Site.** Contractor shall keep the Contractor’s work area at the Site free from accumulation of waste materials or rubbish caused by operations under the Agreement. At completion of the Work, Contractor shall remove from the Site any waste materials, rubbish, Contractor’s tools, equipment, machinery and excess materials generated or used by Contractor.

29. **Delays.** Delays that are outside the reasonable control of the Party thereby affected shall include, without limitation, delays generally recognized as events of force majeure, unusual weather, Differing Site Conditions, failure of a Party to provide access, notice, approvals, or submittals required by the Contract Documents within the time specified therein, and delays directly caused by any applicable government agency or regulatory authority (collectively, “Excusable Delays”). The affected Party shall notify the other Party in writing of any actual or anticipated Excusable Delay in accordance with the Notice provisions of this Agreement. Contractor shall be entitled to a Change Order equitably adjusting the Contract Price and/or Contract Time, as appropriate. In no event will Contractor be liable for any delay damages.

   a. Any information or services to be provided by the Client shall be provided in a timely manner so as not to delay the Work.

   b. In the event the Work includes installation of materials or equipment furnished by the Client or others, it shall be the responsibility of the Client or others to examine the items so provided and thereupon handle, store, and install the items, unless otherwise provided in the Agreement, with such skill and care as to provide a satisfactory and proper installation Loss or damage to such items shall be the responsibility of the Client.

30. **Financial Evidence.** Prior to commencement of the Work, and upon additive change orders (if any), the Client shall provide reasonable evidence that Client has made financial arrangements to fulfill its obligations under this Agreement by way of appropriation for this public project.

31. **Punch List.** No later than ten (10) business days after Substantial Completion, the Client, Client’s consultant, and Contractor shall inspect the Work to identify items that are satisfactorily completed and portions that are not completed or that need minor fixes, and then develop a single list of tasks and items required of the Contractor to render complete
and acceptable all of the Work in accordance with the Agreement (the “punch list”). The punch list items must be completed and accepted by the Client before the release of final payment.

32. **Relationship of Parties.** Contractor in performing its obligations under the Agreement shall be deemed an independent contractor and nothing herein shall be construed as creating, at any time, the relationship of joint venturers, partners, principal/agent or employer/employee between the Parties hereto.

33. **Subcontractors.** Contractor is responsible for managing its subcontractors and its responsible to the Client for such subcontractors and their respective employees and other person or entities in their performance of portions of the Work for, or on behalf of, the Contractor or any of its subcontractors.

34. **Labor Sources.** Contractor may engage temporary staffing agencies or obtain assistance from its affiliates and subsidiaries, including Burns & McDonnell International Inc. and Burns & McDonnell Engineering India Pvt. Ltd. (“Labor Sources”), in its own reasonable discretion to fulfill Contractor’s performance obligations under this Agreement. The Parties agree that any contracts between Contractor and any Labor Sources are not subcontracts as that term is used in this Agreement. Personnel from Labor Sources shall be considered agents of Contractor and able to act on behalf of Contractor within the scope of the authority granted such personnel according to job function and billing classification. Contractor shall remain fully responsible for all Work performed by Labor Sources and shall not be relieved of any obligations under this Agreement by virtue of delegating duties to such Labor Sources. No contract between Contractor and any Labor Sources shall bind or purport to bind Client or give any Labor Sources a right to seek compensation or damages from the Client under this Agreement.

35. **Choice of Law.** The Agreement shall be subject to, interpreted and enforced according to the laws of the State of Florida without regard to any conflicts of law provisions. Venue and jurisdiction for any and all disputes relating to this Agreement and the Work contemplated herein shall be in Duval County, Florida.

36. **Severability.** The invalidity or unenforceability of any portion(s) or provision(s) of the Agreement shall in no way affect the validity or enforceability of any other portion(s) thereof. Any invalid or unenforceable provision(s) shall be severed from the Agreement and the balance of the Agreement shall be construed and enforced as if the Agreement did not contain the particular portion(s) or provision(s) held to be invalid and/or unenforceable.

37. **Confidentiality.** The Parties agree that, during the term of the Agreement and thereafter for a term of two (2) years, neither Party will, directly or indirectly, disclose or use any Confidential Information for any purpose without the prior written approval of the other Party except to the extent reasonably required to perform the Work and then only in compliance herewith. The receiving Party shall protect Confidential Information at least to the same extent as it would protect its own similar information. If necessary to perform the Work, Contractor may disclose Confidential Information to third parties, but only to
such persons that have agreed in writing to maintain the confidentiality of such Confidential Information. All Confidential Information disclosed to, used, or acquired by Party in connection with the Agreement shall be and remain exclusive property of the disclosing Party. Contractor may retain a copy of all information upon which the Work is based for record purposes. For any breach of the Agreement regarding Confidential Information, disclosing Party shall be entitled to seek injunctive or other equitable relief to remedy or prevent any such breach or threatened breach. Such remedy shall not be the exclusive remedy for any breach of this section, but shall be in addition to all other rights and remedies available at law or in equity. Notwithstanding anything contained in the Agreement, the receiving Party’s liability to the Disclosing Party in connection with the Agreement shall be limited to direct damages and shall exclude any other liability, including without limitation liability for special, indirect, punitive, or consequential damages in contract, tort, warranty, strict liability or otherwise. The Client is a public entity and at all times shall have no liability to Contractor for complying with the Public Records Laws of Florida or a court of competent jurisdiction with respect to records produced relating to this Agreement and pursuant to the applicable laws; provided, however, that Contractor may mark its confidential, financial, and proprietary information as such to attempt protection from release and defend itself against such disclosure or production as allowed by Florida law.

38. Florida Public Records Law.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR’S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT LAURIE SCOTT, CITY CLERK, CITY OF JACKSONVILLE BEACH, 11 N. 3RD STREET, JACKSONVILLE BEACH, FLORIDA 32250, OFFICE: (904) 247-6299, email address lscott@jaxbchfl.net.

The CONTRACTOR shall comply with public records laws of Florida, specifically to:
1. Keep and maintain public records required by the public agency to perform the service.
2. Upon request from the public agency’s custodian of public records, provide the public agency with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in this chapter or as otherwise provided by law.
3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the public agency.
4. Upon completion of the contract, transfer, at no cost, to the public agency all public records in possession of the contractor or keep and maintain public records required by the public agency to perform the service. If the contractor transfers all public records to the public agency upon completion of the contract, the contractor shall destroy any duplicate public records that are exempt or confidential and exempt from
public records disclosure requirements. If the contractor keeps and maintains public records upon completion of the contract, the contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the public agency, upon request from the public agency’s custodian of public records, in a format that is compatible with the information technology systems of the public agency.

39. **Integration.** Except as set forth below, the Agreement represents the entire and integrated agreement between the Client and Contractor and supersedes prior negotiations, representations or agreements, either written or oral for the Project. The Parties understand and agree that this Agreement shall not supersede that certain Contract Agreement for Professional Services executed by the Parties dated February 1, 2016 (the “CAPS”); provided, however, that any engineering, design, or procurement services provided by Contractor for the Project pursuant to purchase orders issued under such CAPS prior to execution of this Agreement shall be considered to have been performed under this Agreement, and any responsibilities and liabilities for such services shall be governed solely by this Agreement. Those purchase order number(s) are set forth as follows: PO#200726 dated 12/31/2019.

40. **Notices.** All notices, requests, demands and other communications which are required or may be given under this Agreement, including all documents delivered pursuant to this Agreement shall be in writing and shall be deemed to have been duly given when received if personally delivered; sent by U.S. Mail; when transmitted if transmitted by telecopy, electronic or digital transmission method; the business day after it is sent, if sent for next business day delivery to a domestic address by recognized overnight delivery service (e.g. Federal Express or UPS); and upon receipt, if sent by certified or registered mail, return receipt requested. All communications related to this Agreement shall be to the persons assigned as each Party’s respective representative set forth below, or to such other persons as the Parties may specify in writing.

**Client’s Representative:**
Allen Putnam  
1460 Shetter Avenue  
Jacksonville Beach, FL 32250  
Phone: 904-247-6281  
E-mail: Aputnam@beachesenergy.com

**Contractor’s Representative:**
Burns & McDonnell Engineering Company, Inc.  
Attn: Richard Mahaley, Vice President  
2301 Maitland Center Parkway, Suite 400  
Maitland, FL 32751  
Phone: (321) 280-5950  
E-mail: rmahale@burnsmcd.com
41. **Interpretation.** The various documents comprising the Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards. In the event of any conflict between the terms and conditions set forth in a Change Order and this Agreement, the terms and conditions of the Change Order shall prevail. Inconsistent, conflicting or supplemental terms and conditions or other terms and conditions which have not been negotiated and mutually agreed between the parties (including, without limitation, purported limitations on liability, waivers of rights and remedies, and variations from any of the warranty, guarantee, indemnity and liability provisions of this Agreement) which may be contained in any proposal, Change Order, standard purchase order issued by Client, or other direction shall be of no force or effect and shall be superseded by the terms and conditions of this Agreement unless the document expressing such terms clearly states that any such terms or conditions shall replace or modify this Agreement and the Parties mutually agree in writing on the change.

42. **Waiver.** No failure or delay by a Party in exercising any right, power or remedy will operate as a waiver of that right, power or remedy, and no waiver will be effective unless it is in writing and signed by an authorized representative of the waiving Party. If a Party waives any right, power or remedy, the waiver will not waive any successive or other right, power or remedy that Party may have.

43. **Assignment.** Neither party shall assign this Agreement and any rights or obligations hereunder (by contract, acquisition, merger, operation of law or otherwise) in whole or in part, without the prior written consent of the other party, which consent shall not be unreasonably withheld. Any attempt to assign any rights or obligations hereunder without appropriate consent shall be deemed void. There are no third-party beneficiaries of this Agreement. No Party other than the Parties themselves has any rights or remedies under this Agreement.

**Exhibits to this Agreement are attached following the signature page**

The following exhibits are attached hereto and incorporated herein:

- Exhibit A – Scope of Work
- Exhibit B – Contract Price and Milestones
- Exhibit C – Client-Provided Equipment and Information
- Exhibit D – Contractor Safety Plan
- Exhibit E – Lien Waiver Forms

[Signature page follows]
IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the Effective Date stated above on the first page.

CLIENT:  City of Jacksonville Beach

By: ______________________________
    Charlie Latham

Title:  Mayor

Date Signed: ____________________

CONTRACTOR: Burns & McDonnell Engineering Company, Inc.

By: ______________________________

Name: ___________________________

Title: ____________________________

Date Signed: ____________________

CITY MANAGER:

Witness Attesting to Contractor’s Signature:

By: ______________________________

Name: ___________________________

Title: ____________________________

Date: _____________________________

CITY CLERK:

Laurie Scott

Address for Providing Notice:

CLIENT

Allen Putnam, Director
Beaches Energy Services
1460 Shetter Avenue
Jacksonville Beach, FL  32250
Phone Number:  904-247-6281
Facsimile Number: 904-247-6120
Email:  aputnam@beachesenergy.com

CONTRACTOR

Richard Mahaley, Vice President
Burns & McDonnell Engineering Co., Inc.
2301 Maitland Center Parkway, Suite 400
Maitland, FL  32751
Phone: (321) 280-5950
Fax: (321) 280-5809
Email: rmahale@burnsmcd.com
Exhibit A - Scope of Work
Sampson Transformer T2 Replacement Scope of Work
Revision 0

**Engineering Scope**

Burns & McDonnell (BMcD) will develop a full engineering package for the Sampson T2 Replacement Project based on the previously developed 30% Engineering Package. The engineering package consists of all physical, civil and protection/controls drawings needed for the project.

The project scope consists of replacing the existing 230/138kV T2 Transformer with an owner provided 230/138kV Autotransformer. The scope also includes replacing two (2) 230kV line disconnect switches, one (1) 230kV transformer disconnect switch, and two (2) 138kV transformer disconnect switches.

The project is a full EPC (turnkey) project. The Engineering packages will consist of the following:

- Plan and Section Views
- Foundation Layout to include the following equipment:
  - New T2 Transformer Slab
  - Existing Transformer Temporary Location Slab
  - Station Service Transformer including the Automatic Transfer Switches Foundations
  - Oil Containment Curb including SPCC Plan
  - Station Service Transformer Foundation
  - AC Panel Foundations
- Grounding Layout
- Conduit Layout
- AC Station Service One Line
- DC Station Service One Line
- AC and DC Schematics
- AC and DC Wiring Diagrams
- Custom Relay Panel Layout including BOM
- Preliminary Cable List
- SSVT Addition including low side upgrade
- Relay Settings
- Survey Support
- Miscellaneous Materials Specifications
Procurement

As part of this proposal, BMcD scope includes the procurement of the materials listed under BMcD in the 30% Bill of Materials spreadsheet (see Attachment 1). This includes the following:

- Bus and Cable Connectors
- Power and Controls Cables
- Steel Structures
- AC Panelboards
- Automatic Transfer Switches
- Safety Switches
- Relay Panel Inserts
- Misc. Control Equipment
- Station Service Voltage Transformer (SSVT)

BMcD did competitive bids for all procurement packages and evaluated each bid for both technical and commercial compliance. A recommendation was presented to BES for each of the packages and these recommendations were accepted.

Subcontractors

BMcD has partnered with C&C Powerline Inc. to perform all construction work for this project. C&C Powerline Inc. attended a site visit with BMcD and BES to discuss the project scope and identify any potential issues that might be encountered during the project execution phase. BMcD then provided a 30% Design Bid Package as the basis for C&C Powerline Inc. to develop their pricing.

BMcD then met with C&C Powerline Inc. to discuss the project schedule and confirm everything needed was included in their price. A summary of the construction scope is below:

- Furnish labor, equipment and supervision
- Install all foundations per plans and specs
- Installation of conduits and grounding
- Removal and replacement of five (5) disconnect switches
- Remove and relocate existing T2 transformer
- Install control cables per schedule
- Furnish electricians to support the P&C testing done by others
- Installation of the SSVT equipment
• Install all low voltage AC equipment
• Install all bus and fittings
• Test control cables
• Cut existing relay panel to retro fit new relay panel

C&C Powerline also provided option pricing for the following scope:
• Remove, dispose and haul nine (9) concrete poles that are currently inside the fence line
• Fifty (50) control cable removals within the control house
• Fifty (50) control cable removals from the control house to the yard equipment

BES stated these two options will be exercised as part of this project.

For the Testing and Commissioning scope of work, BMcD partnered with HeatSinc to perform all testing and commissioning for the disconnect switches and relay panel additions, as well as the controls portion of the Transformer installation.

**Schedule**

BMcD has put together a Level 1 Schedule for the execution of the project. The schedule includes all activities starting from Proposal Due Date to Final Completion and Project Close-out (see Schedule attached to this Scope of Work).

Schedule assumes outages will be made available in support of the provided dates:

• Outage T1 – 2 Disconnect Switches: July 7, 2020-July 10, 2020
• Nightly Outage – Line Switch 8G57: July 13, 2020-July 14, 2020
• Nightly Outage – Line Switch 8G5: July 16, 2020-July 17, 2020
• Outage T2 – Disconnect Switch and Transformer: July 20, 2020-August 21, 2020

Construction Mobilization Date is scheduled for May 29, 2020 with a Construction Demobilization Date of August 28, 2020.

**Lump Sum Price**

BMcD has included all engineering, procurement, construction, testing and commissioning, project management and construction management in the Scope of Work of the Project. These costs were presented to BES as part of the open book process. After discussion, BMcD and BES have agreed to a total lump sum project price of Two Million Six Hundred Fifty Thousand Dollars ($2,650,000.00) for the performance of the Work, subject to additions and deductions by Change Order in accordance with the Agreement.
BMcD is providing a Milestone Payment Schedule as part of the Agreement.

**Assumptions and Clarifications**

BMcD is including the following Assumptions and Clarifications as part of this proposal:

- No permits are needed for the execution of this Work therefore permitting effort is not included.
- Equipment provided by BES will be available in support of the Schedule.
- Outage dates will be available as requested in the Schedule. Any delay or outage postponement has not been accounted for in this Proposal.
- Outages except the line disconnect switches are assumed to be done during regular working hours of 7am to 5:30pm Monday-Friday.
- No road work or repairs are included.
- No dewatering is included in the Proposal.
- No contaminated soil encountering or removal/disposal is included.
- Auto-transformer T2 delivery, installation, dressing and manufacture testing to be performed by others.
- Project Award will be executed prior to February 18, 2020 as our equipment bids validity expires after this date.
BES - SAMPSON T2 REPLACEMENT

### Project Milestones
- **Proposal Due**: 09-Sep-19
- **Notice of Intent**: 07-Oct-19
- **BES Issues T&M NTP to Burns and McDonnell**: 31-Oct-19
- **BES Issues LS NTP to Burns and McDonnell**: 06-Nov-19
- **Engineering Release for Construction (IFC)**: 23-Apr-20
- **Construction Mobilization**: 29-May-20
- **Construction Start**: 01-Jun-20
- **Substantial Completion**: 28-Aug-20
- **Final Completion**: 23-Nov-20

### Project Management
- **Proposal Phase**
  - **Proposal Package**: 02-Sep-19 - 23-Aug-20
- **Execution Phase**
  - **Engineering Kick Off Meeting**: 14-Nov-19 - 23-Apr-20
  - **T&M NTP Received from BES**: 31-Dec-19
  - **Lump Sum Proposal Submitted to BES**: 22-Jan-20
  - **Engineering Phase 2 Kick Off Meeting**: 06-Feb-20
  - **Construction Kick Off Meeting**: 17-Apr-20 - 23-Apr-20

### Engineering
- **Civil**
  - **30% Design Package Submitted for Procurement**: 14-Nov-19 - 23-Aug-20
  - **IFR Design Package**: 07-Feb-20 - 23-Apr-20
  - **IFR Design Package Submitted to Review**: 05-Mar-20
  - **IFR Design Package for Owners Review**: 02-Mar-20 - 23-Apr-20
  - **IFC Design Package Submitted to Field**: 19-Mar-20
  - **IFC Design Package Comments Incorporated**: 06-Mar-20 - 23-Apr-20
  - **30% Design Package Submitted for Procurement**: 22-Mar-20 - 23-Apr-20

### As Builts
- **Redlines returned to Engineering**: 14-Nov-19 - 23-Aug-20
- **Redlines returned to Engineering**: 28-Aug-20 - 28-Sep-20
- **Redlines returned to Engineering**: 22-Sep-20 - 28-Sep-20
- **Redlines returned to Engineering**: 22-Sep-20 - 28-Sep-20

### Electrical
- **30% Design Package**: 14-Nov-19 - 27-Nov-19
- **30% Design Package Submitted for Procurement**: 06-Dec-19
- **IFR Design Package**: 06-Dec-19 - 27-Feb-20
- **IFR Design Package Submitted for Review**: 06-Dec-19 - 27-Feb-20
- **IFC Design Package Comments Incorporated**: 06-Dec-19 - 27-Feb-20
- **30% Design Package Submitted for Procurement**: 27-Feb-20 - 28-Feb-20
- **IFR Design Package Submitted to Field**: 06-Mar-20 - 28-Feb-20
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- **IFR Design Package Comments Incorporated**: 06-Mar-20 - 28-Feb-20
- **IFC Design Package Comments Incorporated**: 06-Mar-20 - 28-Feb-20
- **IFC Design Package Submitted to Field**: 06-Mar-20 - 28-Feb-20
- **IFC Design Package for Owners Review**: 06-Mar-20 - 28-Feb-20
- **IFC Design Package Comments Incorporated**: 06-Mar-20 - 28-Feb-20
- **As Builts**: 22-Aug-20 - 28-Sep-20
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**Closeout and Turnover**

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**Duration:**

- 5: 5 days
- 34: 34 days
- 35: 35 days
- 4: 4 days
- 2: 2 days
- 5: 5 days
- 1: 1 day
- 30: 30 days
- 30: 30 days
Exhibit B – Contract Price
Exhibit C – Client Provided Equipment
**Client Provided Equipment and Information**

1. One (1) 230/138kV, 150/200/250MVA Autotransformer (T2 designation)

2. Two (2) Disconnect Switches, 230kV, double-end break, with motor operators (8G57/MD1 and 8G5/MD2 designation)

3. One (1) Disconnect Switch, 230kV, vertical break, with motor operator (9MST1 designation)

4. Two (2) Disconnect Switches, 138kV, vertical break, with motor operators (8MST1 and 8MST2 designation)

- Item 1 delivery will be coordinated with BES to support Project Schedule
- Items 2, 3, 4 are on site to be inspected by BES and BMcD prior to outages
Exhibit D – Contractor Safety Plan
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1 Health & Safety Policy

At Burns & McDonnell, safeguarding the safety and health of our employees, subcontractors and related personnel is of the utmost importance. Safety is a core value of our culture, and we are dedicated to protecting the safety and health of all those associated with our company.

Our mission is “Make Our Clients Successful.” A safe and healthy work environment impacts every measure of a firm’s success, from quality of work life to productivity and profitability — our clients’ and our own. With many of our staff working full time in client facilities, our safety leadership not only affects the safety and health of our employee-owners, but that of many others influenced by their activities.

We understand that each of us plays a vital role in the completion of work in a safe manner. Employee recommendations to improve safety and health conditions are encouraged, and all will be given thorough consideration by our management team. The goal of our ongoing safety and health program is “zero incidents” on all job sites.

Our goal will be achieved by:

- Commitment to a belief that accidents are preventable.
- Top management’s commitment to providing a safe and healthy work environment for all employees by holding management personnel accountable for all aspects of employee safety and health.
- Employee involvement to improve the quality of workplace safety and health.
- This includes brainstorming, inspecting, detecting and correcting, from project startup to project completion.
- Committing auditing resources to detect hazards and ensure hazard correction.
- Ensuring that all employees and subcontractors have the knowledge and training to accomplish the task ahead.
- Providing all employees and all job sites with appropriate, state-of-the-art equipment to get the job done.
- Recognition that safety does not start at the job site, but with executive management.

Burns & McDonnell’s safety record puts us in the top 5% of all contractors nationwide. However, we are determined not to rest upon past successes, but to use those successes as a foundation for continual improvement in making us truly, “World Class”.

Chairman & CEO
Chapter 2– Roles and Responsibilities

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2 Roles and Responsibilities

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2.1 Project Safety & Health Goals

2.1.1 Introduction

The Burns & McDonnell Project Safety & Health Program is a framework designed to coordinate the safety & health efforts of Burns & McDonnell employee owners, all Subcontractors and lower tier Subcontractors to Burns & McDonnell on the project in a consistent manner. Each Subcontractor is required to develop and implement a Project Specific Safety & Health Program. The Burns & McDonnell Project Safety & Health Program in no way relieves Subcontractors and lower tier Subcontractors of legal obligations to any local, state or federal laws, regulations or requirements.

The following information provides the safety requirements that all Burns & McDonnell employee owners adhere to. These requirements are the minimum standards for Burns & McDonnell personnel and that Subcontractors to Burns & McDonnell shall implement in their Project Specific Safety & Health Program.

2.1.2 Project Safety & Health Goals

ZERO work-related injuries and illnesses is the highest priority of Burns & McDonnell. Burns & McDonnell is committed to safely constructing a project that is built on time and within budget. Success on this project, for the safety & health of the working individuals, will be achieved by reporting a zero (0) TRIR (Total Recordable Incident Rate) and a zero (0) DART (Days Away, Restricted, and Transferred) rate for work-related injuries and illness. As with all Burns & McDonnell projects, the avoidance of any occupationally related deaths or serious injuries is of the highest priority. [Refer to either the Burns & McDonnell Safety Form B-7 “Classification of Injury” or the Burns & McDonnell Safety Form C-2 “Incident/Accident Investigation Report” for information on what constitutes an OSHA recordable injury or illness,

By creating an atmosphere which minimizes hazards in the work environment, Burns & McDonnell feels a quality product can be easily produced allowing delivery of the finished product on time and within budget to CLIENT NAME.

2.2 Project Safety & Health Program

Burns & McDonnell employee owners are responsible for knowing and following established safety procedures that are applicable to performing their jobs safely. All Burns & McDonnell employee owners attend a one-hour General Safety & Health Orientation class. At that time the employee owners are notified that individuals performing fieldwork are required to attend the 10-Hour OSHA Safety Course. No employee owner is to work in any area or under any circumstances where OSHA violations or other known hazards exist until the controlling Subcontractor has taken proper corrective action. Furthermore, CLIENT NAME facilities are obligated by law to inform visitors of potential site hazards prior to working at the site. Initial Site Specific Safety & Health Orientation training is required prior to beginning work activities.

2.2.1 Project Site Safety & Health Program

The Project Safety & Health Program is tailored for this work site. The program is available to, and is to be followed by, all workers entering a work site where Burns and McDonnell is the general contractor. All Burns & McDonnell employee owners who will be working at the site are required to review and adhere to this program before beginning work. All Subcontractor workers shall be trained by the Subcontractor on the contents of their company’s Project Specific Safety & Health Program that must include the requirements set forth in this program.

All work site personnel, including Burns & McDonnell employee owners and Subcontractors, will familiarize themselves with the contents of the Project Safety & Health Program and apply it during work activities. Furthermore, all project personnel are required to participate in the project’s Project Site Specific Safety & Health Orientation Training and to sign the Project Orientation Training form, Burns & McDonnell Safety
Chapter 2 – Roles and Responsibilities

Form C-8 “Orientation Training”, acknowledging participation in the training prior to performing any work on the project. This documentation is required with a time, date and signature of the individual to verify an understanding of the Project Safety & Health Program. Unless otherwise established, all Subcontractors to Burns & McDonnell are responsible for administering project orientation training for their workers. Safety is the responsibility of everyone on site, requiring everyone to work together to achieve a safe workplace.

Visitor(s) accessing the site for less than an eight (8) hour period will not be required to attend the Project Orientation Training. Visitor(s) shall be accompanied by an authorized person - one who has been trained on the project hazards and who is familiar with the project throughout the entirety of his/her visit. If the visitor(s) cannot be accompanied by an authorized individual throughout the entirety of the visit, the visitor(s) shall attend the Project Site Specific Orientation Training prior to accessing any work activity area.

2.2.2 General Liability Program

The Subcontractor and all lower tier contractors shall take all necessary precautions to protect the public, the facilities, the personnel and tenants of CLIENT NAME from any hazards involving safety & health arising from the scope of work. All work operations shall be isolated from the public and CLIENT NAME's operations to the greatest extent possible. The owner’s discretion and interpretation of abatement methods and procedures will be the defining opinion.

2.3 Key Personnel and Responsibility Roles

Purpose: The following information defines the obligations and requirements of key personnel for Burns & McDonnell and for Subcontractor personnel who play a vital role in the Project Safety & Health Program.

2.3.1 Burns & McDonnell

Global Practice Manager

The Global Practice Manager is responsible for making the decision on how to staff the project regarding the need for a full-time Safety & Health Professional. The Global Practice Manager along with the Project Manager is responsible for ensuring that the standard contract language is used and that safety & health requirements (Section 7.12) are met to assure Subcontractor safety & health submittals are in compliance with this Project Safety & Health Program.

The Global Practice Manager is responsible for assuring that the Project Manager, Site Manager and all site personnel adhere to this Project Safety & Health Program and all local, state and federal rules, regulations and procedures regarding safety and health. The Global Practice Manager will utilize the Director of Corporate Safety & Health to evaluate the Project Safety & Health Program and the performance of Project Management. The Global Practice Manager’s responsibilities will also include the following:

- Provide the leadership, commitment and support necessary to achieve compliance with the Project Safety & Health Program.
- Sell the customer and Subcontractors on the value to all parties of a well-executed safety program.
- Require safety statistical reports to be submitted to Burns & McDonnell as required by contract.
- Communicate the customer’s safety, health and loss control requirements to project management and the Director of Corporate Safety & Health.
- Provide leadership, authority and decisiveness in dealing with noncompliance with the program up to and including termination of Subcontractor and/or project management members for the project.
- Require project management to hold Subcontractors responsible and accountable for safety compliance on the project site with the Project Safety & Health Program.
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Director of Corporate Safety & Health

The Director of Corporate Safety & Health is responsible for providing professional safety & health support and oversight to the project management team. The Director of Corporate Safety & Health will review and provide support in all concerns regarding the safety & health of field personnel assigned to this project. The Director of Corporate Safety & Health, or his designee, will conduct field audits of the project work site and programs to evaluate the adequacy of the Project Safety & Health Program. The Director of Corporate Safety & Health will implement necessary changes through the Site Manager.

The Director of Corporate Safety & Health, or his designee, will provide professional support by reviewing Safety & Health Programs of Subcontractors (when there is not a full-time Site Safety & Health) and will assist the project management in complying with the Project Safety & Health Program and all other rules, regulations and procedures which apply to the project. The Director of Corporate Safety & Health responsibilities shall also include the following:

- Along with the Global Practice Manager and the Project Manager, establish the correct contract language with regard to the requirements of the Project Safety & Health Program.
- Assist the Global Practice Manager and Project Manager in determining staffing and facility needs with regard to Project Safety & Health.
- Direct the distribution of safety regulations and safety material.
- Act as a safety resource advisory capacity for the organization and generate periodic improvements/revisions to the Project Safety & Health Program as needed.
- Include materials necessary for Subcontractors to properly bid the project during pre-bid meeting.
- Perform periodic project assessments to evaluate the Project Safety & Health Program and performance of the project management team as well as Subcontractors to Burns & McDonnell. The occurrence of these assessments will vary depending on the necessity for on site evaluation. At a minimum, the project will be assessed periodically.
- Communicate safety concerns and coordinate corporate safety requirements with the Corporate Safety & Health Department.

Project Manager

The Project Manager is responsible for communicating with the Director of Corporate Safety & Health in order to have a Project Safety & Health Program established. The Project Manager shall oversee the activities of the Site Safety Manager Management Team (The Burns & McDonnell employee owners who manage the project at the physical location of the site) in order to assure adherence of the Project Safety & Health Program. The Project Manager, along with the Director of Corporate Safety & Health, will be responsible for designating a Field Safety & Health Professional for the project. The Project Manager’s responsibilities shall also include the following:

- Communicate customer safety, health, and loss control requirements to project team.
- Schedule and participate in pre-activity planning meeting for project.
- Assist in monitoring compliance with Project Safety & Health Program.
- Provide leadership, authority, and decisiveness in dealing with noncompliance of the Project Safety & Health Program up to, and including, termination of the Subcontractor from the project.
Evaluate and use withholding of payment to Subcontractor or other contract remedies, including termination of contract and removal of the Subcontractor from the site when this safety program is being violated.

Give on-going input into necessary changes to this safety program.

Hold Subcontractors accountable and responsible for compliance with the Burns & McDonnell Project Safety & Health Program.

Assure Burns & McDonnell employee owners have in their possession at the job site, the necessary safety equipment such as fall protection safety harnesses and lanyards, hard hats, safety glasses, safety shoes and other safety equipment and require their use as needed.

Plan ahead for safety so that appropriate safety equipment and safety systems are on hand and readily available when needed by Burns & McDonnell employee owners.

**Site Manager (Project Superintendent)**

The Site Manager is the on-site coordinator and overseer of operations. It is the duty of the Site Manager to see to the maintenance of site security, the coordination of activities by the Subcontractors, and to verify that all activities are performed in a safe manner. The Site Manager is responsible for the safety & health practices and conditions on site. Any Safety & Health Professionals or supervisors provided by Subcontractors shall be utilized as a resource by the Site Manager to optimize performance on site with regard to safety & health. The Site Manager's responsibilities shall also include the following:

- The Site Manager shall ensure all personnel of Subcontractors to Burns & McDonnell are in compliance with safe work practices and attend all required safety & health training.
- Give on-going input into necessary changes to this Project Safety & Health Program.
- Hold Subcontractors responsible and accountable for compliance with the Burns & McDonnell Project Safety & Health Program as well as their own Project Specific Safety & Health Program.
- Attend and provide input into the pre-construction safety planning meeting.
- Schedule and attend weekly Safety & Health meetings presented by the Safety & Health Professional.
- Require submittal of a written plan from all Subcontractors regarding how work processes will be safely performed, such as temporary bracing, (activity hazard analysis).
- Obtain a master copy of the Burns & McDonnell material safety data sheets (SDS) compilation and start job specific files for SDS’ for the project as submitted by Subcontractors.
- Take prompt action up to and including termination of the Subcontractor from the project site to correct unsatisfactory conditions and work practices personally observed or brought to your attention which involve our Subcontractors or employee owners. Whenever a violation of the safety program occurs and requires correction, document the demand for correction utilizing the Burns & McDonnell Safety Form B-1 “Violation Notice” to the Subcontractor and Project Manager. Unsafe situations which involve Subcontractors not under Burns & McDonnell control should be brought to the attention of the responsible client party and documented. Immediately discontinue work around the unsafe area until concerns are properly addressed.
- Assure that all injuries are reported and treated.
- Require reports and investigations of all near misses, incidents and accidents.
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Assure that OSHA recordkeeping requirements are maintained.

Various safety activities may be delegated to others, but the ultimate implementation and monitoring of safe work techniques are the responsibility of the Site Manager (Project Superintendent).

Assure Burns & McDonnell employee owners have in their possession the necessary protective and safety equipment such as fall protection safety harnesses and lanyards, hard hats, safety glasses, safety shoes, and other safety equipment, and require their use as needed.

Plan ahead for safety so that appropriate safety equipment and safety systems are on hand and readily available when needed by Burns & McDonnell employees.

Complete job safety walk-through assessments. Cover the findings of the walk-through with the accompanying Subcontractor. Follow up by documenting the items which require immediate correction.

Site Safety Professional

Provide full-time support in the field to assure operations are planned and conducted in a safe manner.

Provide advice, guidance, and assistance to personnel involved in our projects regarding safety and health issues and work practices. Identify unique safety & health issues by project, before the project begins, for resolution.

Interface with CLIENT NAME Safety & Health Department on site safety & health issues and coordinate proactive measures.

Coordinate and mentor project safety & health walk-through assessments. Cover the findings of the walk-through with the accompanying Subcontractor. Follow up by documenting the items which require immediate correction.

Periodically distribute information and updating memos relative to safety, including assisting with safety memorandums.

Conduct on-going training on safety & health subjects.

Review Incident/Accident Investigation reports (including Near Misses) and recommend corrective measures as appropriate.

Report to Corporate Safety & Health periodically regarding the Project Safety & Health Program progress, problems, and objectives.

Organize and help conduct safety training as necessary.

Fully utilize the assistance of our insurance carrier, OSHA, safety organizations, and other resources.


2.3.2 Subcontractor

Purpose:

Subcontractors are responsible for administering the Project Specific Safety & Health Program developed by the Subcontractor which incorporates the text of this document as a minimum standard. Subcontractors are responsible for the training of workers, safety inspections, necessary safety documentation and coordinating
of work for safe means through Burns & McDonnell and other Subcontractors on this project. For this reason, the following roles have been developed that each Subcontractor shall designate and comply with:

Subcontractor Site Manager (Project Superintendent)

The Subcontractor Site Manager shall have final authority and responsibility for the administering the Project Specific Safety & Health Program. The Site Manager may delegate these duties to persons qualified to administer the program. However, the Site Manager will still be responsible for assuring adherence of the Project Specific Safety & Health Program and for disciplining workers who violate the Project Specific Safety & Health Program requirements. The Subcontractor Site Manager is subject to dismissal from the project for the duration of the project for failing to properly administer the Project Safety & Health Program. This decision will be at the discretion of Burns & McDonnell and the owner.

All Subcontractor Site Supervision

Superintendents, General Foremen, Foremen, or other members of management (persons supervising workers) shall not operate equipment (e.g. material handling, monitoring, etc.) on Burns & McDonnell projects.

Competent Person

OSHA requires a competent person be designated for particular activities who can recognize hazards or potential hazards and who has the authority to correct or abate the hazard. For this reason, the Competent Person should be identified on the Activity Hazard Analysis when applicable to the activity. The competent persons for all of the subcontractor project activities shall be submitted by each subcontractor prior to the start of project site activities, using Burns & McDonnell Safety & Health Form C-17 “Competent Person Designation”.

OSHA defines a Competent Person as ‘One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them’.

Designated Safety Representative

Subcontractors shall designate a qualified safety representative to be responsible for the administration of the Subcontractor’s Safety Programs, the Project Specific Safety & Health Program and all CLIENT NAME requirements and procedures. This person shall be qualified to identify hazards and have the authority to correct them, coordinate safe work efforts and submit all required documentation to Burns & McDonnell. The Subcontractor shall inform Burns & McDonnell in writing who will be designated to fulfill these obligations utilizing the Burns & McDonnell Safety Form B-3 “Subcontractor Verification”.

2.3.3 All Employees

Stop Work Authority

Worker’s rights - Any person on site may shut down a work operation that poses imminent danger or a situation arises which is immediately dangerous to life or health on site. When such precautions must be immediately taken, the Site Manager (Project Superintendent) shall be immediately notified and actions to remedy the situation shall be implemented.

All employees have the authority and obligation to stop any work task or operation where concerns or questions regarding the control of a safety, health, or environmental risk exist. Employees are responsible to initiate a Stop Work Intervention when warranted and Management is responsible to create a culture where Stop Work Authority is exercised freely.
Any worker onsite may submit an unsafe conditions memo to provide notification of an unsafe work condition that is a less than imminent situation. The Site management shall take appropriate action to mitigate and correct the unsafe condition within a reasonable time frame.

**Stop Work Program**

**General Duty to provide a safe work environment**

The employer shall furnish to each of his employees a place of employment which is free from recognized hazards that are likely to cause death or serious physical harm to his employees.

All employees have the right and authority to stop any work activity where there are safety, health or environmental concerns.

Workers have the right to refuse to do a job if they believe in good faith that they are exposed to an imminent danger.

"Good faith" means that even if an imminent danger is not found to exist, the worker had reasonable grounds to believe that it did exist.

**Training**

Employees must receive Stop Work Authority training before initial assignment.

The training must be documented including the following:

Employee name,

Dates of the training, and

The subject of the training.

**Interventions**

When an unsafe condition or unsafe behavior is identified a Stop Work Intervention will be initiated.

The Stop Work Intervention will:

Be initiated in a positive manner

Be coordinated through the supervisor

Notify all affected personnel and supervision of the stop work issue,

Initiate correction of the issue

No work will resume until all stop work issues and concerns have been adequately addressed.

All Stop Work Interventions shall be documented for

Lessons learned and

Corrective measures put into place.

**Corrective Actions**
Chapter 2 – Roles and Responsibilities

The Stop Work Intervention will assure the identified safety concern(s) have been addressed to the satisfaction of all involved persons prior to the resumption of work.

Most issues can be adequately resolved in a timely manner at the job site,

Occasionally additional investigation and corrective actions may be required to identify and address root causes.

**Lessons Learned**

Stop Work reports shall be reviewed by supervision order to

- Measure participation,
- Determine quality of interventions and follow-up,
- Trend common issues,
- Identify opportunities for improvement, and
- Facilitate the sharing of lesson learned

**Non-Retaliation or discrimination**

Workers may bring up safety and health concerns in the workplace to their employers without fear of discharge or discrimination, as long as the complaint is made in good faith.

Workers have a right to seek safety and health on the job without fear of punishment.

Workers have the right to be free from retaliation for exercising safety and health rights.

The worker has the right to refuse to do a task he/she considers unsafe, and is protected if ALL of the following conditions are met:

- The worker asked the employer to eliminate the danger, and the employer failed to do so; and
- The worker refused to work in “good faith.”
- The worker genuinely believes that an imminent danger exists.
- The worker’s refusal cannot be a disguised attempt to harass the employer or disrupt business; and
  - A reasonable person would agree that there is a real danger of death or serious injury; and
- The urgency of the hazard is such that there isn’t enough time to get it corrected through regular enforcement channels, such as requesting an OSHA inspection.

Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated by the host facility.
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3.1 Program Administration

3.1.1 Purpose

Program administration is one of the key elements in communicating and coordinating site activities and Safety & Health obligations. For this reason, activities and procedures have been established to ensure all persons on site shall work in a safe and healthful environment where activity is coordinated and organized.

3.1.2 Project Safety & Health Program

Copies of the Project Safety & Health Program will be included in the Subcontractor bid packages. Each Subcontractor shall keep a copy of the Project Safety & Health Program in their company’s on-site facilities. The Subcontractor is responsible with training and familiarization of their workers and their Subcontractor’s workers with the minimum requirements set forth in this manual and any changes which are made to it.

3.1.3 Project Safety & Health Coordination Meetings

At the time of the Weekly Project Site Coordination Meeting, Project Safety & Health Coordination will also be discussed. At this weekly meeting up to date Subcontractor work hours shall be submitted as well as other safety & health statistics Burns & McDonnell Safety Form C-1 “Weekly Work Hour Report”. Allotted time shall be, up to two hours attendance by the Subcontractor Safety & Health representative, for Burns & McDonnell to specifically address safety, health and coordination concerns with the Subcontractors. This time shall also serve as a forum for Subcontractors’ to discuss safety & health concerns as related to each other and the project. Burns & McDonnell will facilitate any concerns between Subcontractors and will assist in finding adequate solutions.

3.1.4 Reporting Requirements

All incidents/accidents shall be immediately (within three minutes) communicated to Burns & McDonnell. Burns & McDonnell Safety Form C-2 “Incident/Accident Investigation Report” shall be submitted within twenty-four (24) hours of the incident. A copy of any supportive material utilized in the investigation shall also be submitted along with the report (i.e. photographs, drawings and witness statements).

All “recordable” accidents, deaths or incidents involving significant equipment damage, facility damage or property damage shall be immediately communicated to the Site Safety & Health Professional and the Site Manager. If the Site Safety & Health Professional or the Site Manager is not available, notify any Burns & McDonnell employee.

An executive management member, of the Subcontractor will arrive on site within 48 hours of an incident to attend an incident review meeting if an OSHA recordable accident occurs. If an OSHA DART, or a near miss incident that may have produced injury takes place or a property damaging incident occurs which results in a loss of $5,000 or more, the president of the company shall attend this meeting as well.

At the time of this meeting the executive management member and/or president of the company shall submit a plan of action to prevent such occurrences in the future.

In the event of a work-related fatality, work-related inpatient hospitalizations of one or more employees, work-related amputations, or work-related losses of an eye Burns & McDonnell shall immediately be notified. Failure to comply with this procedure will result in disciplinary action at the discretion of Burns & McDonnell.

A summary of the safety & health statistics for each Subcontract company Burns & McDonnell “Monthly Work Hour Report” Safety Form C-3 shall be submitted by the fifth working day of each month for the previous month’s total man/hours and review of incidents from that month.

3.1.5 Project OSHA Procedure
OSHA Notifications

When is Burns & McDonnell required to notify OSHA?

It is the responsibility of the Director of Corporate Safety & Health to notify OSHA:

- Of work-related fatalities within 8 hours of finding out about them. Employers only have to report fatalities that occurred within 30 days of a work-related incident.

- Of any inpatient hospitalization, amputation, or eye loss within 24 hours of learning about it. Employers only have to report an inpatient hospitalization, amputation or loss of an eye that occurs within 24 hours of a work-related incident.

- The location and time of the accident, along with the number of fatalities or hospitalized employees, the name and phone number of a contact person, and a brief description of the accident will be required in the notification.

You may contact OSHA through your area office which can be located using the following hyper-link: http://www.osha.gov/html/RAmap.html. After hours you should contact OSHA via: 1(800) 321-OSHA

Arrival of the CSHO

Upon Arrival of the OSHA Compliance Safety & Health Officer, CSHO: Immediately notify Burns & McDonnell Corporate Safety & Health (816) 333-9400.

Before the CSHO arrives at the facility, security, receptionists, or anyone responsible for letting people enter the facility must know to immediately contact the Site Manager in the event of an OSHA inspection.

The Site Manager or his/her designee must accompany the CSHO throughout the entire inspection process.

The CSHO’s credentials must be checked before inspection begins. If there are doubts about the validity of the credentials, contact the nearest area OSHA office.

Ask the CSHO the reason for the visit. Reasons for an OSHA inspection may include a fatality or serious injury, Imminent danger, A complaint, A general scheduled inspection, or Special emphasis inspection

Opening Conference:

During the opening conference, the CSHO will inform the designated representatives that the official purpose of the visit is to ascertain if the facility is in compliance with the requirements of the OSH Act. Other topics that should be discussed are:

- the scope of the inspection
- records that need to be reviewed
- a physical inspection
- obligation to privately interview employees

The CSHO must also show a copy of the complaint if one was made.

The following information must be readily available for the CSHO’s review

OSHA 300, 300A forms (current and past years). The blank 300 forms may be acquired via the following hyper-link: http://www.osha.gov/pls/publications/pubindex.list#300
Chapter 3 – General Safety

Company safety programs (including but not limited to):

- Lockout/Tagout
- Confined Spaces
- Fall Protection
- Emergency Procedures
- Hazard Communication Program

The OSHA poster must be posted in a conspicuous location. The OSHA poster can be printed using the following hyper-link: [http://www.osha.gov/Publications/osha3165.pdf](http://www.osha.gov/Publications/osha3165.pdf)

**Walk around Inspection:**

During the walk-around inspection, it is required that a Burns & McDonnell representative accompany the CSHO at all times. Those accompanying the CSHO are to make sure that the inspection stays within the intended scope of the investigation that was discussed in the opening conference. The inspection should not expand outside of this scope.

The CSHO may also have instruments for taking measurements such as air samples, noise samples, or illumination surveys. The Burns & McDonnell representative should perform side by side sampling with the CSHO whenever possible and take notes of the locations and conditions discovered during sampling by the CSHO.

All violations will be documented by the CSHO. Once documented, the CSHO will bring the violations to the attention of the Burns & McDonnell representative. The Burns & McDonnell representative should also make identical notes of the violations that the CSHO cites.

The Burns & McDonnell representative should also correct any violations that he/she comes across during the inspection.

Never admit to a violation or bring a violation to the attention of the CSHO.

When the CSHO takes any photographs or videos of the facility, the Burns & McDonnell representative should take the identical picture for their records.

The CSHO may also conduct private employee interviews. The employee may ask for another representative to accompany them with the interview, but it is the discretion of the CSHO whether it is to be allowed.

After the inspection, the Burns & McDonnell representative should ask the interviewed employee about the content of the interview, and how the questions were answered.

**Closing Conference:**

All personnel who attended the Opening Conference shall attend the Closing Conference.

The CSHO will describe the suspected violations discovered during the inspection.

The CSHO will also inform that citations may be issued for suspected violations and that penalties may be proposed for each.
The CSHO will then attempt to gather an estimate on how long it will take for the alleged violations to be abated. This estimate will be taken into consideration when the CSHO decides on recommended time for abatement.

**Follow-up Inspections:**

OSHA may conduct a follow-up inspection if the citations involve imminent danger, a serious offense, or a repeated offense. The follow-up inspection will usually just involve the areas that were cited. All of the same rules for the original inspection apply in the follow-up inspection.

After the Inspection: When the CSHO leaves the facility, the following items must be accomplished:

- Update Corporate Safety & Health to discuss further actions.
- Fill out Burns & McDonnell Safety Form C-4 “Regulatory Contact Report” and forward it to Corporate Safety & Health.
- Debrief employees that may have been interviewed by the CSHO.
- Correct any deficiencies and document the corrections.

**OSHA recordkeeping**

Each employer is required to keep records of fatalities, injuries, and illnesses must record each fatality, injury and illness that is work-related; and is a new case; and meets one or more of the general recording criteria.

Each recordable injury or illness must be entered on an OSHA 300 Log and 301 Incident Report, or other equivalent form, within seven (7) calendar days of receiving information that a recordable injury or illness has occurred.

A company executive must certify that he or she has examined the OSHA 300 Log and when found to be correct will sign the OSHA 300A Summary.

A copy of the annual summary (OSHA 300A) must be posted in each establishment in a conspicuous place (or places) where notices to workers are customarily posted.

The posted annual summary shall not be altered, defaced or covered by other material.

The summary must be posted from February 1 through April 30.

The OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms must be retained for five (5) years following the end of the calendar year that these records cover.

### 3.1.6 Project Safety Assessments

**Scope**

This process contains requirements for inspection, self-assessment, and Executive assessment for all project sites where Burns & McDonnell is actively fulfilling the role of Owner’s Representative, Construction Manager, General Contractor, or as determined necessary by the Director, Corporate Safety and Health or his / her designee.

**Purpose**
The purpose of this process is to identify and correct safety and health hazards encountered in the workplace, to provide uniform guidance with respect to these hazards, and satisfy rules or standards promulgated by federal, state, or local authority.

**General**

Inspections and assessments have been identified as primary management tools for continually improving the Safety and Health Program. These on-site evaluations, when executed effectively, can lead to enhanced safety and health performance.

Safety inspection and assessment should be considered as a tool to be utilized by the Global Practice Leader(s), Director, Corporate Safety and Health, Corporate Safety and Health Manager, Global Practice Safety Segment Leader(s), Project Manager, and the Site Manager to assess site safety and health conditions, insure compliance with the Site Specific Safety and Health Program, and identify methodology for establishing and maintaining continuous improvement of safety and health performance.

The following types of inspection and assessment may be utilized to aid in the continuous improvement of safety and health performance:

- **Weekly Work Area Assessment**
- **Daily Field Safety and Health Report**
- **Project Safety Assessment**
- **Executive Safety Assessment**
- **Other Inspection**

**Weekly Work Area Assessment**

Weekly Work Area Assessments should be conducted by the Site Manager and/or his/her designee, Site Safety Manager (if applicable), and a minimum of 1 representative from each subcontractor / client contractor.

Scheduling and selection of the assessment team should be coordinated by the Site Manager and / or his / her designee.

The assessment team should conduct a comprehensive review of the Site Safety and Health Program’s implementation on the project site.

Burns & McDonnell’s “Weekly Work Area Assessment” should be utilized to document compliance, deficiencies, and corrective action(s) taken to be taken.

Completed reports should be submitted to the Burns & McDonnell Site Manager / designee, the Section Manager – Construction Operations, Safety and Health, and submitted via the Intelex System (when application becomes available).

**Daily Field Safety and Health Report**

Safety observations / interface / concerns should be documented daily by the Site Manager or the Site Safety Manager / Specialist, when applicable.

Burns & McDonnell’s “Daily Field Safety and Health Report” (Form B-2) should be utilized to document compliance, deficiencies, corrective action(s) taken / to be taken, and other safety related interface and concerns.
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Content should be quantifiable / observation-based with no personal supposition.

Reports completed by the Site Safety Manager / Specialist should be submitted to the Site Manager for review, comment, and recommendation.

Completed reports should be retained for project archiving purposes.

Completed reports should be submitted to the Director, Corporate Safety and Health, Corporate Safety and Health Manager, and Global Practice Safety Segment Leader for review.

**Project Safety Assessment**

Project Safety Assessments should be conducted by the Global Practice Safety Segment Leader when Burns & McDonnell is contractually responsible for project safety.

Scheduling and project selection should be coordinated by the Project Manager and their respective Global Practice Safety Segment Leader.

An assessment team, comprised of the Site Manager, Site Superintendent (if applicable), Global Practice Safety Segment Leader, and Site Safety Manager / Specialist (if applicable), should conduct a comprehensive review of the Site Safety and Health Program’s implementation on the project site.

The comprehensive review should include:

- Opening conference – The assessment team will meet with the senior project personnel and review the purpose, scope, and methodology of the assessment and identify site personnel participation.

- Site observation and evaluation – The assessment team should conduct a jobsite physical evaluation noting compliance, deficiencies, and corrective actions to be taken with immediate, positive, and certain feedback.

- Review of documentation, statistics, and metrics – The assessment team should review documentation required by the Site Safety and Health Program, as well as TRIR and DART Rates.

- Closing conference – The assessment team should meet with the senior project personnel and review the findings of the jobsite physical assessment and documentation, statistics, and metrics.

The assessment team should provide immediate, positive, and certain feedback at the management level.

Burns & McDonnell’s “Project Safety Assessment” worksheets should be utilized to document compliance, deficiencies, and corrective action(s) taken / to be taken.

Completed worksheets should be submitted to the Site Manager and retained for project archiving purposes.

The Site Manager has the responsibility to ensure implementation of any corrective action(s) to be taken.

Completed worksheets should be submitted to the Global Practice Leader(s), Director, Corporate Safety and Health, Corporate Safety and Health Manager, and Project Manager for review and distribution.

**Executive Safety Assessment**

Executive Safety Assessments may be conducted by Executive / Senior Management at their sole discretion, when Burns & McDonnell is contractually responsible for project safety.

Executive / Senior Management should conduct at least one cross-global practice safety assessment annually.
Scheduling and project selection should be coordinated by the respective Executive / Senior Manager and their respective Global Practice Safety Segment Leader.

A Notification of Assessment should be forwarded to the respective Project Manager, Site Manager, and Global Practice Safety Segment Leader in advance of the assessment.

An assessment team, comprised of the Executive / Senior Manager, Site Manager, Site Superintendent (if applicable), Global Practice Safety Segment Leader, and Site Safety Manager / Specialist (if applicable), should conduct a comprehensive review of the Site Safety and Health Program’s implementation on the project site.

The comprehensive review should include:

Opening conference – The assessment team should meet with the senior project personnel and review the purpose, scope, and methodology of the assessment and identify site personnel participation.

Site observation and evaluation – The assessment team should conduct a jobsite physical evaluation noting compliance, deficiencies, and corrective actions to be taken with immediate, positive, and certain feedback.

Review of documentation, statistics, and metrics – The assessment team should review documentation required by the Site Safety and Health Program, as well as TRIR and DART Rates.

Closing conference – The assessment team should meet with the senior project personnel and review the findings of the jobsite physical assessment and documentation, statistics, and metrics.

The assessment team should provide immediate, positive, and certain feedback at the management level.

Burns & McDonnell’s “Executive Safety Assessment” worksheets should be utilized to document compliance, deficiencies, and corrective action(s) taken / to be taken.

Completed worksheets should be submitted to the Site Manager and retained for project archiving purposes.

The Site Manager has the responsibility to ensure implementation of any corrective action(s) to be taken.

Completed worksheets should be submitted to the Director, Corporate Safety and Health, Corporate Safety and Health Manager, and Project Manager for review and distribution.

Other Inspection(s)

Other safety and health inspection and assessments may be conducted by federal and state agencies, worker’s compensation and general liability insurance carriers, including the Owner / client insurance carrier, and by the Owner’s / client safety department. These inspections / assessments should be conducted as follows:

OSHA / State OSHA inspections may be conducted at any company office, project, or other location without appointment or advance notice.

Prescribed requirements for these inspections are detailed in Chapter 3 of the Safety and Health Program.

Company insurance carriers may conduct periodic project inspections, and may also inspect company owned property / premises.

Insurance carrier inspections will typically be pre-scheduled with the Director, Corporate Safety and Health or Insurance Manager.
Insurance carrier inspections will be coordinated by the Director, Corporate Safety and Health or Insurance Manager.

Owner / client inspection of a project site may be conducted at any time.

The Site Manager routinely receives reports of inspections conducted by the Owner / client.

Copies, with comments regarding the inspection recommendations and compliance shall be sent to the Project Manager and the Global Practice Safety Segment Leader.

If response is warranted, the Project Manager shall coordinate with the Corporate Manager of Safety and Health, the Global Practice Safety Segment Leader, the Site Manager, and site personnel.

### 3.1.7 Project Safety & Health Procedure Issuances

Burns & McDonnell reserves the right to issue Project Safety & Health Procedures which affect all Subcontractors on site. These procedures will be issued to all persons who have received a copy of the Project Safety & Health Program. An effective date and expiration date will be included to indicate the start and duration of the procedure.

### 3.2 Safety & Health Monitoring and Enforcement

#### 3.2.1 Procedure

Each Subcontractor is responsible for managing its own Project Specific Safety & Health Program and related programs.

Subcontractors are also responsible for monitoring and enforcing the project disciplinary procedures, or disciplinary procedures which are more stringent, for workers performing non-conformance work in relation to Safety & Health.

Subcontractors shall monitor the work of their workers to assure the worker’s actions do not create an unsafe condition which may result in harm to themselves, other persons on site or result in property damage.

Failure of Subcontractor management to enforce the disciplinary procedures established in this manual may result in disciplinary action taken against Subcontractor management by Burns & McDonnell.

#### 3.2.2 Monitoring

The enforcement of the Burns & McDonnell Project Safety & Health Program (an outline of Subcontractor minimum requirements) and all related local, state, federal or otherwise stated safety & health rules, regulations and procedures is a vital aspect to achieving a safe and healthful work environment. For this reason, Burns & McDonnell will monitor the activities of the Subcontractors on site and enforce all aspects of the Burns & McDonnell Project Safety & Health Program.

Project Safety & Health assessments shall be performed periodically (refer to Burns & McDonnell Safety Form QSA Physical and QSA Documentation). All findings shall be immediately corrected with written verification (Safety Form QSA Action Items) of the corrections submitted to the Burns & McDonnell Site Manager within the abatement date.

#### 3.2.3 Enforcement

Subcontractors are responsible for enforcing all Safety & Health procedures adopted on this project. Burns & McDonnell will take disciplinary action against Subcontractor management for failing to enforce such procedures. The following actions may be taken against Subcontractor management and personnel for non-compliance issues:
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Verbal instruction may be used at the discretion of the designated Safety Manager for conditions or practices which are less than serious and are not likely to cause an accident or incident. Violations may fit into four classes defined as follows:

Non-serious

Any condition or practice which is not likely to cause death or serious physical harm to any person.

Serious

Any condition or practice which is causing or likely to cause death or serious physical harm to any person.

Stop Work/Imminent Danger

The existence of any condition or practice which would reasonably be expected to cause death or serious physical harm before such condition or practice can be corrected. This is a “stop work” situation. All persons shall be withdrawn from the affected area, and no one is allowed into the area except those people deemed necessary to correct the unsafe condition or practice and who are using the necessary controls to safeguard themselves from the hazard.

Repeat

Violations which have been verbally stated or written to an employee or Subcontractor more than once.

Violation Abatement

Abatement of Safety & Health violation notices Burns & McDonnell Safety Form B-1 “Violation Notice” shall take place within the allotted time given to abate the unsafe condition. If the Subcontractor fails to comply with the abatement procedure within the allotted time period, without submittal of an alternate solution, Burns & McDonnell may take corrective action procedures and back charge expense to the Subcontractor who created the unsafe condition.

All Subcontractors on site shall have a violation policy and procedures that shall meet, at a minimum, the following standards:

3.2.4 Violation Procedure (Individuals)

Violations issued are subject to the OSHA regulations which regulate work sites, the Subcontractor Safety & Health Program and the Burns & McDonnell Project Safety & Health Program. The possible consequences subjective to the violation are as follows:

Non-Serious Violations

First Offense is verbal warning. With log book documentation for future reference.

Second Offense is written warning.

Third Offense is time off project or dismissal.

Serious Violations and Repeat Violations

First Offense is subject to time off project or dismissal at the discretion of the Site Manager and/or the Site Safety Manager.
Burns & McDonnell reserves the right to request the dismissal of project personnel who commit serious or repeat safety or health violations.

3.2.5 Violation Procedure (Company)

Violations issued are subject to the OSHA regulations which regulate work sites, the Subcontractor Safety & Health Program and the Burns & McDonnell Project Safety & Health Program. Notice of violation will occur via Burns & McDonnell Safety Form B-1 “Violation Notice”. Violation Notices will be logged in Burns & McDonnell Safety Form C-15 “Violation Log”.

3.3 Subcontractor Project Safety & Health Coordination and Submittal Requirements

3.3.1 Purpose

Burns & McDonnell has implemented coordination measures and submittal requirements in order to assure the protection of all persons on site and to communicate activities which are being performed on the project. For this reason, those requirements are outlined in the following section so that all Subcontractors are keenly aware of the Project Safety & Health Program Minimum Requirements. These requirements are to be adhered to by Burns & McDonnell employee owners. For help in meeting these requirements refer to Burns & McDonnell Safety Form C-20 “Safety Submittals”. The following procedures shall be developed and implemented into the Subcontractor Safety & Health Program for this project.

The Subcontractor shall be responsible for coordination of its work and that of its Subcontractors so that safe work practice is achieved. The Subcontractor shall coordinate all work provided under this agreement with all contiguous contracts and work activities whether provided by facility staff or Subcontractors. Subcontractor shall arrange and schedule the operation of its own work and the work of all Subcontractors so that delays will be avoided when safe work measures are implemented. No extra payment shall be made for any delays incurred from improper coordination of this work with other trade work and compensation for any such delays and all extra work related thereto is considered as having been included in the contract price.

3.3.2 Pre-Mobilization Submittals - Prior to Subcontractor Mobilizing on Site

Purpose:

The following requirements shall be submitted to Burns & McDonnell prior to the start of activities on the project. Program submittals are necessary to coordinate the requirements established in the Subcontractor’s Project Specific Safety Program along with the Project Safety & Health Program. It is also necessary for Burns & McDonnell to know who will carry out the functions required by the Project Safety & Health Program and the designated competent persons Burns & McDonnell Safety Form C-17 “Competent Person Designation” for each of the activities.

Safety & Health Program

Submittal of Subcontractor’s written Project Specific Safety & Health program to Burns & McDonnell shall be done prior to the start of work. The Project Specific Safety & Health program shall include the requirements outlined in this program as minimum standards. In addition to the written Project Specific Safety & Health program, the following program’s shall also be established, submitted and implemented on the project by the Subcontractor, when applicable, if not already included in the Subcontractor’s Project Specific Safety & Health program:

- Hazardous Energy Control - Lockout/Tagout Procedures
- Confined Space Entry Procedures
- Hazard Communication Program
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Fall Protection Plan

Subcontractors that do not have a written Project Specific Safety & Health Plan may adopt the verbiage located in the Project Safety & Health Rules as Subcontractor’s Project Specific Safety & Health Plan for the exclusive use of this project. Burns & McDonnell is in no way responsible for use and/or interpretation of the Burns & McDonnell Project Safety & Health Program when utilized by Subcontractor. Subcontractor must submit in writing to Burns & McDonnell of the intent for Subcontractor to utilize the Burns & McDonnell Project Safety & Health Program as own for the project. The Burns & McDonnell Safety Form B-3 “Subcontractor Verification” can be utilized to fulfill this obligation.

Burns & McDonnell is not responsible for administering the Subcontractor Project Safety & Health Program or safety training any Subcontractor personnel after adoption for the project.

3.3.3 Pre/Post-Activity Coordination & Submittal Requirements

Purpose:

Certain activities pose hazards that require safe work considerations prior to the activity being conducted. For this reason, Burns & McDonnell has established pre/post-activity requirements to assure Burns & McDonnell personnel and/or the Subcontractor consider hazards prior to the start of the activity. These requirements are outlined below:

Permit Required Confined Space Entry

Confined Space entry procedures shall be established by the Subcontractor for entry of their personnel. Burns & McDonnell Safety Form C-6 “Confined Space Request” shall be completed and submitted to Burns & McDonnell prior to entry. It is pertinent for Burns & McDonnell to know this information so that coordination efforts may be properly conducted for any other Subcontractor personnel to enter the confined space. Confined Space procedures for entry of Burns & McDonnell personnel can be found in Chapter 7.

Crane Inspection and Lift Plan Submittal:

An annual third party crane inspection shall be conducted and shall be submitted to Burns & McDonnell prior to the use of any crane on site. This inspection shall be performed by a qualified crane inspector or by a certified inspection service.

This procedure shall in no way eliminate any requirements set forth for crane inspections in the OSHA Standard 1926.1412.

Lift plans shall be completed for all lifts that are over 20 tons, lifts that involve more than one crane or the load to be lifted exceeds 75% of the manufacturer’s load rating chart for configuration of the crane. Burns & McDonnell Safety Form N-2 “Critical Lift Plan” shall be used to document this information.

Excavations and Trenching

Burns & McDonnell Safety Form J-1 “Site Specific Excavation Plan” shall be completed by the Subcontractor and submitted to Burns & McDonnell prior to the start of the operation. For trenches and excavations over twenty (20) feet in depth, the Subcontractor shall have a Professional Engineer, who is registered in the state of the project, design the sloping, shoring or shielding method used.

Soil shall be treated as Class C with regards to the dimensions for sloping, shoring and benching unless Burns & McDonnell Safety Form J-3 “Soil Classification” has been completed by a competent person and transmitted to Burns & McDonnell.

Work Notice – Permit to Work
Chapter 3 – General Safety

Work permits shall be issued by CLIENT NAME Representative before commencing any work activity and must be posted in the immediate area where the work is being done.

The Permit to Work shall apply to hazardous work activities, such as

- Excavations
- Confined Space Entry
- Hot Work (welding, cutting, brazing, spark producing, etc.)
- Lockout / Tagout work activities (electrical, mechanical, etc.)

Permit to Work shall

Be requested by the subcontractor/crew foreman/superintendent that will perform the work.

Be discussed during the daily PTA meeting

Remain on the job site until completion of the work or the permit expires, whichever occurs first.

Be legibly written / completed.

Require a new permit at the beginning of each new work shift for the work crew.

Be returned to the approver when the permit has expired or the work that has been completed

The Burns & McDonnell Safety Form C-7 “Work Permit” shall be utilized.

**Lockout/Tagout Procedures**

Subcontractors are responsible for administering their own lockout/tagout procedures and program while equipment is under the control of the Subcontractor.

The Subcontractors shall coordinate any work that involves existing or permanent site equipment and all start-up processes involving Burns & McDonnell. The project lockout/tagout program shall be utilized in these circumstances along with any requirements set forth by the CLIENT NAME Training documentation of all employees affected in the Lockout/Tagout process may be required to be submitted to Burns & McDonnell prior to the beginning of the activity. Burns & McDonnell personnel utilizing lockout on systems will follow Chapter 7 Lockout/Tagout. All authorized locking/tagging authorities of Burns & McDonnell and Subcontractors will be documented in Burns & McDonnell Safety Form G-11 “Tagging Authority List”.

**Training Requirements**

Burns & McDonnell shall conduct project orientations and the subcontractor is responsible for all required worker training. All project employees shall receive an orientation prior to starting to work on the project. Project orientations will be conducted by Burns & McDonnell or designee as needed by the project. This project orientation may not be restricted to the items listed on the Burns & McDonnell Safety Form C-8 “Project Orientation”, but shall at a minimum, include all applicable items listed.

Subcontractor employees involved in the following areas shall be trained by the subcontractor. All training shall be documented on the Burns & McDonnell Safety Form C-9 “Certification of Training” and submitted to Burns & McDonnell prior to the activity by the subcontractor for all of, but not limited to, the following:

Fall Protection
Chapter 3 – General Safety

Scaffolds

Hazardous Energy Control - Lockout/Tagout

Confined Space

Respiratory Protection

Powered Industrial Truck Operators

Crane Operators (Per Type of Equipment)

High Voltage

Additional information regarding OSHA required training may be found in Burns & McDonnell Safety and Health Form C-21 "OSHA required Training Requirements and Training Guidelines", or at https://www.osha.gov/Publications/osha2254.pdf

Pre-Task Analysis (PTA)

A Pre-Task Analysis (PTA) shall be documented daily (specific to the task being performed) for all subcontractor employees Burns & McDonnell Safety Form C-10 "Pre-Task Analysis (PTA)”. A copy of all PTA reports must be submitted to Burns & McDonnell weekly.

Weekly Work Area Assessment

Weekly Work Area Assessments should be conducted by the Site Manager and/or his/her designee, Site Safety Manager (if applicable), and a minimum of 1 representative from each subcontractor / client contractor forming the Assessment Team.

Scheduling and selection of the assessment team should be coordinated by the Site Manager and / or his / her designee.

The assessment team should use the Burns & McDonnell Safety Form C11 "Weekly Work Area Assessment” as a tool to conduct a comprehensive review of the Site Safety and Health Program’s implementation on the project site.

Burns & McDonnell’s Safety Form C11A “Weekly Work Area Assessment Action Items” should be utilized to document the following:

Client Contractor / Subcontractor being observed,

Enter the name of the respective contractor / subcontractor.

Sub-tier contractors should be identified by their prime contractor / subcontractor name.

Observations / comments regarding compliance and/or deficiencies,

Document observation (see example below).

“…employee observed working at elevation in excess of 6 feet without utilizing fall protection.”

Recommended Corrective Actions (CA),

Recommendations for elimination / mitigation of observed unsafe behaviors / conditions.
Chapter 3 – General Safety

The date and time the CA is opened and closed, and

Open / Date & Time

Document date and time of observation.

Closed / Date & Time

Document date and time corrective action(s) completed and verified.

The Responsible person/party for implementing or performing the CA.

Document responsible party for the implementation of corrective action(s).

Completed reports should be submitted weekly to the Burns & McDonnell Site Manager / designee, and the Section Manager – Construction Operations, Safety and Health.

Task Safety Observations (TSO)

Subcontractor supervisors and front-line managers shall be required to perform a minimum of one formal Task Safety Observation per day providing immediate, certain, and positive feedback. The completed Task Safety Observations should be submitted to the Site Manager or his / her designee at the end of each workday.

Incident/Accident Review & Reporting

An executive management member, of the Subcontractor Company whose employee suffered an OSHA Recordable injury, will arrive onsite within 48 hours of the incident to attend an incident review meeting to discuss the incident and shall submit a plan of action / proposed corrective actions to prevent recurrence of similar future events. If the incident results in an OSHA DART injury, a near miss incident that may have resulted in an OSHA Recordable injury, or a property damaging incident occurs resulting in a loss of $5,000 or more, the president of the Subcontractor Company shall also attend this incident review meeting.

At the time of this meeting the executive management member and/or president of the company such occurrences in the future.

In the event of a work-related fatality, work-related inpatient hospitalizations of one or more employees, work-related amputations, or work-related losses of an eye Burns & McDonnell shall immediately be notified. Failure to comply with this procedure will result in disciplinary action at the discretion of Burns & McDonnell.

Activity Hazard Analysis (AHA)

Major work operations, such as those with a hazardous nature or that require special planning shall use a Burns & McDonnell Safety Form C-12 “Activity Hazard Analysis” completed prior to the work operation. At a minimum, the following details shall be included on the activity hazard analysis:

Define Activity

Describe Sequence of Operation

Specific Hazards Related to Operation

Hazard Control Measures

Training for all Involved Employees
Chapter 3 – General Safety

Competent Person

For work associated with:

Fall hazards, including fall hazards associated with scaffold erection and removal, identify the appropriate fall arrest systems.

Materials handling equipment, address safeguarding measures related to materials handling equipment.

Excavations including excavation safeguarding requirements.

The appropriate activity hazard analysis shall be reviewed and attendance documented by the Subcontractor at the preparatory, initial and follow-up phases of the operation.

Prior to the start of the work operation, the appropriate people shall be assembled by the Subcontractor to complete the activity hazard analysis. All employees involved in the operation shall be trained in all of the details described on the activity hazard analysis. The activity hazard analysis Burns & McDonnell Safety Form C-12 “Activity Hazard Analysis” and verification of training Burns & McDonnell Safety Form C-9 “Certification of Training” for all employees involved in the operation shall be submitted to Burns & McDonnell prior to commencing the work operation.

At a minimum, all of the following work operations and activities require an activity hazard analysis along with any other operations determined necessary by Burns & McDonnell: Building

- Mechanical Equipment Installation
- Pile Driving and Drill Pier Installation
- Structural Steel Erection
- Startup and Commissioning Activities
- Painting, Coating and Lining Operations
- Metal Wall Panel Installation
- Pre-Cast Concrete Panel Installation
- Chemical Cleaning Activities
- Concrete Work
- Excavations & Trenching
- Confined Space Work
- Electrical Equipment Installation
- Foundation Work
- Hazardous Waste Remediation
- Heavy Rigging & Lifting Operations
- Insulation Work
3.3.4 Monthly Submittal Requirements

Monthly Crane Inspection Reports

A monthly crane inspection shall be conducted by the designated competent person for cranes and shall be submitted to Burns & McDonnell by the first working day of each month.

The crane / lift type specific inspection form from the Burns & McDonnell Safety Forms (refer to Chapter 14 or Chapter 18) shall be used.

3.3.5 Weekly Submittal Requirements

Weekly Toolbox Safety Meetings

All Subcontractors on site shall hold weekly toolbox Safety & Health meetings with their employees which shall be documented on the Burns & McDonnell Safety Form C-13 "Weekly Safety Toolbox Meeting" and submitted to Burns & McDonnell within 24 hours of the meeting. Subcontractors shall inform their personnel of any coordination efforts discussed in the Project Safety & Health Coordination Meeting which will affect their work with regard to Safety & Health. In addition, these meetings shall be utilized to inform their personnel of a select topic to educate employees of hazards incurred on the project and in related activities.

3.3.6 One-time Submittals

Competent Person Designation

A list of competent persons per activity (as required by OSHA) shall be submitted prior to beginning work on any activity that requires a competent person use Burns & McDonnell Safety Form C-17 "Competent Person Designation".

Chemical Inventory List (CIL)

A list of hazardous materials and chemicals which are used in the course of the company's normal business activities must be maintained and continually updated. This list is to include all substances which require a Safety Data Sheet (SDS). The Chemical Inventory List shall in include as a minimum the following information:

- The Product Name (as noted on the SDS)
- The Manufacturer’s Name
- Emergency Contact Information
- HMIS Information for Health, Fire, Reactivity, and PPE

A complete chemical inventory for all hazardous chemicals kept on site shall be submitted via Burns & McDonnell L Safety Form Z-1 “Chemical Inventory List”. This list shall be updated as necessary.

Safety Data Sheets (SDS)

A SDS for all chemicals in the chemical inventory list must be provided. Chemicals shall not be brought onsite without the prior submittal of its SDS for inclusion in the SDS inventory and listing on the CIL.

3.3.7 Other Submittals
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Other submittals will be required as needed. For help in meeting these requirements refer to the Burns & McDonnell Safety Form C-20 “Safety Submittals”.

3.4 Project Procedures

Subcontractors shall adhere to the following Project Procedures and Requirements:

3.4.1 All Subcontractor Site Supervision

Superintendents, General Foremen, Foremen, or other members of management (persons supervising workers) shall not operate equipment (e.g. material handling, monitoring, etc.) on Burns & McDonnell projects.

3.4.2 Substance and Alcohol Abuse Prevention Program

Pre-Site Access/Annual Testing
Post Incident
Reasonable Cause
Random

3.4.3 Safety Recognition Programs

Recognition programs are one of the Five High-Impact Zero Injury Techniques as defined by the Construction Industry Institute. Establishment of these programs is considered of high importance for employee recognition and ownership of the Project Safety & Health Program. The Safety Recognition Program will be designed when the project begins and after a formal budget has been established. Subcontractor participation is encouraged to show a commitment of safety/health on all levels for the project.

3.4.4 Task Safety Observations

The purpose of Task Safety Observation is to identify and correct project safety and health hazards and “at risk” behaviors encountered in the workplace, to provide uniform guidance, requirements to identify and correct these hazards and “at risk” behaviors, and satisfy OSHA standards.

General

Inspections and self-assessments are one of the primary management tools for continually improving the Program. These on-site activities are one of the best methods for evaluating individual and group behavior regarding safety. They serve two primary needs: first they evaluate the existing safety and health system which is in place on the project, Second, and more importantly if performed properly, they can evaluate safety behavioral aspects of the individuals and the workforce.

Since 85% of jobsite injuries stem from individual unsafe or “at-risk” behavior, identification of “at risk” behavior is critical to achieving environment free of injury. Safe behavior, plus a continuously improving safety system equals zero injuries.

Procedure

The Site Manager is responsible for the implementation of this procedure when Burns & McDonnell is contractually responsible for safety.

Burns & McDonnell Executive / Senior Management may conduct Task Safety Observation’s at their sole discretion, when Burns & McDonnell is contractually responsible for safety.
Chapter 3 – General Safety

Burns & McDonnell Site Management shall be required to perform a minimum of one formal Task Safety Observation per day, when Burns & McDonnell is contractually responsible for safety, providing immediate, certain, and positive feedback.

Site Management includes the following:

- Site Manager / Construction Manager
- Assistant Project Manager (when applicable)
- Project Superintendent(s)
- Discipline Superintendent(s)
- Quality Assurance Manager (when applicable)
- Site Safety Manager / Specialist (when applicable)
- Field Engineer (when applicable)

Subcontractor supervisors and front-line managers shall be required to perform a minimum of one formal Task Safety Observation per day providing immediate, certain, and positive feedback.

Contractor supervisors and front-line managers include the following:

- Project / Site Manager
- Assistant Project / Site Manager (when applicable)
- Project / General Superintendent(s)
- Discipline Superintendents(s)
- General Foremen
- Foremen

A formal Task Safety Observation should consist of the following:

- Observe crew at work, noting the safe and “at risk” behaviors.
- Review safe and “at risk” behaviors with crew after observation is complete (immediate)
- Safe behaviors should be commended (positive / certain)
- Corrective coaching if necessary (certain), crew should be involved to make the condition or task safe (positive)
- Continued improvement should be encouraged (certain)
- Completion of the Task Safety Observation Card / Form
- Workers being observed should remain anonymous

Completed Task Safety Observations should be submitted to the Site Manager or his / her designee.
Chapter 3 – General Safety

Task Safety Observation results should be recorded / tracked at a project level by utilizing the Task Safety Observation tracking spreadsheet and submitted to the Manager of Operations, Safety and Health, by the 5th of each month.

Negative trends or issues identified should be targeted for improvement.

Project Task Safety Observation results should be communicated to the workforce.

Improvements made by the workforce should be recognized and / or rewarded, at the discretion of Burns & McDonnell Project Management.

Task Safety Observation results should be reviewed by Executive / Senior Management.

Negative trends or issues identified should be targeted for improvement.

Improvements made by individual projects should be recognized and rewarded, at the sole discretion of Executive / Senior Management.

Training

Personnel required, by this program, to perform Task Safety Observations should be trained in the requirements set forth by this program.

Training may be delivered electronically or via an instructor-led class.

3.4.5 Amendment Form

On special occasion(s), circumstances on site will necessitate a change in a safety procedure or procedures. In this event, the Project Manager shall be notified, as well as the Director of Corporate Safety & Health and the Global Practice Manager. The Burns & McDonnell Safety Form C-14 “Program Amendment” shall be completely filled out and signed prior to implementing any new procedure.

3.4.6 Postings

Posting of all federally required notices which includes, but is not limited to the following, shall be posted upon arrival of Subcontractor on site.

- Notice to Workers Concerning Unemployment Benefits,
- Employee Polygraph Protection Act,
- Equal Employment Opportunity,
- Discrimination in Employment,
- Family and Medical Leave Act of 1993,
- Federal Minimum Wage,
- OSHA – Job Safety & Health,
- Emergency Procedures and Contacts
- OSHA 300A Summary (February 1 – April 30).

The appropriate State postings:
3.4.7 Scaffold Tagging

All scaffolding shall be required to be tagged by the Subcontractor's designated competent person for scaffolds indicating its suitability for use. Burns & McDonnell shall be notified each time a scaffold is tagged prior to employee use. Tags shall be affixed to the scaffold so they are easily noticeable at each access point. The color coding is as follows:

<table>
<thead>
<tr>
<th>Scaffold Tag Color</th>
<th>Project Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>UNSAFE – Do Not Use</td>
</tr>
<tr>
<td>Yellow</td>
<td>Warning – Hazard Exists</td>
</tr>
<tr>
<td>Green</td>
<td>Ready to Use</td>
</tr>
</tbody>
</table>

The scaffold erector's competent person(s) shall make daily inspections of the scaffolding prior to its use. The inspection shall be documented on the scaffold tag with the inspector's name/initials and date.

Only the erector of the scaffold shall make modifications to the structure. Access ladders are required. Climbing up the side of scaffolding is not permitted unless the scaffold is designed for such use.

Subcontractors are responsible for obtaining all permits; licenses and having a registered engineer approve the scaffold when applicable.

3.4.8 Signage and Barricading Work

The Subcontractor shall barricade and mark (tag/sign) all hazardous areas. Signs, Tags, and Labels shall be provided to give adequate warning and caution of hazards. They are provided to instruct and direct workers and public. This shall include, but is not limited to open ditches, trenches, and other excavations; overhead work; and temporarily suspended loads.

Red barricades shall denote that enclosed area is off limits to any person(s) not performing work in the area.

Yellow barricades shall denote that a hazard exists and should be identified in the barricaded area prior to entering.

Other colors may be used as specified by CLIENT NAME requirements as follows:

3.4.9 Safety Color Coding

Placement of Signs

Hazard alerting signs must be placed to alert and inform viewers from a safe viewing distance, according to ANSI Z535.2-2011, Sections 11 and 12. They must be legible, and must not be a distraction or create a hazard themselves. They must not be placed on or adjacent to moveable objects like doors, windows, etc. Safety and fire equipment signs must be clearly visible in the immediate vicinity of the equipment. Safety signs must be protected from damage caused by fading and other potential environmental conditions. Signs must be displayed with illumination or retro-reflectiveness as needed for adequate legibility under normal operating conditions.

Where illumination is inadequate or colors are not recognizable, supplemental illumination must be used.
Where illumination may be interrupted, the sign should be made with photo luminescent material.

The following chart represents the color codes of both ANSI/NEMA Z535.1-2006 (R2011) and OSHA:

<table>
<thead>
<tr>
<th>COLOR</th>
<th>MEANING</th>
<th>APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Danger</td>
<td>Safety cans and signs.</td>
</tr>
<tr>
<td></td>
<td>Stop</td>
<td>Emergency stop bar or button on machinery. Identification of fire equipment.</td>
</tr>
<tr>
<td>Fluorescent Orange,</td>
<td>Biosafety</td>
<td>Labels and containers for blood and infectious waste. (Warning labels must be fluorescent orange or orange-red with the biosafety symbol in a contrasting color.)</td>
</tr>
<tr>
<td>Orange- Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>Caution</td>
<td>Tripping, falling and striking hazards. “Flammable, Keep Fire Away” labels on cabinets. Safety cans and containers for explosives, corrosives or unstable materials.</td>
</tr>
<tr>
<td>Orange</td>
<td>Warning</td>
<td>Parts of machinery or energized equipment that may cut, crush or otherwise injure. Inside of transmission guards for pulleys, gears, etc.</td>
</tr>
<tr>
<td>Green</td>
<td>Safety</td>
<td>Location of first aid equipment. Location of safety equipment, respirators, safety showers, etc.</td>
</tr>
<tr>
<td>Blue</td>
<td>Information</td>
<td>Signs and bulletin boards. Specific railroad warnings against starting, using or moving equipment being repaired.</td>
</tr>
<tr>
<td>Black, White, Yellow or</td>
<td>Boundaries</td>
<td>Traffic or housekeeping markings. Stairways, directions and borders.</td>
</tr>
<tr>
<td>Combination of Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with White or Yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magenta or Purple on</td>
<td>Radiation Caution</td>
<td>X-ray, alpha, beta, gamma, neutron and proton radiation.</td>
</tr>
<tr>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.4.10 Evacuation/Emergency Procedures

Evacuation/Emergency Procedures shall be implemented for the following circumstances by the Subcontractor for their employees as applicable:

- Medical emergencies,
- Fire,
- Hazardous material spills and
- Varying weather circumstances.

Subcontractor shall have person(s) trained in providing First Aid and CPR or have a Designated Medical Facility within approximately fifteen (15) minutes of the job site.

The Burns & McDonnell Safety Form E-1 “Emergency Action Plan” may be developed in the field in coordination with any existing CLIENT NAME Emergency Action Plans / Emergency Response Plans.

### 3.4.11 Minimum Personal Protective Equipment

The following minimum personal protective equipment is required 100% of the time on the project:

- **Hard Hat** (ANSI Z89.1-1986, Class E/G)
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Leather work boots steel or composite toe with defined heel

Safety Glasses (ANSI Z87.1-1989)

Full length work pants, coveralls, jeans, etc.

Work shirt with a minimum 4” sleeve length

Hand protection appropriate for task and in accordance with Hand Protection Reference Guide

See Chapter 9 – Personal Protective Equipment for specific requirements of the PPE. Tank tops and halter tops are prohibited! Any articles of clothing or outerwear that display profane or offensive materials are prohibited. Subcontractors are responsible for supplying all personal protective equipment necessary for employees to safely perform duties required.

3.4.12 Cumulative Trauma Prevention

Work activities that require workers to conduct lifting, handling, or carrying; rapid and frequent application of high grasping forces; repetitive hand/arm manipulations; tasks that include continuous, intermittent, impulsive, or impact hand-arm vibration or whole body vibration; and other physical activities that stress the body's capabilities shall be evaluated by a competent person to ensure the activities are designed to match the capabilities of the workers.

When work activities that stress the body's capabilities are identified, the employer shall establish a cumulative trauma disorders prevention plan and incorporate it in the Plan. The plan shall incorporate processes that recognize cumulative trauma hazards, isolate causative factors, inform and train workers, and implement controls.

Control measures to minimize hand-arm vibration shall include: adherence to the TLV guidelines as specified in the ACGIH in "Threshold Limit Values and Biological Exposure Indices"; the use of anti-vibration tools and/or gloves; implementation of work practices that keep the worker's hands and body warm and minimize the vibration coupling between the worker and the vibration tool; and application of specialized medical surveillance to identify personnel susceptible to vibration.

Additional information is found in Chapter 7 - Project Site Ergonomics and Manual Material Handling

3.4.13 Housekeeping

Subcontractors are responsible for housekeeping of their work areas and cleaning of the debris and/or surplus materials accumulated as a result of the work process.

Subcontractors shall monitor craft activities to assure housekeeping cleanup is performed throughout the work process.

Accumulation of debris and waste materials slow the work process, create disorganization and contribute to unsafe work conditions. For this reason, all contracts have been structured to require Subcontractors to remedy such problems as assigned on the notification within the allotted abatement period. Failure to meet such conditions may result in charges to the Subcontractor for removal of trash or waste material by others from the work area or for clearing or moving tools, materials or equipment from aisles, walkways or work areas.

3.4.14 Fire Prevention Program

Each Subcontractor shall be responsible for fire protection throughout all phases of work as required by the National Fire Protection Code and the Chapter 12 of this program.
Only work procedures which minimize fire hazards to the extent practical shall be used. A fire extinguisher shall be present in the immediate vicinity of any hot work. Verification shall be made to assure no fire hazards exist for at least 30 minutes following the conclusion of the hot work activity. In addition the following outline summarizes when fire extinguishers are required:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Location</th>
<th>Type</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>150(c)(1)(i)</td>
<td>Building Area</td>
<td>2A</td>
<td>100 Foot Radius</td>
</tr>
<tr>
<td>150(c)(1)(iv)</td>
<td>Each Floor</td>
<td>2A</td>
<td>100 Foot Radius</td>
</tr>
<tr>
<td>150(c)(1)(iv)</td>
<td>Multi-Story Building</td>
<td>2A or Suitable for Hazard</td>
<td>Next to Stairway</td>
</tr>
<tr>
<td>150(c)(1)(vi)</td>
<td>5 Gal. of Flamm. or Comb. Liquids or 5 Gal. of Flammable Gas</td>
<td>10B</td>
<td>Within 50 Feet</td>
</tr>
<tr>
<td>150(c)(6)</td>
<td>Open Yard Storage</td>
<td>2A or Suitable for Hazard</td>
<td>100 Foot Radius</td>
</tr>
<tr>
<td>152(d)(1)</td>
<td>Flammable Liquid Storage Room</td>
<td>20B</td>
<td>10 Feet Outside</td>
</tr>
<tr>
<td>152(d)(2)</td>
<td>Outside Flammable Liquid Storage Area</td>
<td>20B</td>
<td>25-75 Feet</td>
</tr>
<tr>
<td>152(d)(4)</td>
<td>Vehicles Used for Dispensing or Transporting Flamm. or Comb. Liquids</td>
<td>20B:C</td>
<td>On Vehicle</td>
</tr>
<tr>
<td>152(g)(11)</td>
<td>Service or Fuel Area</td>
<td>20B:C</td>
<td>Within 75 Feet</td>
</tr>
<tr>
<td>153(l)</td>
<td>LP-Gas Storage Area</td>
<td>20B:C</td>
<td>In Location</td>
</tr>
<tr>
<td>352(d)</td>
<td>Welding, Cutting or Heating Areas</td>
<td>Suitable for Hazard</td>
<td>In Area</td>
</tr>
<tr>
<td>550(a)(14)(i)</td>
<td>Crane Cabs</td>
<td>5B:C</td>
<td>On Crane</td>
</tr>
</tbody>
</table>

Subcontractors shall provide, as a minimum, a 20-pound ABC fire extinguisher (charged and ready for use) at each hot work site for fire watch purposes.

### 3.4.15 Site Sanitation/Waste Plan

**All Wastes Shall Be Disposed Of Properly.**

**Controls and Disposal Of Solid Waste**

Solid waste will be picked up and placed in containers as generated. All waste containers shall be emptied by the contractor on a regular basis, as to prevent over-flowing conditions. All handling and disposal will be conducted in such a fashion as to minimize secondary contamination by overflow or spillage during waste transfer.

**Disposal of Demolition and Other Construction Debris**

Disposition of construction debris shall be conducted as follows: All wastes generated by demolition activities shall be segregated as much as practicable, and placed in dumpster. Upon completion of all demolition activities, the area shall be clean, absent of signs of demolition, construction, temporary construction barriers or demolished structures. Exceptions to this requirement shall be specifically defined within the scope of work for this task order.

**Sewage**

All sewage will be disposed of through connections to established sanitary systems. Where such systems are not available, chemical toilets or comparable effective units will be used with collected wastes periodically emptied by means of a sanitary pumping service. No conditions shall be allowed to exist where noticeable odors are present.
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<table>
<thead>
<tr>
<th>Range</th>
<th>Facilities Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 or less</td>
<td>1 toilet seat and 1 urinal</td>
</tr>
<tr>
<td>20 or less</td>
<td>2 toilet seats and 2 urinals</td>
</tr>
<tr>
<td>More than 20</td>
<td>2 toilet seats and 2 urinals per additional 15 workers</td>
</tr>
</tbody>
</table>

Additionally, the above ratio of toilet facilities shall be used for female workers independent of male employees on site. Women's facilities shall be clearly indicated as such and be equipped with a lock. Use of these facilities by males shall be prohibited at any time.

### Dust Control:

Positive dust control shall be exercised at all times during this project. Dust generation during (saw-cutting or chipping) activities shall be minimized by a constant water stream wetting the concrete. All efforts to minimize dust generation with water spray shall be expended.

### Chemicals and Chemical Waste

In the event that a chemical is put into use in some form (after submittals and approvals are obtained if required), the following procedure shall be followed:

- All chemicals shall be dispensed ensuring no spillage to the ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action.
- All activities and inspection shall be documented.
- Chemical waste shall be collected in corrosive resistant containers.
- All chemical containers shall be investigated to assure chemical compatibility with the medium to be collected.
- Collection drums shall be monitored and removed to a storage or staging area when contents are within 6-inches of the top.
- Wastes shall be classified, managed, stored and disposed of in accordance with Federal, State, and local laws and regulations.

### Hazardous Waste Management and Disposal

Hazardous waste generated during the course of this project will be appropriately classified by the responsible party (as determined by contract) and removed for appropriate disposal by a licensed disposal company.

### Fuels and Lubrication

Any fuels brought on-site by the contractor shall be in approved, self-closing, leak-proof, steel containers. These containers (if any) shall not be stored in a designated area and provide secondary containment as required.

### Wastewater Disposal

Wastewater generated during the course of these construction activities, such as spray-waters used during trenching, shall not be allowed to enter any waterways or to enter any storm drain system. Any generated wastewater shall be treated to remove any contaminants prior to discharge, or shall be captured, stored and removed from the facility as potentially contaminated wastewater. No wastewater shall be disposed of without compliance with all Federal, State, or local laws and regulations.

### Garbage Disposal
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The contractor will place all generated garbage in an appropriate container and arrange for disposal by means of contracted vendor, which can provide a timely pick-up.

3.4.16 Cell Phones

Personal cell phone use is prohibited on the project site, with exception given in designated break areas. Cell phones or any other non-intrinsically safe devices are prohibited in process areas.

3.4.17 Breaks and Lunches

Break Areas

All break areas shall be approved by Burns & McDonnell (or client as required). Break area shall be indicated by a clearly defined border on at least 3 sides. Food and drink other than water shall be confined to designated break areas. There shall be no storage of materials in break areas.

Smoking Areas

Smoking shall be confined to designated smoking areas only. Smoking areas shall have a dedicated fire extinguisher and appropriate receptacles for disposal of cigarettes (butt cans, etc.). There shall be no disposal of other trash in these receptacles.

Drinking Water

An adequate supply of fresh, potable drinking water should be provided in an easily accessible location. Portable water containers used to dispense drinking water shall be cleaned daily, must be capable of being tightly closed, and shall equipped with a tap. Any container used to distribute drinking water should be clearly marked with the nature of its contents and not used for any other purpose. Containers shall be sealed (duct taped) and dated for fill date.

Where paper cups are supplied, a disposal receptacle should be provided immediately nearby.

The use of pails and dippers or a common drinking cup for dispensing drinking water is prohibited.

If for any reason water that is unfit for human consumption is used at the job site, it must be identified and labeled to clearly indicate that the water is unsafe for drinking, washing or cooking.

3.4.18 Washing and Hygiene Facilities –

Adequate washing facilities for employee-owners shall be provided where hazardous substances may be handled or come into contact with the skin. Such facilities or means, e.g. disposable wet wipes for hand/face washing shall be in near proximity to the worksite.

3.4.19 Machinery, Tools, Material, or Equipment –

The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement of this part is prohibited. Such machine, tool, material, or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

3.4.20 New to Site Employee

This program is designed to easily identify a Subcontractors employee who is new to the Project and thus better identify that Employee’s need for additional concern and guidance.
Mentor - All management, supervision, safety personnel and experienced employees are mentors. All are expected to help a new employee through a period of familiarization of site safety policies and rules.

New Employee - An employee who is new to the jobsite or the Subcontractor and has worked on site less than 45 days. Identified with an orange or similar unique hard hat sticker placed on the back of his/her hard hat.

**Employee Identification**

Upon completion of the site-specific safety and health orientation, each employee new to the Project Site and/or the Subcontractor will be issued a bright orange "New-to-Site hard-hat sticker which will be placed on the employees hard hat. The orange sticker will be dated at the time of orientation.

The orange Sticker will be left on the hard-hat for a period of 45 calendar days

**Mentors**

All management, supervision, experienced employees and safety personnel are to closely monitor the activities of the new employees. This is not a craft/job/company specific mentoring program as all personnel may provide safety guidance to any new employee.

The mentors are to provide the new employee additional safety guidance and safety-related help during the 45 day period.

**Evaluation and Recognition**

At the end of the 45 day calendar period, the new employee’s supervisor and safety manager/person shall individually “debrief” the new employee and review the new employee’s safety performance.

The supervisor may remove the new employee orange sticker as long as the employee:

- Has not sustained a recordable injury, and
- Was not issued a written safety citation or notice of non-compliance
- Was not responsible for any property or equipment damage and
- Has not missed any scheduled safety meetings.

It is anticipated that the above “debriefing” and performance review will take no more than 10 minutes.

Upon successful completion of the 45 calendar day period and removal of the orange sticker, the employee will be awarded the Site Project Orientation sticker. The sticker should be placed on the back of the hard hat where the orange sticker was removed.

In the event an employee is involved in or experiences one of the four above mentioned performance criteria, the orange sticker must be re-dated and the 45 calendar days starts over.
3.4.21 Visitor Access

Visitors/vendors to the site must sign in using the Burns & McDonnell Safety Form C-16 “Visitor Sign-in”. Visitor(s) accessing the site for less than an eight (8) hour period will not be required to attend the Project Orientation Training. Visitor(s) shall be accompanied by an authorized person - one who has been trained on the project hazards and who is familiar with the project throughout the entirety of his/her visit. If the visitor(s) cannot be accompanied by an authorized individual throughout the entirety of the visit, the visitor(s) shall attend the Project Site Specific Orientation Training prior to accessing any work activity area.

If an emergency should arise the designated person shall take the Visitor Sign-in sheets to the designated assembly area to be used for accountability of personnel.

3.5 Substance and Alcohol Abuse Prevention Program

3.5.1 Purpose

Burns & McDonnell has the right and obligation to maintain a safe, healthy, and efficient working environment. Being under the influence of a drug or alcohol on the job poses serious safety and health risks to the user and to all those who work with the user.

The use, sale, purchase, transfer, or possession of an illegal drug in the workplace, and the use, possession, or being under the influence of alcohol also poses unacceptable risks for safe, healthy, and efficient operations.

The unlawful manufacture, distribution, consumption, possession, or use of a controlled substance and alcohol is prohibited at the worksites under the scope of work for the Project.

The Subcontractor shall comply with these requirements for a Drug and Alcohol Free Workplace, unless a more stringent program is defined for the Project. By signing a contract agreement with Burns & McDonnell or owner, the Subcontractor certifies that their employees will comply with this written substance abuse testing program.

The Subcontractor shall assist Burns & McDonnell in administering the Project requirements for a substance abuse detection and prevention program as part of its responsibilities and scope of work.

All costs for substance abuse/alcohol testing shall be included in the Subcontractor’s contract price.

Personnel entering, working on, or leaving the Project worksite shall be subject to search in support of the substance and alcohol abuse prevention program.

Supplier representatives, home office employees, and field technical representatives who visit the Project worksite on a short-term basis (three-calendar-day period) are not subject to drug and alcohol testing, although such persons are subject to search and/or inspection procedures in support of the substance and alcohol abuse prevention program.

3.5.2 Testing

Burns & McDonnell employee owners and Subcontractor workers working on Project worksites, including workers, new hires, replacements, and supervisory personnel, are subject to the following Drug and Alcohol testing:

- Pre-Site Access/Annual testing,
- Post-Accident/Incident testing,
Probable Cause/Reasonable Suspicion and Random testing as a condition of contract.

Subcontractors are required to send evidence that a worker’s drug and/or alcohol test was negative, regardless of the reason for testing, to Burns & McDonnell within three days of completion of the test utilizing Burns & McDonnell Safety Form C-18 “Substance Abuse Site Access Verification”.

The following is a listing of the types of testing, and required time frames for such testing, as required under this program.

### 3.5.3 Pre-Site Access/Annual Testing

Initial site access of any worker shall be conditional upon successfully meeting the requirements of the pre-site access substance and alcohol test.

The pre-site access test must be taken by the worker within 5 days prior to reporting to the Project site.

Only workers who are certified as drug- and alcohol-free, in accordance with the requirements of this program, shall be permitted by the Subcontractor to work at the Project worksites.

In addition, each worker shall participate in annual testing.

The pre-site access test date will become their new annual testing date for the substance and alcohol abuse prevention program.

This program prohibits the Subcontractor from giving any more than 7 days’ notice to a worker of pre-site access/annual testing.

### 3.5.4 Post-Accident/Incident Testing

A drug and alcohol test of any worker is required when:

- The incident involves a fatality
- They are involved in a near-miss incident caused by them either directly or indirectly, or
- An incident that results in any injury to the worker or any other individual on the Project site, or
- An incident that results in damage to property in excess of $1500

Citations are issued by legal authorities (e.g. police, sheriffs’ department, state police, etc.).

Post incident testing shall be conducted immediately or as soon as reasonably possible after the incident, not to exceed two hours after the incident.

The test is to be administered either at the time of the first physician visit for the injury or on the day of the incident/property damage.

When post-incident testing is conducted, the employees involved in the testing may not return to work until the testing results have been received, reviewed, and the site supervision has authorized the return to work.

### 3.5.5 Probable Cause/Reasonable Suspicion Testing

A drug and alcohol test shall be required at the time of observable probable cause circumstances, based on objective evidence about the worker’s conduct in the workplace, that would cause a reasonable person to
believe that the worker is demonstrating signs of impairment due to alcohol or other drugs, or is in possession of alcohol, drugs, or other controlled substances.

Such observation must be documented using Burns & McDonnell Safety Form C-19 “Substance Abuse Reasonable Cause Documentation”, and the supervisor shall provide Burns & McDonnell with a copy. A copy of the C-19 Form shall be provided to the employee upon request.

3.5.6 Random Testing

Subcontractor is required to perform random testing on their workers working on the Project worksite.

The testing is to be unannounced and unscheduled, and upon notification the worker must immediately report to the testing facility.

Random testing shall be conducted at least once each month. The date of such testing shall be selected using a method of selection that randomly selects the date within the time frame specified, so that the date is unpredictable to the potential subjects of the testing.

Supervisors on the Project will not be informed of the names of selected workers or the date of testing until two hours prior to the actual screening process.

Random selection includes all workers on the jobsite the day selected for random testing.

Workers to be tested shall be chosen using a method of selection that:

- Is truly random without discrimination or arbitrary selection,
- Randomly selects 10 percent of subjects from among the pool of each subcontractor and their lower-tiered subcontractor workers on the project worksite,
- Ensures that every worker has an equal chance to be selected for testing each time a selection takes place each month, and
- Can be verified and documented.

3.5.7 Collections

A pre-screening (e.g. Insta-Check) program may be used along with a urinalysis test only if approved by Burns & McDonnell.

If for any reason the pre-screening is inconclusive the specimen shall be sent to the appropriate facility for testing.

Access to the site shall be prohibited until confirmation of a negative test has been received by Burns & McDonnell.

Specimen collection and pre-screenings will be conducted in accordance with the Department of Health and Human Services (DHHS), Substance Abuse and Mental Health Services Administration (SAMHSA), “Mandatory Guidelines for Federal Workplace Drug Testing Programs”.

Specimen collection(s) can be conducted at the project worksite or a local clinic approved by Burns & McDonnell.

The employee should always be escorted to the collection facility by an accompanying supervisor.
Chapter 3 – General Safety

All substance analysis in specimens shall only be performed by SAMHSA laboratories certified by DHHS, as outlined in the federal guidelines.

In addition, specimen collection shall be conducted in accordance with state and federal law.

The procedure shall be designed to ensure the security and integrity of the specimen provided by each worker by following accepted chain-of-custody guidelines.

Every reasonable effort will be made to maintain the dignity of anyone submitting a specimen for this program.

3.5.8 Methodology

The only methodology for substance abuse testing approved by DHHS is urinalysis.

Urinalysis involves screening for the presence of drug metabolites in a two-step process.

The initial test is an immunoassay, a screening test based on antibodies directed against each major drug class.

Specimens containing the drug at less than the initial test cutoff concentration are reported as “Negative”.

Specimens that are not negative at the initial test are taken to a second, confirmation test using gas chromatography-mass spectrometry (GC/MS). GC/MS is a quantitative test that unequivocally determines presence or absence of the drug.

If a drug is determined to be present at greater than or equal to the confirmation cutoff concentration, it is reported as “Positive”.

No adverse personnel action should ever be taken before completing the two-step procedure.

3.5.9 Refusal to Test

Refusal to test, or failure to remain and complete the testing procedure, shall carry the same sanctions as a positive test result.

Personnel selected for a drug/alcohol test are required to remain under the supervision of their supervisor, collection site personnel, or representative from their company or Burns & McDonnell from the time of test notification until released.

If personnel are unable to supply a sample at the time of testing, they shall be required to wait up to two hours, without leaving the testing facility.

Failure to remain and complete the testing procedure shall be considered a refusal to test, which carries the same sanctions as a positive test.

To accommodate this probability, notification of random testing shall be given in ample time before the end of a shift.

3.5.10 Testing Parameters

Substance Abuse

The substance abuse testing parameters will consist of a 12-panel drug screen using the substances and the cut-off levels listed in TABLE C-4 “Cut-Off Levels for Substance Abuse Testing”. The cut-off levels are
equivalent or more stringent than the DHHS Guidelines for Federal and Department of Transportation (DOT) workplaces listed in the DHHS – SAMHSA guidelines, as well as in 49 CFR Part 40.87 for the DOT.

In addition to these substances and cut-off levels, the creatinine level and specific gravity of the specimen shall be measured.

If the creatinine level is less than 20 milliliter per deciliter and the specific gravity is less than 1.003, the sample shall be considered dilute and another collection will be required.

The second sample shall be requested to be collected the following morning from the time of notification of a diluted sample.

Those samples containing adulterants or considered substituted as determined by the laboratory will be considered as a positive test.

New drugs and preliminary cutoff and confirmation levels may be added and modified periodically in order to parallel the DHHS – SAMHSA and DOT guideline requirements.

More stringent limits of sensitivity and specificity for each drug of abuse may be defined by the Project owner and shall be followed.

**Alcohol Abuse**

The alcohol abuse testing parameters will consist of an alcohol test using the breath or blood to determine blood alcohol content (BAC). If possible, a breathalyzer-type instrument conforming to the DOT guidelines should be used. If that is not available, then a blood draw may be used.

Breath and/or blood collection shall be conducted at the project worksite clinic or a local clinic approved by Burns & McDonnell.

Failure to provide a sufficient breath sample to complete a breath test or refusing to provide a blood sample will be considered a refusal to test and have the same consequences as a positive test.

The minimum requirement for a positive test result for alcohol will be a BAC of 0.02 % or 0.02 grams of alcohol per 100 milliliters of blood.

Any initial breath test that indicates a BAC of 0.02% or greater will be confirmed by an Evidential Breath Testing device operated by a Breath Alcohol Technician.

The confirmation test will be performed no sooner than 15 minutes and no later than 30 minutes following the completion of the initial test.

Two blood samples will be drawn if the blood is used to determine BAC.

An alcohol concentration of 0.02% or greater from the confirmation breath test or concentration of 0.02 grams of alcohol per 100 milliliters of blood or greater from the blood samples will be considered a positive alcohol test.

**Supervision, Confirmation and Control**

All drug testing shall come under the control and supervision of a physician with confidentiality protected in accordance with state law and the “American Medical Association’s Code of Ethical Conduct for Physicians Providing Occupational Medical Services” or the Medical Review Officer Manual, as developed by the National Institute on Drug Abuse (NIDA).
Chapter 3 – General Safety

The laboratory or testing facility shall report all results to the Medical Review Officer (MRO) for verification and medical review.

The MRO shall be a licensed physician responsible for receiving laboratory results generated by a substance abuse testing program, who has knowledge of substance abuse disorders, and who has received appropriate medical training to interpret and evaluate an individual’s medical history, and any other relevant biomedical information, as certified by either the American Medical Association or the American College of Occupational and Environmental Medicine.

3.5.11 Sanctions/Consequences Imposed for Failing Drug and/or Alcohol Test

Immediate removal from the project site shall occur when:

- Any worker is found to possess, distribute, sell, attempt to sell, or transfer of an illegal drug while on project worksites or while performing project business;
- Any worker is found to be in possession of or under the influence of alcohol while on project worksites or while performing project business;
- Any worker is found to be in possession of contraband or other controlled substances;
- Any worker is found through drug and alcohol testing to have in their body a concentration of a substance abuse drug or of alcohol that is equal to or exceeds the confirmatory test cutoff limits; or
- Any worker refuses to cooperate in providing a specimen or participating in the testing.

Anyone failing to comply with this program shall be permanently prohibited project worksite access.

3.5.12 Training

All workers shall be educated in all provisions of this program through classes and/or other methods as appropriate.

All supervisory personnel (site superintendents, site supervisors, foremen) should receive additional training relative to the detection of signs and symptoms of drug and alcohol use.

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Drugs Confirmed</th>
<th>Cut-Off Level (ng/mL) Initial Test (Immunoassay)</th>
<th>Cut-Off Level (ng/mL) Confirmation Test (GC-MS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphetamines</td>
<td>Amphetamine (Dexedrine, Benzedrine) Methamphetamine (Desoxyn, Methedrine)</td>
<td>1,000</td>
<td>500</td>
</tr>
<tr>
<td>Methamphetamines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barbiturates</td>
<td>Amobarbital (Amytal), Butalbital (Fiorinal), Pentobarbital (Nembutal), Phenobarbital (Donnatal), Secobarbital (Seconal)</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Most benzodiazepines used in U.S., and metabolites Diazepam (Valium), Oxazepam (Serax), Chlordiazepoxide (Librium), Alprazolam (Xanax), Chlorazepate (Tranxene),</td>
<td>300</td>
<td>200, except alpha-hydroxyalprazolam</td>
</tr>
</tbody>
</table>
### Table 3 - 6 DOT Rule (49 CFR Part 40 Section 40.87) - Cutoff Levels for Drug Tests

<table>
<thead>
<tr>
<th>Initial test analyte</th>
<th>Initial test cutoff concentration</th>
<th>Confirmatory test analyte</th>
<th>Confirmatory test cutoff concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marijuana metabolites</td>
<td>50 ng/mL</td>
<td>THCA</td>
<td>15 ng/mL</td>
</tr>
<tr>
<td>Cocaine metabolites</td>
<td>150 ng/mL</td>
<td>Benzoylecgonine</td>
<td>100 ng/mL</td>
</tr>
<tr>
<td>Opiate metabolites</td>
<td>2000 ng/mL</td>
<td>Codeine</td>
<td>2000 ng/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Morphine</td>
<td>2000 ng/mL</td>
</tr>
<tr>
<td>Codeine/Morphine²</td>
<td>10 ng/mL</td>
<td>6-Acetylmorphine</td>
<td>10 ng/mL</td>
</tr>
<tr>
<td>Phencyclidine</td>
<td>25 ng/mL</td>
<td>Phencyclidine</td>
<td>25 ng/mL</td>
</tr>
<tr>
<td>AMP/MAMP³</td>
<td>500 ng/mL</td>
<td>Methamphetamine</td>
<td>250 ng/mL</td>
</tr>
<tr>
<td>MDMA⁴</td>
<td>500 ng/mL</td>
<td>MDMA</td>
<td>250 ng/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDA¹</td>
<td>250 ng/mL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDEA²</td>
<td>250 ng/mL</td>
</tr>
</tbody>
</table>

**TABLE NOTES:**

Note: All DOT-required collections are conducted using split specimen procedures. There are no exceptions to this requirement.

Note: If an alcohol test is also required, the alcohol test should be conducted first, if practicable.

1. Delta-9-tetrahydrocannabinol-9-carboxylic acid (THCA).
2. Morphine is the target analyte for codeine/morphine testing.
3. Either a single initial test kit or multiple initial test kits may be used provided the single test kit detects each target analyte independently at the specified cutoff.
4. Methamphetamine is the target analyte for amphetamine/methamphetamine testing.
5. To be reported positive for methamphetamine, a specimen must also contain amphetamine at a concentration equal to or greater than 100 ng/mL.
7. Methylendioxyamphetamine (MDA).
8. Methylendioxyethylamphetamine (MDEA).


**Drug Testing Laboratory Reporting Requirements:**

(a) The laboratory must use the cutoff concentrations displayed in the above table for initial and confirmatory drug tests. All cutoff concentrations are expressed in nanograms per millilitre (ng/mL).
Table 3 - 6 DOT Rule (49 CFR Part 40 Section 40.87) - Cutoff Levels for Drug Tests

(b) On an initial drug test, The Laboratory must report a result below the cutoff concentration as negative. If the result is at or above the cutoff concentration, the laboratory must conduct a confirmation test.

(c) On a confirmation drug test, the laboratory must report a result below the cutoff concentration as negative and a result at or above the cutoff concentration as confirmed positive.

(d) The laboratory must report quantitative values for morphine or codeine at 15,000 ng/mL or above.
Chapter 4 – Walking and Working Surfaces

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4 Walking and Working Surfaces

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  Protection for Wall Openings and Holes
  Protection of Open-Sided Floors, Platforms, and Runways
  Stairway Railings and Guards
  Railing, Toe Boards, and Cover Specifications

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  Care and Use
  Special Requirements

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  Outrigger Scaffolds
  Pump Jack Scaffolds
  Ladder Jack Scaffolds
  Window Jack Scaffolds
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  Step, Platform, and Trestle Ladder Scaffolds
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  Catenary Scaffolds
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  Mobile Scaffolds
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Other Working Services
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4.1 Protection for Floor Openings

4.1.1 Floor Grating

When floor grating must be removed, Burns & McDonnell “Floor Grating and Handrail Removal Permit” Safety Form D-1 shall first be obtained. This form must be posted at the worksite until the grate is back in place and secure.

4.1.2 Hole Covers

Hole covers shall be secured in place and shall be clearly marked as holes by affixing Burns & McDonnell Safety Form D-6 “Hole Cover” Safety Label.

4.2 Protection of Open-Sided Floors, Platforms, and Runways

4.3 Guardrails

Burns & McDonnell “Perimeter Guardrail Inspection” Safety Form D-2 shall be submitted whenever a guardrail is erected.

Whenever a guardrail must be removed Burns & McDonnell “Floor Grating and Guardrail Removal Permit” Safety Form D-1 shall first be obtained.

Upon completion of their work Subcontractors must either: remove their guardrail system, accept continued responsibility for it, or shall submit Burns & McDonnell “Perimeter Guardrail Inspection” Safety Form D-2 with the next controlling contractor.

4.4 Ladders

4.4.1 Care and Use

Ladders shall be inspected monthly and those with defects shall be withdrawn from service for destruction and tagged or marked as Dangerous, Do Not Use. Inspections shall be documented using Burns & McDonnell “Ladder Inspection” Safety Form D-4.

Wooden or metal ladders shall not be used on Burns & McDonnell projects, except job made wooden ladders shall be permitted provided Burns & McDonnell “Job Made Ladder Checklist” Safety Form D-5 is submitted.

4.4.2 Special Requirements

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Ladder extensions
Grab bars
Ladder Safety devices

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- The danger to workers must be minimized
- Lighting and marking must be adequate and appropriate
- Fire retardant properties of paints or solutions must be maintained
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- Application
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Fire Prevention Plans
- Application
- Written and oral fire prevention plans
- Minimum elements of a fire prevention plan
- Worker information
5.1 Emergency Action Plans

Written emergency action plans shall be documented using Burns & McDonnell Health & Safety Form E-1 “EAP and Fire Prevention Plan”, or equivalent. The plans must be completed, kept in the workplace, and made available to all workers for review.
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6 Powered Platforms

Powered Platforms/Aerial Lifts
- Definitions
- General Requirements
- Specific Requirements
6.1 Powered Platforms/Aerial Lifts/Scissor Lifts

6.1.1 General Requirements

Aerial lifts may not be field modified for uses other than those intended by the manufacturer, unless the modification has been certified in writing by the manufacturer to be at least as safe as the equipment was before modification.

Equipment can only be operated by trained workers and within equipment rating and design limitations.

6.1.2 Specific Requirements

Lifts shall be tested each day prior to use. Burns & McDonnell Aerial Lift Inspection Safety Form F-1, or equivalent, shall document these inspections.

The lift controls of bucket, derrick, and pole setting trucks, etc. must be tested before use each day to be sure they are in safe working condition.

Critical safety components that affect raising, lowering, or rotating of lifts must be visually inspected before use on each shift for indications of any possible defects.

When other workers are present, vehicles must not be backed up unless (1) the driver has a clear rear view and the vehicle has a back-up alarm or (2) another Worker serves as a guide.

If a vehicle has outriggers, they must be used unless the work area or terrain prevents their use.

Vehicles may only be used within their maximum load limits and without outriggers if the manufacturer's design and instructions indicate that it is safe to operate without the outriggers.

Before outriggers are set, the operator must have a clear view of the outriggers or otherwise ascertain that all workers are clear of outrigger motion.

When a load is suspended from a boom, operators must remain at the controls unless it can be shown that there is no hazard to personnel, such as those created by a falling load, wind, or unstable soil.

6.1.3 Ground Control and Spotter

A ground-man (spotter) trained in the operation of the aerial lift shall remain with the aerial lift when in use at all times.

A given spotter may serve as ground-man for more than one aerial lift only when they are able to view the lifts in the same line of sight and remain capable of; spotting for the lifts, and advise any parties in the vicinity of the overhead hazard.

A ground-man shall wear a high visibility vest while performing their duties.

6.1.4 Fall Restraint

Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.

An approved fall restraint system shall be worn when working from an aerial lift and attached to the manufacturer's designated restraint point.
An approved fall restraint system shall be attached to the boom or basket when working from an aerial lift and is not permitted to be attached to adjacent poles or structures.

Electrical Clearances

When operating near energized lines or equipment, aerial lift equipment must maintain the minimum approach distance unless the insulated portion of the aerial lift is operated by a 269-qualified employee. If necessary, another worker must be a spotter for the operator to ensure the minimum approach distance is maintained.

### Alternative Minimum Approach Distances for Voltages of 72.5 kV and Less

<table>
<thead>
<tr>
<th>Nominal voltage (kV) phase-to-phase</th>
<th>Phase-to-ground exposure</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m</td>
<td>ft</td>
</tr>
<tr>
<td>0.050 to 0.300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.301 to 0.750</td>
<td>0.63</td>
<td>2.07</td>
</tr>
<tr>
<td>0.751 to 5.0</td>
<td>0.65</td>
<td>2.14</td>
</tr>
<tr>
<td>5.1 to 15.0</td>
<td>0.77</td>
<td>2.53</td>
</tr>
<tr>
<td>15.1 to 36.0</td>
<td>0.84</td>
<td>2.76</td>
</tr>
<tr>
<td>36.1 to 62.5</td>
<td>1.00</td>
<td>3.29</td>
</tr>
</tbody>
</table>

1 Employers may use the minimum approach distances in this table if the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.

2 For single-phase systems, use voltage-to-ground.

### Alternative Minimum Approach Distances for Voltages of More Than 72.5 kV

<table>
<thead>
<tr>
<th>Voltage range phase to phase (kV)</th>
<th>Phase-to-ground exposure</th>
<th>Phase-to-phase exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>72.6 to 121.0</td>
<td>m</td>
<td>ft</td>
</tr>
<tr>
<td>1.13</td>
<td>3.71</td>
<td>1.42</td>
</tr>
<tr>
<td>1.30</td>
<td>4.27</td>
<td>1.64</td>
</tr>
<tr>
<td>1.46</td>
<td>4.79</td>
<td>1.94</td>
</tr>
<tr>
<td>2.04</td>
<td>6.59</td>
<td>3.08</td>
</tr>
<tr>
<td>3.41</td>
<td>11.19</td>
<td>5.52</td>
</tr>
<tr>
<td>4.25</td>
<td>13.94</td>
<td>6.81</td>
</tr>
<tr>
<td>5.07</td>
<td>16.63</td>
<td>8.24</td>
</tr>
<tr>
<td>6.88</td>
<td>22.57</td>
<td>11.38</td>
</tr>
</tbody>
</table>

1 Employers may use the minimum approach distances in this table if the worksite is at an elevation of 900 meters (3,000 feet) or less. If employees will be working at elevations greater than 900 meters (3,000 feet) above mean sea level, the employer shall determine minimum approach distances by multiplying the distances in this table by the correction factor in Table R-5 corresponding to the altitude of the work.

2 Employers may use the phase-to-phase minimum approach distances in this table if no insulated tool spans the gap and no large conductive object is in the gap.

3 The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.

If the aerial lift could contact energized lines, then at least one of the following must be done:

- The energized lines exposed to contact must be covered with insulating protective material that will withstand the type of contact that might be made during the operation; or

- The aerial lift must be insulated, and uninsulated portions of the lifts must maintain the minimum approach distance from live parts.
The aerial lift must also be positioned so that uninsulated portions of the lift cannot come within the minimum approach distance from the live parts.

**Note:** Insulated booms require electrical testing at voltages and intervals specified in ANSI A92.2. An untested boom or one that fails a test is considered non-insulating

or

Workers must be protected by implementing all of the following:

- Each piece of equipment (trucks, trailers, etc.) must be grounded.
- All pieces of equipment must be bonded together.
- Ground mats must be used around equipment to extend the equipotential zone.
- Insulating protective equipment or barricades must be used around the equipotential zone.

### 6.1.5 Training Workers

Employers must provide workers training on hazards, including how to work safely with or near scissor lifts. (29 CFR 1926.454). Training must, at a minimum, include:

- Manufacturer's instructions for operating the scissor lift vertically and while in transit.
- How to handle materials on the scissor lift, including weight limits.
- Other worksite hazards workers may encounter when working on a scissor lift (e.g., contact with electrical wires).
- Reporting any equipment defects or maintenance needs
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7.1 Confined Space Entry in Construction

7.1.1 Scope

This procedure sets forth requirements for practices to protect employees engaged in construction activities at a worksite with one or more confined spaces, subject to the exceptions in paragraph (b) of this section.

Examples of locations where confined spaces may occur include, but are not limited to, the following:

<table>
<thead>
<tr>
<th>Table 7 - 1 Examples of Confined Spaces in Construction Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>heating, ventilation, and air-conditioning (HVAC) ducts</td>
</tr>
<tr>
<td>pits (such as elevator, escalator, pump, valve or other equipment)</td>
</tr>
<tr>
<td>manholes (such as sewer, storm drain, electrical, communication, or other utility)</td>
</tr>
<tr>
<td>tanks (such as fuel, chemical, water, or other liquid, solid or gas)</td>
</tr>
<tr>
<td>concrete pier columns</td>
</tr>
<tr>
<td>precast concrete and other pre-formed manhole units</td>
</tr>
<tr>
<td>bins</td>
</tr>
<tr>
<td>boilers</td>
</tr>
<tr>
<td>sewers</td>
</tr>
<tr>
<td>storm drains</td>
</tr>
<tr>
<td>water mains</td>
</tr>
<tr>
<td>silos</td>
</tr>
<tr>
<td>enclosed beams</td>
</tr>
<tr>
<td>scrubbers</td>
</tr>
<tr>
<td>transformer vaults</td>
</tr>
<tr>
<td>step up transformers</td>
</tr>
<tr>
<td>lift stations</td>
</tr>
<tr>
<td>cesspools</td>
</tr>
<tr>
<td>reactors</td>
</tr>
<tr>
<td>vessels</td>
</tr>
<tr>
<td>air receivers</td>
</tr>
<tr>
<td>sludge gates</td>
</tr>
<tr>
<td>air preheaters</td>
</tr>
<tr>
<td>bag houses</td>
</tr>
<tr>
<td>digesters</td>
</tr>
<tr>
<td>incinerators</td>
</tr>
<tr>
<td>turbines</td>
</tr>
<tr>
<td>chillers</td>
</tr>
<tr>
<td>mixers</td>
</tr>
<tr>
<td>drilled shafts</td>
</tr>
</tbody>
</table>

Exceptions. This procedure does not apply to:

Construction work regulated by Chapter 10 of this plan (Excavations).

Where this procedure applies and there is a more stringent provision that addresses a confined space hazard in another applicable OSHA plan or client program, the subcontractor must comply with both that requirement and the applicable provisions of this procedure.

All confined spaces shall be considered permit required unless they have been declassified using Burns & McDonnell “Work Permit” Safety Form C-07.

Permit-required confined space entry shall not be allowed prior to the completion of Burns & McDonnell “Work Permit” and a pre-entry review has been conducted with the entire authorized crew; Safety Form C-07.

7.1.2 Definitions

Acceptable entry conditions means the conditions that must exist in a permit space, before an employee may enter that space, to ensure that employees can safely enter into, and safely work within, the space.

Attendant means an individual stationed outside one or more permit spaces who assesses the status of authorized entrants and who must perform the duties specified in this section.

Authorized entrant means an employee who is authorized by the entry supervisor to enter a permit space, who has been trained in accordance with and who must perform the duties specified in this section.

Barrier means a physical obstruction that blocks or limits access.

Blanking or blinding means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
**Competent person** means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

**Confined space** means a space that:

- Is large enough and so configured that an employee can bodily enter it;
- Has limited or restricted means for entry and exit; and
- Is not designed for continuous employee occupancy.

**Control** means the action taken to reduce the level of any hazard inside a confined space using engineering methods (for example, by ventilation), and then using these methods to maintain the reduced hazard level. Control also refers to the engineering methods used for this purpose. Personal protective equipment is not a control.

**Controlling Contractor** is the contractor that has overall responsibility for construction at the worksite. Under most conditions within this plan Burns & McDonnell shall be considered as the Controlling Contractor unless otherwise indicated.

**Note to the definition of “Controlling Contractor”.** If the Controlling Contractor owns or manages the property, then it is both a Controlling Contractor and a Host Employer.

**Double block and bleed** means the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

**Early-warning system** means the method used to alert authorized entrants and attendants that an imminent hazard may be developing. Examples of early-warning systems include, but are not limited to:

- Alarms activated by remote sensors; and
- Lookouts with equipment for immediately communicating with the authorized entrants and attendants.

**Emergency** means any occurrence (including any failure of power, hazard control or monitoring equipment) or event, internal or external, to the permit space that could endanger entrants.

**Employee** means any project personnel (including Controlling Contractor, Host Employer or Entry Subcontractor personnel regardless of their affiliation or assigned duties.

**Engulfment** means the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, crushing, or suffocation.

**Entry** means the action by which any part of a person passes through the plane of the opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space, whether or not such action is intentional or any work activities are actually performed in the space.

**Entry Subcontractor** means any subcontractor who decides that an employee it directs will enter a permit space.

**Note** to the definition of “Entry Employer”. A subcontractor cannot avoid the duties of the plan merely by refusing to decide whether its employees will enter a permit space, and Burns & McDonnell as well as OSHA will consider the failure to so decide to be an implicit decision to allow employees to enter those spaces if they are working in the proximity of the space.
Entry permit (permit) means the written or printed document that is provided by the subcontractor who designated the space a permit space to allow and control entry into a permit space and that contains the information specified in this section.

Entry rescue occurs when a rescue service enters a permit space to rescue one or more employees.

Entry supervisor means the qualified person (such as the Entry Subcontractor’s foreman, or Competent Person) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this plan.

Note to the definition of “Entry supervisor” An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by Sections 7-10 of this plan for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

Hazard means a physical hazard or hazardous atmosphere. See definitions below.

Hazardous atmosphere means an atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
- Airborne combustible dust at a concentration that meets or exceeds its LFL;

Note to the definition of “Hazardous atmosphere”. This concentration may be approximated as a condition in which the combustible dust obscures vision at a distance of 5 feet (1.52 meters) or less.

- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in OSHA 29CFR1926 Subpart D (Occupational Health and Environmental Control), or in OSHA 29CFR1910 Subpart Z (Toxic and Hazardous Substances), and which could result in employee exposure in excess of its dose or permissible exposure limit;

Note to the definition of “Hazardous atmosphere”. An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effect not covered by this definition.

- Any other atmospheric condition that is immediately dangerous to life or health.

Note to the definition of “Hazardous atmosphere”. For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Safety Data Sheets that comply with the Hazard Communication Plan, §1926.59, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Host Employer means the entity that owns or manages the property where the construction work is taking place.

Note to the definition of “Host Employer”. If the owner of the property on which the construction activity occurs has contracted with an entity for the general management of that property, and has transferred to that entity the information specified in Section 3(h)(1), OSHA will treat the contracted management entity as the Host Employer for as long as that entity manages the property. Otherwise, OSHA will treat the owner of the property as the Host Employer. In no case will there be more than one Host Employer.

Hot work means operations capable of providing a source of ignition (for example, riveting, welding, cutting, burning, and heating).
Immediately dangerous to life or health (IDLH) means any condition that would interfere with an individual's ability to escape unaided from a permit space and that poses a threat to life or that would cause irreversible adverse health effects.

*Note to the definition of “Immediately dangerous to life or health”. Some materials—hydrogen fluoride gas and cadmium vapor, for example—may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim “feels normal” after recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be “immediately” dangerous to life or health.*

**Inerting** means displacing the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

*Note to the definition of “Inerting”. This procedure produces an IDLH oxygen-deficient atmosphere.*

**Isolate or isolation** means the process by which employees in a confined space are completely protected against the release of energy and material into the space, and contact with a physical hazard, by such means as:

- Blanking or blinding;
- Misaligning or removing sections of lines, pipes, or ducts;
- A double block and bleed system;
- Lockout or tagout of all sources of energy, blocking or disconnecting all mechanical linkages; or
- Placement of barriers to eliminate the potential for employee contact with a physical hazard.

**Limited or restricted means for entry or exit** means a condition that has a potential to impede an employee's movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders.

**Line breaking** means the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

**Lockout** means the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Lower flammable limit or lower explosive limit** means the minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion.

**Monitor or monitoring** means the process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space.

**Non-entry rescue** occurs when a rescue service, usually the attendant, retrieves employees in a permit space without entering the permit space.

**Non-permit confined space** means a confined space that meets the definition of a confined space but does not meet the requirements for a permit-required confined space, as defined below.

**Oxygen deficient atmosphere** means an atmosphere containing less than 19.5 percent oxygen by volume.

**Oxygen enriched atmosphere** means an atmosphere containing more than 23.5 percent oxygen by volume.
Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

Permit-required confined space program (permit space program) means the contractor’s or subcontractor’s overall program for controlling, and, where appropriate, for protecting employees from, permit space hazards and for regulating employee entry into permit spaces.

Physical hazard means an existing or potential hazard that can cause death or serious physical damage. Examples include, but are not limited to:

- Explosives (as defined by paragraph (n) of §1926.914, definition of “explosive”);
- Mechanical, electrical, hydraulic and pneumatic energy;
- Radiation;
- Temperature extremes;
- Engulfment;
- Noise;
- Inwardly converging surfaces

Physical hazard also includes chemicals that can cause death or serious physical damage through skin or eye contact (rather than through inhalation).

Prohibited condition means any condition in a permit space that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the subcontractor can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee.

Qualified person means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Representative permit space means a mock-up of a confined space that has entrance openings that are similar to, and is of similar size, configuration, and accessibility to, the permit space that authorized entrants enter.

Rescue means retrieving, and providing medical assistance to, one or more employees who are in a permit space.

Rescue service means the personnel designated to rescue employees from permit spaces.

Retrieval system means the equipment (including a retrieval line, chest or full body harness, wristlets or anklets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.
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*Serious physical damage* means an impairment or illness in which a body part is made functionally useless or is substantially reduced in efficiency. Such impairment or illness may be permanent or temporary and includes, but is not limited to, loss of consciousness, disorientation, or other immediate and substantial reduction in mental efficiency. Injuries involving such impairment would usually require treatment by a physician or other licensed health-care professional.

**Tagout** means:

Placement of a tagout device on a circuit or equipment that has been de-energized, in accordance with an established procedure, to indicate that the circuit or equipment being controlled may not be operated until the tagout device is removed; and

The subcontractor ensures that:

Tagout provides equivalent protection to lockout; or

That lockout is infeasible and the subcontractor has relieved, disconnected, restrained and otherwise rendered safe all stored (residual) energy.

**Test or testing** means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

*Note:* Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

**Ventilate** or **ventilation** means controlling a hazardous atmosphere using continuous forced-air mechanical systems that meet the requirements of 1926.57 (Ventilation).

The permit required space atmosphere shall be tested to determine whether dangerous air contamination or oxygen deficiency exists.

The minimum parameters to be monitored are oxygen deficiency, Lower Flammable Level (LFL), and hydrogen sulfide concentration.

A written record of the pre-entry test results is made and kept at the worksite for the duration of the job. Affected workers are able to review the testing results.

The most hazardous conditions will determine when work is being performed in two adjoining, connected spaces.

A direct reading gas monitor shall be used.

Portable gas monitors shall be bump tested prior to use.

Testing shall be documented using Burns & McDonnell “Portable Gas Monitor Bump Test Log” Safety Form G-08.

### 7.1.3 General Requirements

Before beginning work at a worksite, each subcontractor must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.
If the workplace contains one or more permit spaces, the Controlling Contractor, Host Employer or Entry Subcontractor who identifies, or who receives notice of, a permit space must:

Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space; and

A sign reading:

“DANGER—PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER”

or using other similar language would satisfy the requirement for a sign.

Inform, in a timely manner and in a manner other than posting, its employees’ authorized representatives and the Controlling Contractor of the existence and location of, and the danger posed by, each permit space.

Each subcontractor who identifies, or receives notice of, a permit space and has not authorized employees it directs to work in that space must take effective measures to prevent those employees from entering that permit space, in addition to complying with all other applicable requirements of this plan.

If any subcontractor decides that employees it directs will enter a permit space, that subcontractor must have a written permit confined space program that complies with this section and is implemented at the construction site. The written program must be made available prior to and during entry operations for inspection by employees and their authorized/competent representatives.

A subcontractor may use the alternate procedures specified in this section for entering a permit space only under the conditions set forth in this section provided that all of the following conditions are met:

- The subcontractor can demonstrate that all physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere;
- The subcontractor can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation system stops working, entrants can exit the space safely;
- The subcontractor develops monitoring and inspection data that supports the demonstrations required by this section;
- If an initial entry of the permit space is necessary to obtain the data required by this section, the entry is performed in compliance with the permit required entry sections.
- The determinations and supporting data required by this section are documented by the subcontractor and are made available to each employee who enters the permit space under the terms of this section or to that employee’s authorized representative; and
- The entry into the permit space under the above conditions and terms of this section is performed in accordance with the requirements of the following paragraph of this section.

**Note:** See paragraph (g) of this section for reclassification of a permit space after all hazards within the space have been eliminated.

The following requirements apply to entry into permit spaces that meet the conditions set forth in the above paragraph of this section:

Any conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed.
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When entrance covers are removed, the opening must be immediately guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.

Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee, who enters the space, or that employee's authorized/competent representative, must be provided an opportunity to observe the pre-entry testing required by this paragraph.

No hazardous atmosphere is permitted within the space whenever any employee is inside the space.

Continuous forced air ventilation must be used, as follows:

An employee must not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;

The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present within the space and must continue until all employees have left the space;

The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space.

The atmosphere within the space must be continuously monitored unless the Entry Subcontractor can demonstrate that equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient.

If continuous monitoring is used, the subcontractor must ensure that the monitoring equipment has an alarm that will notify all entrants if a specified atmospheric threshold is achieved, or that an employee will check the monitor with sufficient frequency to ensure that entrants have adequate time to escape.

If continuous monitoring is not used, periodic monitoring is required. All monitoring must ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space, or that employee's authorized/competent representative, must be provided with an opportunity to observe the testing required by this paragraph.

If a hazard is detected during entry:

Each employee must leave the space immediately;

The space must be evaluated to determine how the hazard developed; and

The subcontractor must implement measures to protect employees from the hazard before any subsequent entry takes place.

The subcontractor must ensure a safe method of entering and exiting the space. If a hoisting system is used, it must be designed and manufactured for personnel hoisting; however, a job-made hoisting system is permissible if it is approved for personnel hoisting by a registered professional engineer, in writing, prior to use.

The subcontractor must verify that the space is safe for entry and that the pre-entry precautions required by his section have been taken, through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification must be made before entry and must be made available to each employee entering the space or to that employee's authorized/competent representative.

When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate,
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Each Entry Subcontractor must have a competent person reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

A space classified by a subcontractor as a permit-required confined space may only be reclassified as a non-permit confined space when a competent person determines that all of the applicable requirements of this section have been met:

If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless the subcontractor can demonstrate that doing so without entry is infeasible), the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated;

The Entry Subcontractor must eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, such entry must be performed as a permit required entry. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated in accordance with the C-07 permit, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated;

**Note:** Control of atmospheric hazards through forced air ventilation does not constitute elimination or isolation of the hazards. This paragraph covers permit confined space entry where the subcontractor can demonstrate that forced air ventilation alone will control all hazards in the confined space.

The Entry Subcontractor must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification on the C-07 permit form that contains the date, the location of the space, and the signature of the competent person making the determination. The certification must be made available to each employee entering the space or to that employee's authorized/competent representative; and

If hazards arise within a permit space that has been reclassified as a non-permit space each employee in the space must exit the space. The Entry Subcontractor must then reevaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions of this plan and associated documentation.

Permit space entry communication and coordination.

Information sharing, pre-entry and post-entry debrief shall be documented using the Burns & McDonnell Safety Form C-6A “Confined Space Host – Contractor Information Transfer”. The confined space hazard evaluation / assessment may be performed using the Burns & McDonnell Safety Form C-6B “Confined Space Hazard Assessment”.

Before entry operations begin, the Host Employer must provide the following information, if it has it, to the Controlling Contractor:

- The location of each known permit space;
- The hazards or potential hazards in each space or the reason it is a permit space; and
- Any precautions that the Host Employer or any previous Controlling Contractor or Entry Subcontractor implemented for the protection of employees in the permit space.

Before entry operations begin, the Controlling Contractor must:

- Obtain the Host Employer's information about the permit space hazards and previous entry operations; and
- Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:
The information received from the Host Employer;

Any additional information the Controlling Contractor has about the subjects listed in this section; and

The precautions that the Host Employer, Controlling Contractor, or other Entry Subcontractor has implemented for the protection of employees in the permit spaces.

Before entry operations begin, each Entry Subcontractor must:

Obtain all of the Controlling Contractor's information regarding permit space hazards and entry operations; and

Inform the Controlling Contractor of the permit space program that the Entry Subcontractor will follow, including any hazards likely to be confronted or created in each permit space.

The Controlling Contractor and Entry Subcontractor(s) must coordinate entry operations when:

More than one entity performs permit space entry at the same time; or

Permit space entry is performed at the same time that any activities that could foreseeably result in a hazard in the permit space are performed.

After entry operations:

The Controlling Contractor must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations;

The Entry Subcontractor must inform the Controlling Contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations; and

The Controlling Contractor must apprise the Host Employer of the information exchanged with the entry entities pursuant to this subparagraph.

**Note:** Unless a Host Employer or Controlling Contractor has or will have employees in a confined space, it is not required to enter any confined space to collect the information specified in this section.

If there is no Controlling Contractor present at the worksite, the requirements for, and role of, Controlling Contactors in this section must be fulfilled by the Host Employer or other subcontractor who arranges to have employees of another subcontractor perform work

### 7.1.4 Permit-Required Confined Space Program

Each Entry Subcontractor must:

Implement the measures necessary to prevent unauthorized entry;

Identify and evaluate the hazards of permit spaces before employees enter them;

Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:

- Specifying acceptable entry conditions;
- Providing each authorized entrant or that employee's authorized/competent representative with the opportunity to observe any monitoring or testing of permit spaces;
- Isolating the permit space and physical hazard(s) within the space;
Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards;

**Note:** When a subcontractor is unable to reduce the atmosphere below 10 percent LFL, the subcontractor may only enter if the subcontractor inerts the space so as to render the entire atmosphere in the space non-combustible, and the employees use PPE to address any other atmospheric hazards (such as oxygen deficiency), and the subcontractor eliminates or isolates all physical hazards in the space.

Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space;

Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards;

Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensuring that employees are not allowed to enter into, or remain in, a permit space with a hazardous atmosphere unless the subcontractor can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee; and

Eliminating any conditions (for example, high pressure) that could make it unsafe to remove an entrance cover.

Provide the following equipment specified in this section at no cost to each employee, maintain that equipment properly, and ensure that each employee uses that equipment properly:

- Testing and monitoring equipment needed to comply with the paragraphs of this section;
- Ventilating equipment needed to obtain acceptable entry conditions;
- Communications equipment necessary for compliance with this section, including any necessary electronic communication equipment for attendants assessing entrants’ status in multiple spaces;
- Personal protective equipment insofar as feasible engineering and work-practice controls do not adequately protect employees;

**Note:** The requirements of this section and other PPE requirements continue to apply to the use of PPE in a permit space. For example, if employees use respirators, then the respirator requirements in §1926.103 (Respiratory protection) must be met

Lighting equipment that meets the minimum illumination requirements in §1926.56, that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present, and that is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency;

Barriers and shields as required by this section;

Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;

Rescue and emergency equipment needed to comply with this section, except to the extent that the equipment is provided by rescue services; and

Any other equipment necessary for safe entry into, safe exit from, and rescue from, permit spaces.

Evaluate permit space conditions in accordance with the following paragraphs of this section when entry operations are conducted:
Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space's natural ventilation are made, and before entry is authorized to begin, except that, if an subcontractor demonstrates that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), the subcontractor must:

Perform pre-entry testing to the extent feasible before entry is authorized; and,

If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working, except that employers may use periodic monitoring in accordance with paragraph (e)(2) of this section for monitoring an atmospheric hazard if they can demonstrate that equipment for continuously monitoring that hazard is not commercially available;

Provide an early-warning system that continuously monitors for non-isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space.

Continuously monitor atmospheric hazards unless the subcontractor can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels.

If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations;

When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors;

Provide each authorized entrant or that employee's authorized/competent representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces;

Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized/competent representative who requests that the subcontractor conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate; and

Immediately provide each authorized entrant or that employee's authorized/competent representative with the results of any testing conducted in accordance with this section.

Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations:

Attendants may be assigned to more than one permit space provided their duties can be effectively performed for each permit space.

Attendants may be stationed at any location outside the permit space as long as their duties can be effectively performed for each permit space to which the attendant is assigned.

If multiple spaces are to be assigned to a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of those permit spaces without distraction from the attendant's responsibilities.

Designate each person who is to have an active role (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by this section.

Develop and implement procedures for summoning rescue and emergency services (including procedures for summoning emergency assistance in the event of a failed non-entry rescue), for rescuing entrants from permit
spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue;

Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this plan, including the safe termination of entry operations under both planned and emergency conditions;

Develop and implement procedures to coordinate entry operations, in consultation with the controlling contractor, when employees of more than one subcontractor are working simultaneously in a permit space or elsewhere on the worksite where their activities could, either alone or in conjunction with the activities within a permit space, foreseeably result in a hazard within the confined space, so that employees of one subcontractor do not endanger the employees of any other employer;

Develop and implement procedures (such as closing off a permit space and canceling the permit) necessary for concluding the entry after entry operations have been completed;

Review entry operations when the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized; and

**Note:** Examples of circumstances requiring the review of the permit space program include, but are not limited to: Any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

Review the permit space program, using the cancelled permits retained under Section (5)(f), within 1 year after each entry and revise the program as necessary to ensure that employees participating in entry operations are protected from permit space hazards.

**Note:** Employers may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

<table>
<thead>
<tr>
<th>Table 7 - 2 Entry Procedures for Confined Space Conditions</th>
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<tbody>
<tr>
<td><strong>If you have any of the following conditions</strong></td>
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<tr>
<td>Testing demonstrates the existence of dangerous or deficient conditions and additional ventilation cannot reduce concentrations to safe levels</td>
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<tr>
<td>The atmosphere tests as safe but unsafe conditions can reasonably be expected to develop</td>
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<tr>
<td>It is not feasible to provide for immediate exit from spaces equipped with automatic fire suppression systems and it is not practical or safe to deactivate such systems</td>
</tr>
<tr>
<td>An emergency exists and it is not feasible to wait for pre-entry procedures to take effect</td>
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### 7.1.5 Permitting Process
Before entry is authorized, each Entry Subcontractor must document the completion of measures required by this section by preparing an entry permit. All permit-required confined spaces require the completion of the Burns & McDonnell “Work Permit” Safety Form C-07 which shall serve as the determination of permitting requirements.

Before entry begins, the entry supervisor identified on the permit must sign the entry permit to authorize entry.

The completed permit must be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry portal or by any other equally effective means; so that the entrants can confirm that pre-entry preparations have been completed.

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

The entry supervisor must terminate entry and take the following action when any of the following apply:

- Cancel the entry permit when the entry operations covered by the entry permit have been completed; or
- Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed under the entry permit arises in or near the permit space and that condition is temporary in nature and does not change the configuration of the space or create any new hazards within it; and
- Cancel the entry permit when a condition that is not allowed under the entry permit arises in or near the permit space.

The Entry Subcontractor must retain each cancelled entry permit for at least 1 year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

### 7.1.6 Entry Permit

The entry permit that documents compliance with this section and authorizes entry to a permit space must identify:

- The permit space to be entered;
- The purpose of the entry;
- The date and the authorized duration of the entry permit;
- The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space;

**Note:** This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

- Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working;
- Each person, by name, currently serving as an attendant;
- The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry;
- The hazards of the permit space to be entered;
- The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;
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Note: Those measures can include, but are not limited to, the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

The acceptable entry conditions;

The results of tests and monitoring performed, accompanied by the names or initials of the testers and by an indication of when the tests were performed;

The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services;

The communication procedures used by authorized entrants and attendants to maintain contact during the entry;

Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this plan;

Any other information necessary, given the circumstances of the particular confined space, to ensure employee safety; and

Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

7.1.7 Training

The subcontractor must provide training to each employee whose work is regulated by this plan, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this plan. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.

Training required by this section must be provided to each affected employee:

   In both a language and vocabulary that the employee can understand;

   Before the employee is first assigned any duties under this plan;

   Before there is a change in assigned duties;

   Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained; and

   Whenever there is any evidence of a deviation from the permit space entry procedures or there are inadequacies in the employee’s knowledge or use of these procedures.

The training must establish employee proficiency in the duties required by this procedure and must introduce new or revised procedures, as necessary, for compliance with this plan.

Prior to entering Confined Spaces, employees are to be trained in:

   Confined Space Program Roles and Responsibilities;

   Basic knowledge of atmospheric monitoring criteria;

   Permitting methods (Permit/Non-Permit);
Communication methods;
Respirator use, if required;
Fire prevention and the use of selected fire suppression equipment;
The hazards and safe work practices specific to each Confined Space Entry;
Emergency procedures for Non-Entry Rescue and requirements for emergency personnel notification for Entry Rescue; and
Entry Supervisor’s, Qualified Entrant's and Attendant's responsibilities.

Each affected employee must be trained prior to initial assignment, prior to a change in assigned duties, if a new hazard has been created or special deviations have occurred.

All Confined Space Training is to be documented on the Training Certification Form (Form C-09). The Corporate Department or Site Safety Manager (If qualified) are available to coordinate and/or provide Confined Space Training.

The trainer shall certify that the required training has been accomplished. The certification shall include employee name, trainer signature/initials, date of training.

Certification must be made available to employees and their authorized representative.

The subcontractor must maintain training records to show that the required training of this section has been accomplished. The training records must contain each employee’s name, the name of the trainers, and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

7.1.8 Duties of Authorized Entrants

The Entry Subcontractor must ensure that all authorized entrants:

Are familiar with and understand the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
Properly use equipment;
Communicate with the attendant as necessary to enable the attendant to assess entrant status and to enable the attendant to alert entrants of the need to evacuate the space;
Alert the attendant whenever:
- There is any warning sign or symptom of exposure to a dangerous situation; or
- The entrant detects a prohibited condition; and
Exit from the permit space as quickly as possible whenever:
- An order to evacuate is given by the attendant or the entry supervisor;
- There is any warning sign or symptom of exposure to a dangerous situation;
- The entrant detects a prohibited condition; or
An evacuation alarm is activated.

7.1.9 Duties of Attendants

The Entry Subcontractor must ensure that each attendant:

is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

is aware of possible behavioral effects of hazard exposure in authorized entrants;

Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants accurately identifies who is in the permit space;

Remains outside the permit space during entry operations until relieved by another attendant;

**Note:** Once an attendant has been relieved by another attendant, the relieved attendant may enter a permit space to attempt a rescue when the employer's permit space program allows attendant entry for rescue and the attendant has been trained and equipped for rescue operations.

Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space;

Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:

- If there is a prohibited condition;
- If the behavioral effects of hazard exposure are apparent in an authorized entrant;
- If there is a situation outside the space that could endanger the authorized entrants; or
- If the attendant cannot effectively and safely perform all the duties required under this section;

Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;

Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:

- Warns the unauthorized persons that they must stay away from the permit space;
- Advises the unauthorized persons that they must exit immediately if they have entered the permit space; and
- Informs the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;

Performs non-entry rescues as specified by the employer's rescue procedure; and

Performs no duties that might interfere with the attendant's primary duty to assess and protect the authorized entrants.

7.1.10 Duties of Entry Supervisors

The Entry Subcontractor must ensure that each entry supervisor:
is familiar with and understands the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;

Terminates the entry and cancels or suspends the permit;

Verifies that rescue services are available and that the means for summoning them are operable, and that the subcontractor will be notified as soon as the services become unavailable;

Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and

Determines, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

7.1.11 Rescue and Emergency Services

A subcontractor who designates rescue and emergency services must:

Evaluate a prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified;

Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified;

Select a rescue team or service from those evaluated that:

- Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
- Is equipped for, and proficient in, performing the needed rescue services;
- Agrees to notify the subcontractor immediately in the event that the rescue service becomes unavailable;

Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and

Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue team or service can develop appropriate rescue plans and practice rescue operations.

Provide a written copy of operating and rescue procedures as required by these procedures at the worksite for the duration of the job.
A subcontractor whose employees have been designated to provide permit space rescue and/or emergency services must take the following measures and provide all equipment and training at no cost to those employees:

Provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE;

Train each affected employee to perform assigned rescue duties. The subcontractor must ensure that such employees successfully complete the training required and establish proficiency as authorized entrants;

Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR). The subcontractor must ensure that at least one member of the rescue team or service holding a current certification in basic first aid and CPR is available; and

Ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces, except practice rescue is not required where the affected employees properly performed a rescue operation during the last 12 months in the same permit space the authorized entrant will enter, or in a similar permit space.

Representative permit spaces must, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.

Non-entry rescue is required unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. The subcontractor must designate an entry rescue service whenever non-entry rescue is not selected. Whenever non-entry rescue is selected, the Entry Subcontractor must ensure that retrieval systems or methods are used whenever an authorized entrant enters a permit space, and must confirm, prior to entry, that emergency assistance would be available in the event that non-entry rescue fails. Retrieval systems must meet the following requirements:

Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which the subcontractor can establish presents a profile small enough for the successful removal of the entrant. Wristlets or anklets may be used in lieu of the chest or full body harness if the subcontractor can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets or anklets is the safest and most effective alternative.

The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

Equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or retrieval lines that will not work due to the internal configuration of the permit space.

If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant.

7.1.12 Employee participation

Employers must consult with affected employees and their authorized representatives on the development and implementation of all aspects of the permit space program.

Employers must make available to each affected employee and his/her authorized/competent representatives all information required to be developed by this plan.
7.2 Confined Space - Sewer System Entry

Sewer entry differs in three vital respects from other confined space permit entries; first, there rarely exists any way to completely isolate the space to be entered; second, because isolation is not complete, the atmosphere may suddenly and unpredictably become lethally hazardous (toxic, flammable or explosive) from causes beyond the control of the entrant, and third, experienced sewer workers are especially knowledgeable in entry and work in their permit spaces because of their frequent entries. Unlike other employments where permit space entry is a rare and exceptional event, sewer workers' usual work environment is a permit space.

Adherence to procedure.

Only workers trained in sewer entry are allowed in sewer systems.

Atmospheric monitoring.

Entrants will be trained in the use of, atmospheric monitoring equipment which sounds an audible alarm, in addition to its visual readout. Atmospheric monitors will be available for entrants.

Surge flow and flooding.

Sewer crews shall communicate with the local weather bureau and fire and emergency services in their area so that sewer work may be delayed or interrupted and entrants withdrawn whenever sewer lines might be suddenly flooded by rain or fire suppression activities, or whenever flammable or other hazardous materials are released into sewers during emergencies by industrial or transportation accidents.

Special Equipment.

Entry into large bore sewers may require the use of special equipment. Such equipment might include such items as atmosphere monitoring devices with automatic audible alarms, escape self-contained breathing apparatus (ESCBA) with at least 10 minute air supply (or other NIOSH approved self-rescuer), and waterproof flashlights, and may also include boats and rafts, radios and rope stand-offs for pulling around bends and corners as needed.

7.2.1 Scope and Application

The sections that follow apply only to permit-required confined space entry. The information on alternate entry has been identified with a title.

Potential Hazards

Workers could be exposed to the following:

Engulfment and drowning

Presence of toxic gases that are equal to or more than 10 ppm hydrogen sulfide; measured as an eight-hour time-weighted average; or if the presence of other toxic contaminants is suspected, specific monitoring shall be implemented.

Presence of explosive/flammable gases that are equal to or greater than ten percent of the lower flammable limit (LFL)

Oxygen deficiency/enrichment where the oxygen concentration in the atmosphere which is equal to or less than 19.5% by volume is considered a deficiency, while an oxygen concentration which is greater than 23.5% by volume is enrichment.

Entry Permits
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All sewers are considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise by completion of Burns & McDonnell “Work Permit” Safety Form C-7.

Any worker required or permitted to pre-check or enter a sewer shall have successfully completed, at a minimum, the training outlined in our training procedures.

A written copy of operating and rescue procedures as required by these procedures is at the worksite for the duration of the job.

The sewer entry permit is completed before approval can be given to enter a sewer.

The permit verifies completion of items required to protect workers.

The permit is kept at the job site for the duration of the job.

If circumstances cause an interruption in the work or a change in the alarm conditions for which entry was approved, a new sewer entry permit needs to be completed.

7.2.2 Control of Atmospheric and Engulfment Hazards

Surveillance

The surrounding area is surveyed to avoid hazards such as drifting vapors from tanks, piping, or sewers.

Testing

The sewer atmosphere shall be tested to determine whether dangerous air contamination or oxygen deficiency exists.

A direct reading gas monitor is used. Portable gas monitors shall be bump tested prior to use. Record of testing shall be documented using Burns & McDonnell Portable gas Monitor Bump Test Log Safety Form G-8.

Testing is performed by a supervisor who has successfully completed the gas detector training for the monitoring method used.

The minimum parameters to be monitored are oxygen deficiency, Lower Flammable Level (LFL), and hydrogen sulfide concentration.

A written record of the pre-entry test results is made and kept at the worksite for the duration of the job.

Affected workers are able to review the testing results.

The most hazardous conditions will determine when work is being performed in two adjoining, connected spaces.

Space ventilation

Mechanical ventilation systems, where required, are set at one hundred percent of the outside air.

Where possible, open additional manholes to increase air circulation.

Use portable blowers to increase natural circulation if needed.

After a suitable ventilation period, repeat the testing.

Entry may not begin until testing has demonstrated that the hazardous atmosphere has been eliminated or controlled.
7.2.3 Entry Procedures

<table>
<thead>
<tr>
<th>If you have any of the following conditions</th>
<th>Then follow these procedures</th>
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<tbody>
<tr>
<td>1. Testing demonstrates the existence of dangerous or deficient conditions and additional ventilation cannot reduce concentrations to safe levels</td>
<td>All workers are trained A self-contained breathing apparatus is worn by any person entering the sewer. At least one worker stands by the outside of the sewer ready to give assistance in case of emergency. The rescue workers have a self-contained breathing apparatus available for immediate use. There is at least one additional worker within sight or call of the standby worker. Continuous powered communications is maintained between the worker within the sewer and standby personnel.</td>
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<tr>
<td>8. The atmosphere tests as safe but unsafe conditions can reasonably be expected to develop</td>
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<tr>
<td>9. It is not feasible to provide for immediate exit from spaces equipped with automatic fire suppression systems and it is not practical or safe to deactivate such systems</td>
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<td>10. An emergency exists and it is not feasible to wait for pre-entry procedures to take effect</td>
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7.2.4 Alternate Entry

Certification

Sewers may be entered without the need for a written permit or attendant if the space can be maintained in a safe condition for entry by mechanical ventilation alone.

All sewers are considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise.

Any worker required or permitted to pre-check or enter a sewer will have successfully completed, at a minimum, the training outlined in our training procedures.

A written copy of operating and rescue procedures shall be at the worksite for the duration of the job.

The sewer pre-entry checklist Burns & McDonnell Confined Space Entry Permit Safety Form G-7 shall be completed before entry into a sewer.

If circumstances dictate an interruption in the work, the sewer shall be reevaluated and a new checklist shall be completed.

Pumps and Lines:

All pumps and lines which may reasonably cause contaminants to flow into the sewer are disconnected, blinded, and locked out, or effectively isolated by other means to prevent development of dangerous air contamination or engulfment.

Not all lateral lines to sewers or storm drains require blocking. However, where experience or knowledge of use indicates a reasonable potential for contamination of air or engulfment into an occupied sewer, then all affected lateral lines are to be blocked.

If blocking or isolation requires entry into the sewer, the provisions for entry into a permit-required confined space are implemented.

Surveillance:
The surrounding area is surveyed to avoid hazards such as drifting vapors from tanks, piping, or sewers.

Testing:

The atmosphere within the sewer will be tested to determine whether dangerous air contamination or oxygen deficiency exists.

Detector tubes, alarm only gas monitors, and explosion meters are examples of monitoring equipment that may be used to test sewer atmospheres.

Testing is performed by the entry supervisor who has successfully completed the gas detector training for the monitoring method to be used.

The minimum parameters to be monitored are oxygen deficiency, LFL, and hydrogen sulfide concentration.

A written record of the pre-entry test results are made and kept at the worksite for the duration of the job.

The supervisor will certify in writing, based upon the results of the pre-entry testing, that all hazards have been eliminated or controlled.

Affected workers shall be able to review the testing results.

The most hazardous conditions will determine when work is being performed in two adjoining, connecting spaces.

Entry Procedures

When entering without permit or an attendant, entry into and work within may proceed if:

- There are no non-atmospheric hazards present
- The pre-entry tests show there is no dangerous air contamination or oxygen deficiency within the space; and there is no reason to believe that any is likely to develop
- Continuous testing of the atmosphere in the immediate vicinity of the workers within the space is accomplished
- Workers will immediately leave the sewer when any of the gas monitor alarm set points are reached as defined
- Workers will not return to the area until a supervisor who has completed the gas detector training has used a direct reading gas detector to evaluate the situation and has determined that it is safe to enter.

If you are entering a space without a permit or an attendant

Arrangements for rescue services are not required for entries that do not require a permit.

See the rescue section for instructions regarding rescue planning where an entry permit is required.

7.2.5 Rescue

Call the local rescue service

Rescue entries into sewers are made only by trained and properly equipped personnel.

If immediate hazards to injured personnel are present, workers at the site implement emergency procedures without entering the sewer.
Continuous gas monitoring performed during all sewer entry operations. If alarm conditions occur, entry personnel exit the sewer and permit is no longer valid.

When dangerous air contamination is attributable to flammable or explosive substances, lighting and electrical equipment needs to be Class 1, Division 1 rated per National Electrical Code (NEC) and no ignition sources may be introduced into the area.

When it is practical, the full-body harness is used to suspend a person upright and a hoisting device or similar apparatus is available for lifting workers out of the sewer.

If at any time the use of a hoisting device or full-body harness and attached lifeline may endanger the worker, their use may be discontinued.

NOTE: Review and follow the requirements for any of the situations in Table G-2, Procedures for Removing Workers from Sewers.

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</table>
| There is any questionable action or non-movement by the worker inside | - Perform a verbal check.  
  - Immediately remove the worker from the sewer if there is no response or a questionable response from them |
| The worker is disabled due to falling or impact | - Do not remove the worker from the sewer unless there is immediate danger to the worker's life.  
  - Notify local rescue personnel immediately.  
  - Make sure the standby worker doesn’t enter the sewer in this case.  
  - Only trained rescue personnel (wearing self-contained breathing apparatus-SCBA) may enter to perform a rescue.  
  - Make sure all workers entering the space use a full-body harness with attached lifeline with the free end of the line secured outside the entry opening.  
  - Make sure the standby worker uses the lifeline to attempt to rescue a disabled worker without entering the space and summons rescue services based on their assessment of the situation. |

7.3 Hazardous Energy Control Program (Lockout/Tagout)

7.3.1 Purpose

The purpose of this procedure is to establish the means & methods in which the lockout / tagout and permit to work functions will be administered, and shall also establish the minimum requirements for the lockout of energy isolating devices whenever work is done on systems, machines or equipment.

The intent of implementing these procedures is to avoid the unanticipated release of Hazardous Energy that could threaten the health and safety of project employees or damage equipment. Hazardous Energy in this context includes, but is not limited to: electrical, thermal, hydraulic, pneumatic, chemical, stored, residual and potential energy such as from capacitors, batteries, elevated weights, and compressed springs.

These procedures shall be used to ensure that the machine, circuit or equipment is isolated from all potentially hazardous energy sources and Locked out before employees perform any work where the unexpected energization or start-up of the machine, circuit or equipment, or the release of stored energy could cause an injury or property damage.

7.3.2 Scope
Before work may be performed on systems, equipment and/or circuits which could cause injury by contact with electrically energized parts, by accidental startup of machinery, by release of fluid pressure (air, steam, hydraulic, temperature extremes etc.) or by contact with acids, corrosives, flammables or other hazardous materials, electrical circuits shall be de-energized, valves shall be closed, pressures shall be bled off, and hazardous materials shall be drained from lines and/or vessels when necessary.

7.3.3 Definitions

Affected Employee - An Affected Employee is an employee whose job requires him/her to operate or use a machine or equipment on which work is being performed under Lockout or Tagout, or whose job requires him/her to work in an area in which such work is being performed. These employees do not service or maintain machinery or perform lockout/tagout activities. Affected employees are trained in the purpose and use of energy-control procedures. They are also able to do the following:

- Recognize when the energy-control procedure is being used,
- Understand the purpose of the procedure, and
- Understand the importance of not tampering with lockout or tagout devices and not starting or using equipment that has been locked or tagged out.

Authorized Employee - An Authorized Employee is an employee who physically performs Lockout or Tagout on systems, machines or equipment in order to perform work on that system, machine or equipment. They have the knowledge and skills necessary for the safe application, use, and removal of energy-isolating devices. They are also trained and demonstrate understanding and competence in the following:

- Hazardous energy source recognition;
- The type and magnitude of the hazardous energy sources in the workplace; and
- Energy-control procedures, including the methods and means to isolate and control those energy sources.

PTW (Permit to Work) program process

An Affected Employee becomes an Authorized Employee when that employee's duties include performing work on the machine or equipment.

Capable of being locked out - an Energy Isolating Device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if Lockout can be achieved without the need to dismantle, rebuild, or replace the Energy Isolating Device or permanently alter its energy control capability, such as a lockable valve cover or circuit breaker block out.

Client - A Client is the entity which owns or in some cases operates the facility where the project activities are being conducted. OSHA refers to this entity as the Host Employer

De-energized - De-energized means free from any electrical connection to a source of potential difference and from electrical charge; not having a potential different from that of the earth.

Device - A device is a unit of an electrical system that is intended to carry, but not utilize electric energy.

Disconnecting means - A disconnecting means is a device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

Disconnecting (or isolating) switch. (Over 600 volts, nominal.) - A mechanical switching device used for isolating a circuit or equipment from a source of power.
Employee - An Employee may be an individual person, an employee, an employee owner, a project worker, a contractor / subcontractor, or a member of a partnership, corporation, agency, association, or organization.

Energized - connected to a Hazardous Energy Source or containing residual or stored energy.

Energy Isolating Device – An energy isolating device is a mechanical device that physically prevents the transmission or release of hazardous energy, including but not limited to the following:

- A manually operated electrical circuit breaker;
- A disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently;
- A line valve;
- A blank flange, slip blind, or any similar device used to physically block or isolate energy.
- A block and any similar device used to block or isolate hazardous energy.

**CAUTION:** Push buttons, selector switches and other control circuit type devices are not energy isolating devices and are not acceptable for LOTO use.

Hazardous Energy Source - Any electrical, rotational, mechanical, hydraulic, pneumatic, wind, thermal, chemicals, nuclear, residual stored energy, gravity or pressurized liquids or gasses that could cause injury to an Employee or property damage.

Group Lock Box - a box utilized to organize lock keys which are used for the isolation of equipment. This box has multiple positions where locks and tags shall be attached, and cannot be completed with the multi-lock device. The Tagging Authority for the LOTO will sign on the LOTO Log for the lock box.

Hot Tap - A HOT TAP is a procedure used in the Work activities which involves welding on a piece of equipment (pipelines, vessels or tanks) while it is under pressure, in order to install connections or appurtenances. A HOT TAP is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Holder - Any Affected or Authorized worker who is signed onto the Isolation Record or the Electrical LOTO Log as a Holder. By signing on as a Holder, personnel ensure the LOTO is maintained until they have signed off. LOTOs cannot be removed without first clearing all Holders off the respective forms. All LOTOs must have at least one Holder.

Isolation Record (IR) - The Isolation Record is a form used to initiate or request energy isolation and to track the placement and removal of that isolation. All isolations requiring more than one lockout / tagout, or a single mechanical isolation, must be documented on an Isolation Record. Single electrical isolations can be controlled from the electrical LOTO log. Isolation Records have a unique number assigned for tracking purposes (Burns & McDonnell “Isolation Record” Safety Form G-13).

Lockout (LOTO) - Lockout is the placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device - A Lockout device is a device that utilizes a positive means of securing an energy isolating device in the safe position and prevent the energizing of a system, machine or equipment. Examples include such items as a lock, (either key or combination type), blank flanges and bolted slip blinds.

Lockout/Tagout Log - The Lockout/Tagout Log is a form used to track the Authorized Employees that are directly involved in a hazardous energy isolation work procedure. The LOTO Log controls and tracks the placement and
removal of the lockout devices by individual Authorized Employees. This document also supports the LOTO manager’s control of the Isolation Record.

**LOTO Manager** - The LOTO Manager is the employee that manages the overall LOTO program during the construction, testing and startup phases of the project. The LOTO Manager or his designee is the employee who approves the issuance of Permits to Work, Do Not Operate isolations, as well as the hanging of System Under Test and System Under Operation tags for the project. The LOTO Manager has been trained, and is competent in the applicable OSHA standards. The LOTO Manager’s responsibilities transfer to the Client only after the system acceptance certificate has been submitted to Burns & McDonnell.

**Lockout / Tagout Sequence and Responsibilities** - Sequence steps and employee responsibilities for the Lockout / Tagout program vary with the three main stages of the project: Construction, Startup, and Operations. Details are outlined below under Roles & Responsibility section.

**Normal Operations** - the utilization of a machine or equipment to perform its intended production function.

**Other Employee** - All employees who are or may be in an area where Hazardous Energy control procedures may be utilized however are not directly involved with the work or the systems, equipment or machines.

**Permit to Work (PTW)** - A Permit to Work is a documented work authorization process which is required to perform work on equipment, areas, systems, or sub-systems that have been turned over to Startup or Operations. The PTW form is preprinted in triplicate and contains a unique sequential permit number (Burns & McDonnell safety form C-7 “Work Permit”).

**Readily accessible** – Readily accessible means that it is capable of being reached quickly for operation, renewal, or inspections, so that those needing ready access do not have to climb over or remove obstacles or to resort to portable ladders, chairs, etc.

**Setting Up** - any work performed to prepare a system, machine or equipment to perform its normal production operation.

**Start Up** - The Startup stage starts on a system by system basis when construction turnover of a system is accepted by Startup as mechanically complete (in accordance with project turnover procedure).

**SYSTEM UNDER OPERATION** - the stage in the construction project where major equipment and systems under the control of Operations may be operated or energized as necessary to support the construction project’s operational requirements.

**SYSTEM UNDER TEST** - the stage in the construction project where major equipment or systems under the control of Startup may be operated or energized as necessary for the testing of the system or components.

**Tag** - A Tag is a prominent warning device, which includes a means of attachment, which can be securely fastened to a Lockout Device and an Energy Isolating Device in accordance with an established procedure, to indicate that the Energy Isolating Device and the system, equipment or machine being controlled may not be operated until the Lockout Device is removed. Various different configurations of a TAG that are applicable to these procedures are detailed below:

**Do Not Operate (DNO) Tags**

The general construction LOTO red danger lockout Tag (DNO) signifies that a device is not to be operated or energized by anyone.

The Tag is placed on systems, equipment/mechanism that, if operated, can result in the injury of an Employee or damage to plant equipment.

The Tag implies that the equipment shall remain in the non-operative position.
In the case where the non-operative position is not readily apparent, it will be stated on the back of the tag.

This Tag will be placed and removed by the Employee doing the work.

The Tag will be logged with date and time, and signed by the Authorized Employee in the Lockout and Tag Log.

The Tag is always to be used with a lock.

Burns & McDonnell “Danger – Do Not Operate” (DNO) Tags (white w/red and black lettering):

The Tag used to identify an isolation point and control the position or status of any device (valve, breaker, etc.) required to ensure a safe lockout. These tags will have a unique number and will be accompanied by an appropriate Locking Device (Burns & McDonnell “Do Not Operate Tag” Safety Form G-14).

Burns & McDonnell “Caution – SYSTEM UNDER TEST” (SUT) Tags (yellow w/black lettering):

This Tag is used to identify major equipment or systems during the Startup phase which may be operated or energized as necessary for the testing of the system or components.

Each Tag must have the appropriate Tagging Authority's name written on it (Burns & McDonnell “Caution - System under Test Tag” Safety Form G-15).

Only the Employee whose name is on the Tag is authorized to operate or direct the operation of that device/system and or remove the Tag.

Client “Caution – SYSTEM UNDER OPERATIONS” (SUO) Tags (orange w/black lettering):

This Tag is used to identify major equipment and systems which are under the control of the Client’s Operations team and may be operated or energized as necessary to support the project operational requirements (Burns & McDonnell “Caution System under Operations Tag” Safety Form G-16).

Tagging Authority - This is the Authorized and competent person acting in the role of Tagging Authority for a contractor in their assigned areas of responsibility. Their responsibilities shall include but are not limited to the following:

The Tagging Authority shall certify to the LOTO Manager all covered personnel’s training commensurate with their level of responsibility and involvement in the LOTO program as identified below.

Tagging Authority affixes Lockout Devices and tags to the Energy Isolating Devices under the witness of the LOTO Manager or his designee

Tagging Authority, LOTO Manager or his designee verifies the effectiveness of isolation prior to allowing personnel to sign-on to the Electrical LOTO Log and begin work on a system.

Tagging Authority requests the removal of isolation from LOTO Manager

Tagging Authority takes responsibility to ensure equipment and devices are in a safe condition (i.e. status of energy isolating devices is safe for the level of completion or status of the equipment – test, operational or otherwise)

Tagging Authority List - The Tagging Authority List shall be posted in a conspicuous location and shall identify each company’s authorized Tagging Authority. Use the Burns & McDonnell “Tagging Authority List” Safety Form G-11.
Tagging Safety Displays - Tagging Safety Displays shall be located throughout the project site. These compliance assurance exhibits are intended to identify and explain the Tags and Locking Devices which have been authorized for use on the project.

Tagout - A Tagout is the placement of a Tag on an Energy Isolating Device, in accordance with an established procedure, to indicate that the Energy Isolating Device and the equipment being controlled may not be operated until the Tagout device is removed.

All project Employees shall be trained to understand that the Tagout shall provide a level of safety equivalent to that obtained by using a Lockout Device.

Work - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing systems, machines or equipment. These activities include lubrication, cleaning or unjamming of system components, machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the system, machine or equipment and the release of hazardous energy.

7.3.4 Roles and Responsibilities

Lockout / Tagout Sequence and Responsibilities - Sequence steps and personnel responsibilities for the lockout / tagout program vary with the three main stages of the project: Construction, Startup, and Operations as shown in the following table.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Tagging Authority</th>
<th>Authorized Worker</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Contractor assigned manager level</td>
<td>General: Superintendent Foremen</td>
<td>1. Construction is in control of equipment and systems.</td>
</tr>
<tr>
<td></td>
<td>Employee</td>
<td>Discipline: Superintendent Foremen</td>
<td>2. DNOs are used for LOTO.</td>
</tr>
<tr>
<td>Startup</td>
<td>Startup Manager</td>
<td>Startup: Engineer</td>
<td>1. Startup has accepted items on a system basis.</td>
</tr>
<tr>
<td></td>
<td>Startup Engineers (by assigned system)</td>
<td>Technician</td>
<td>2. SUTs indicate items are in startup phase.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. DNOs are used for LOTO.</td>
</tr>
<tr>
<td>Operations (Client)</td>
<td>Operations Manager</td>
<td>Operations: Supervisors Operators</td>
<td>1. Operations have accepted control of the system.</td>
</tr>
<tr>
<td></td>
<td>Operation Supervisors</td>
<td></td>
<td>2. Client SUO tags indicate items are in operation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Client DNOs are used for LOTO.</td>
</tr>
</tbody>
</table>

Lockout / Tagout Sequence

Construction Stage Activities:

The Construction stage starts at site mobilization and lasts through construction execution. This stage ends on a system by system basis as the systems are turned over to the Startup team.

Startup Stage Activities:

The Startup stage starts on a system by system basis when construction turnover of a system is accepted by Startup as mechanically complete (in accordance with project turnover procedure). This status is indicated in the field by the presence of System under Test (SUT) tags on major equipment, valves, etc. The Startup stage ends on a system by system basis as the system is accepted by The Client’s Operations team as being substantially complete.
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Operations Stage Activities:

The Operational Stage starts on a system by system basis when Startup turnover of a system is accepted by the Client’s Operations team as being substantially complete (in accordance with the project turnover procedures). This status is indicated in the field by the presence of System Under Operations (SUO) Tags on major equipment, valves, and the transition to the Client’s permanent plant LOTO program is being implemented.

Responsibilities

The BMcD LOTO Manager or designated alternate shall:

- Maintain a record of all Tagging Authority, Authorized, Affected, and other worker’s training certifications.
- Maintain a list of Authorized Workers which shall be made available to Tagging Authorities for the purposes of verifying Authorized Workers.
- The Tagging Authority list (Burns & McDonnell “Tagging Authority List” Safety Form G-11) will be updated by the BMcD LOTO Manager on a routine basis as it becomes necessary to make adjustments to Employees and or assigned areas of responsibility.
- Copies of the updated Tagging Authority list will be maintained in the Site Project Management Trailer during the construction stages and the client control room (or designated location) during startup and operations.
- Approve LOTO Permit-To-Work (PTW) requests.
- Approves the isolation and release of isolation requests from the Tagging Authority,
- Approve DNO Isolations, and the hanging of SUT and SUO tags for the project.
- Issue tags and Isolating Devices required for LOTO compliance as applicable to the LOTO work scopes.
- Maintain, update, post and redistribute as necessary all LOTO records and supplies including, but not limited to the following.
  - Site-specific LOTO training compliance records
  - Certification Of Training (C-09)
  - Isolation Record (G-13)
  - LOTO Permit-To-Work (C-07)
  - Electrical LOTO Log (G-10)
  - Lock Removal Authorization (G-03)
  - Tagging Authority List (G-11)
  - Isolation tags and devices (G-14/15/16)

Tagging Authority

The Tagging Authority is the authorized and competent person acting in the role of Tagging Authority for a contractor in their assigned areas of responsibility. Their responsibilities shall include but are not limited to the following:
The Tagging Authority shall certify to the LOTO Manager all covered personnel’s training commensurate with their level of responsibility and involvement in the LOTO program as identified below.

Tagging Authority affixes Lockout Devices and tags to the Energy Isolating Devices under the witness of the LOTO Manager or his designee

Tagging Authority, LOTO Manager or his designee verifies the effectiveness of isolation prior to allowing personnel to sign-on to the Electrical LOTO Log and begin work on a system.

Tagging Authority requests the removal of isolation from LOTO Manager

Tagging Authority takes responsibility to ensure equipment and devices are in a safe condition (i.e. status of energy isolating devices is safe for the level of completion or status of the equipment – test, operational or otherwise)

Violations

Only the LOTO Manager, Tagging Authority or designated Authorized Worker (Holder) are authorized to place or remove tags

Failure to comply with any of the Lockout/Tagout rules shall be considered just cause for discharge or removal of the persons involved from the job site. Examples of failure to comply include but are not limited to the following:

- Operating or working on a system or piece of equipment without obtaining a proper LOTO and/or Permit-To-Work.
- Operating or working on a system or piece of equipment in violation of the tags in place.
- Removing tags from a system or piece of equipment without proper authorization.

7.3.5 Requirements

Controls that are to be deactivated during the course of work on equipment or circuits shall be locked and tagged when deemed necessary and recorded in the Lockout/Tagout Log.

Tags shall be labeled to plainly identify the equipment or circuits being worked on and shall be placed with the Lockout Device on the Lockout. Tag information shall include the name of the equipment, date, time and the employee responsible for its placement.

The Lockout Tagout Manager or their designee will place his/her lock and tag on any system prior to the employee placing theirs.

Each employee shall have his or her own lock and tag.

All employees are required to comply with the restrictions and limitations imposed upon them during the use of Lockout. The Authorized Employees are required to perform the Lockout in accordance with this procedure.

All employees, upon observing a system, machine or piece of equipment which is locked out to perform work shall not attempt to start, energize, or use that system, machine or equipment.

Only one type of Tag (DNO, SUT, or SUO) can be on the same device at the same time.

Training must be conducted (or verified) to ensure that all employees are knowledgeable of their duties with regard to Lockout / Tagout and hazardous energy control (i.e. training must be commensurate with their level of responsibility and involvement – Other, Affected, Authorized, and Tagging Authority).
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In the event a Tag or Tags are found either missing or lying on the ground, they are to be reported to the LOTO Manager or his designee immediately. Do NOT assume you know where they are to be placed or replace them yourself. Upon notification, the LOTO Manager shall immediately investigate and determine the status of the LOTO and if the Tag can be reattached or a work stoppage is necessary for employee or equipment safety.

All Locking Devices should be accompanied by a DNO Tag and must be identified or traceable to the user by a name or unique number as determined by the lock user’s supervisor. Locking Devices not accompanied by a DNO Tag are at risk of being removed, however the same stipulations shall apply for removal as described in an Emergency Release procedure, listed below.

Failure to comply with the Lockout and Tagging Procedure rules shall be considered just cause for discharge or removal of the employees involved from the project site

7.3.6 Periodic Inspection

Burns & McDonnell shall conduct a periodic inspection of the Hazardous Energy Control procedure at least annually to ensure that the procedure and the requirements of the OSHA standard are being followed.

The periodic inspection shall be performed by an Authorized Employee other than the ones(s) utilizing the Hazardous Energy Control procedure being inspected.

The periodic inspection shall be conducted to correct any deviations or inadequacies identified.

Where Lockout is used for Hazardous Energy control, the periodic inspection shall include a review, between the inspector and each Authorized Employee, of that employee's responsibilities under the Hazardous Energy control procedure being inspected.

Burns & McDonnell shall certify that the periodic inspections have been performed. The certification shall identify the systems, machines or equipment on which the Hazardous Energy Control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the employee performing the inspection.

7.3.7 Procedure

The following jobsite Lockout and Tagging procedure is to be followed. In some instances, particular requirements will dictate variances from this procedure. However, any change or variance must be viewed with caution by the Lockout Tagout Manager/designee and possible contingencies accounted for at all times. Changes to the procedure shall be documented on the Burns & McDonnell Safety & Health Form C-14 Amendment Form" and approved by BMcD Corporate Safety & Health.

Figure 7 - 1 LOTO Decision Flowchart
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Lockout / Tagout Decision Flowchart

LOTO Start

1. Train Personnel
   - Training Verified: YES
     - Assign Job Task
       - Identify Equipment Energy Sources
         - Notify LOTO Manager
           - Verify LOTO Needed
             - YES
               - Perform Task
                 - Job Complete
               - NO
                 - Reschedule or Transfer to next Shift
             - NO
               - Notify LOTO Manager
                 - Trace Equipment Energy Sources
                   - Alternate Procedure Available
                     - NO
                       - Source can be isolated / powered off / Disconnected
                         - YES
                           - Release Energy / Isolate equipment
                             - LOTO Manager places LOTO devices
                               - Worker places LOTO devices
                                 - YES
                                   - “0” state achieved
                                     - YES
                                       - Perform work
                                         - Job Complete
                                       - NO
                                         - No
                                           - Retest and Verify
                                             - YES
                                               - End
                                             - NO
                                               - Cancel work
                                     - NO
                                       - Notify LOTO Manager
                                         - Worker Removes LOTO
                                           - LOTO Manager Removes LOTO
                                             - Notify LOTO Manager
                                               - Safe Conditions
                                                 - YES
                                                   - End
                                                 - NO
                                                   - Restart Equipment and verify repairs complete
                                                     - LOTO Manager Removes LOTO
                                                       - Notify Affected Personnel and verify “safe”
                                                         - YES
                                                           - Restart
                                                             - Equipment and verify repairs complete
                                                               - LOTO Manager Removes LOTO
                                                                 - Notify LOTO Manager
                                                                   - Safe Conditions
                                                                     - YES
                                                                       - End
                                                                     - NO
                                                                       - De-energize and remove the Equipment from Service.
2. NO

Verification

Verify that the authorized employee is trained in LOTO and refer to the manufacturer’s and/or installer’s company procedure/drawings to identify the type and magnitude of the energy that the machine or equipment utilizes. The authorized employee shall understand the hazards of the energy and shall know the methods to control the energy.

Identify Equipment.

Determine which equipment is involved with the work to be performed.

Determine Availability.

The site manager/designee, with client representatives as needed, will determine the available systems and equipment prior to locking out the equipment to ensure that normal operation of associated equipment will not cause activation of systems or equipment that are being worked on.

Notification

Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

De-energize and remove the Equipment from Service.
If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.). De-activate the energy isolating device(s) by placing all electrical disconnects in the off position and/or close all valves to equipment or systems to be worked on so that the machine or equipment is isolated from the energy source(s).

**Lockout and tagout Equipment.**

After de-energizing and/or closing of valves, the Lockout Tagout Manager (1st) and then the authorized employee(s) (with assigned individual lock(s)) thereafter who will accomplish the work will place their own appropriate locks and tags on all switches and/or valves, and wherever necessary to avoid accidental startup or energizing. The lockout mechanism shall be placed on the equipment/mechanism in such a way as to prevent operation or access to energizing switches or valves. The LOTO Manager and employees shall record their names and lock numbers in the lockout/tagout log.

**Check for Safety.**

The supervisor in charge of the work will physically inspect the equipment or systems prior to the actual work taking place and verify the authorized employee’s LOTO.

The supervisor will make certain that all switches and/or valves are physically inoperative, that all fluid pressures are bled off, that all stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) have been dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc. (or by any other recognized control methods which may have been used as necessary). The supervisor shall also ensure that all hazardous materials are drained and removed from the immediate work area.

The supervisor shall ensure that the equipment is disconnected from the energy source(s) by first checking that no employees are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

**Caution:** *Return operating control(s) to neutral or “off” position after verifying the isolation of the equipment.*

After determining that all equipment, circuits and systems have been rendered safe for work, appropriate tags and locks shall be placed on the associated electrical disconnects, valves and wherever else required to prevent the accidental start-up of the equipment, circuits or systems being worked on.

**Placement of Lockout –**

If more than one employee is required to work on a system, each employee must place their separate Lock and Tag on the equipment before commencing work.

All employees working on systems/equipment that are to be locked out are to receive his/her own lock and key. The employee who places a lockout on an electrical disconnect or valve is the only one permitted to remove it.

**Working on Equipment**

Complete the work which was authorized to be performed

**Restoring Equipment to Service.**

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken:

Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
Check the work area to ensure that all employees have been safely positioned or removed from the area.

Verify that the controls are in neutral.

Remove the lockout devices and reenergize the machine or equipment.

**Note:** The removal of some forms of blocking may require re-energization of the machine before safe removal.

**Removal of Lockout –**

After each portion of the work is completed, the employee who placed the lockout mechanism on the equipment will be responsible for its immediate removal. If more than one work operation is being performed on a piece of equipment or system, it will be necessary for each employee to remove his/her lockout mechanism immediately after the work task has ended. After the work is complete the supervisor in charge of the work activity will immediately notify the Lockout Tagout Manager. Then the Lockout Tagout Manager will remove his/her locking mechanisms.

**Note:** Prior to notifying the LOTO Manager it will be the responsibility of the employee(s) supervisor to ensure that all work has ended and the equipment or system is safe for normal operation. Removal of each lock and Tag will also be recorded in the log.

**Emergency Release**

Under extraordinary circumstances, it may be necessary to remove a Lock or Tag that has been affixed by someone else or without the proper signoff of a holder. Only the LOTO Manager or his designee may authorize the removal of a Lock or Tag and only in accordance with the following stipulations:

- The worker who is responsible for the Lock or Tag or is a holder of the isolation is not present at the facility, and all reasonable efforts have been taken to contact the responsible worker.

- All measures are taken to notify the worker prior to his resuming work.

- If the employee is unavailable, only then after physical inspection by site manager or authorized supervisor has determined that all work has been completed and the safety of equipment and/or system is ensured, can a lockout mechanism be removed.

- In addition, if the Lock or Tag is on an item that is in the construction or startup stage, the authorization of the project field manager or startup manager will also be required, respectively. A log will be kept to document these authorizations.

Unauthorized removal of tags and lockout mechanisms is not permitted. Infraction of this rule will result in disciplinary action up to and including termination.

**Notification of Completion**

Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

When working on equipment which utilizes a plug-in device for power, action shall be taken to ensure that no one can energize the equipment until the work has been completed. These actions include the employee has unplugged the equipment from the energy source and the plug is under the exclusive control of the employee performing the servicing or maintenance. The plug is under the exclusive control of the employee if it is physically in the possession of the employee, or in arm's reach and in line of sight of the employee, or if the employee has affixed a lockout/tagout device on the plug.
OSHA 1910.269 allows power distribution systems and power generating facilities to use a tagout and training system instead of a lockout requirement. While in compliance with OSHA, this procedure is not in compliance with Burns & McDonnell safety requirements. Contact the Burns & McDonnell Safety & Health Department if you are instructed not to lockout any energized systems on your project. There are alternative methods, which may be used to ensure the safety of all workers.

### 7.3.8 Tagging Systems

Special waterproof, sealed tags must be used.

Tags are to be used for Do Not Operate, Systems under Test, and Systems under Operations.

### 7.3.9 Lock and Tag (LOTO) Log

The lockout and tagout log G-10 will indicate the tagged equipment, the number of the lock and the tag, the location of tags, the employee who attached the Tag and lock, the date and time of placement and removal.

The log will be maintained and updated daily.

### 7.3.10 Client LOTO

Some Burns & McDonnell projects are contractually obligated to use a client Lockout/Tagout procedure. Burns & McDonnell supervisory employees are to coordinate the use of all Lockout/Tagout procedures with the client representative. A single LOTO Manager shall be assigned to coordinate the LOTO process.

### 7.3.11 Training Requirements

Training must be conducted and documented to ensure that all personnel are knowledgeable of their duties with regard to Lockout/Tagout and Hazardous Energy control. The training must be commensurate with the employee’s level of responsibility and involvement, e.g., Other, Affected, Holder, Authorized, and Tagging Authority. Prior to performing a job requiring Lockout/Tagout, training and verification of knowledge as outlined below shall be performed to ensure that the purpose and function of the Project Safety Tagging Program is clearly understood by all field workers.

Affected workers are required to be trained in the following areas:

- The use of this procedure.
- Recognition of hazardous energy sources.
- Type and magnitude of hazardous energy present in workplace (potential danger).
- Potential hazards caused by failing to adhere to the Safety Tagging Program.

Authorized Workers are required to be trained in the following areas:

- The use of this procedure.
- Recognition of hazardous energy sources.
- Type and magnitude of hazardous energy present in workplace (potential danger).
- Methods and means necessary for proper isolation and control.
- Proper use of the following forms: Isolation Record, PTW, Electrical LOTO Log).
- Proper methods and sequencing for placing and removing LOTOs.
Closing out PTW.

Other Workers are required to be trained in the following areas:

- The purpose of the safety tagging program.
- The use and appearance of locks and tags.
- The potential hazards that locks and tags protect against.
- The penalties for removing locks and tags.
- Prohibitions against attempting to operate locked or tagged equipment.

Tagging Authority is required to be trained in the following areas:

- The use of this procedure.
- Recognition of hazardous energy sources.
- Type and magnitude of hazardous energy present in workplace (potential danger).
- Methods and means necessary for proper isolation and control.
- Proper use of the following forms: Isolation Record, PTW, Electrical LOTO Log.
- Proper methods and sequencing for placing and removing LOTOs.
- Closing out PTW.
- Considerations in determining if and when a requested work activity can be approved to proceed.
- Proper delegation of LOTO functions and follow-up to ensure program is implemented properly.
- Proper identification of the need for additional permits (Confined Space Entry, Hot Work Permit, Safe Work Plan), and establishment of these programs in accordance with the project safety manual.

Retraining:

Retraining will be provided for all affected and authorized workers under the following conditions:

- Change in job assignment.
- Change in machinery/equipment/process that presents a new hazard.
- Change in the Safety Tagging Procedure.
- When deviations or inadequacies in worker’s knowledge is identified.
- When deviations in the use of the Safety Tagging Procedure are identified.

7.3.12 Records

The following records are to be maintained in the project files:

- Permit to Work (PTW): (Burns & McDonnell Safety Form C-07 “Work Permit”).
Isolation Record (IR):  (Burns & McDonnell "Isolation Record" Safety Form G-13).

Electrical LOTO Log:  (Burns & McDonnell "Electrical LOTO Log" Safety Form G-10).

Tagging Authority List:  (Burns & McDonnell “Tagging Authority List” Safety Form G-11).

Certification of Training: (Burns & McDonnell "Certification of Training" Safety Form C-09).


7.4 Occupational Noise Exposure 1926

Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-4 of this section when measured on the A-scale of a standard sound level meter at slow response.

7.4.1 Administrative or Engineering Controls

When workers are subjected to sound levels exceeding those listed in the table below in this section, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment as required shall be provided and used to reduce sound levels to within the levels of the table.

7.4.2 Variations in Noise Level

If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

Impulsive or impact noise. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered.

Table 7 - 6 Permissible Noise Exposure Levels

<table>
<thead>
<tr>
<th>Duration per day, hours</th>
<th>Sound level, dBA, slow response</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>92</td>
</tr>
<tr>
<td>4</td>
<td>95</td>
</tr>
<tr>
<td>3</td>
<td>97</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>1 1/2</td>
<td>102</td>
</tr>
<tr>
<td>1</td>
<td>105</td>
</tr>
<tr>
<td>1/2</td>
<td>110</td>
</tr>
<tr>
<td>1/4 or less</td>
<td>115</td>
</tr>
</tbody>
</table>

When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. Exposure to different levels for various periods of time shall be computed according to the formula set forth below.

\[ F(e) = \frac{T(1)}{L(1)} + \frac{T(2)}{L(2)} + \ldots + \frac{T(n)}{L(n)} \]

Where:

- \( F(e) \) = The equivalent noise exposure factor.
- \( T \) = The period of noise exposure at any essentially constant level.
- \( L \) = The duration of the permissible noise exposure at the constant level (from Table G-6)
A sample computation showing an application of the formula in paragraph (d) (2) (ii) of this section is as follows. An
worker is exposed at these levels for these periods:

\[
\begin{align*}
F(e) &= \frac{1/4}{1/2} + \frac{1/2}{2} + \frac{1 1/2}{8} \\
F(e) &= 0.500 + 0.25 + 0.188 \\
F(e) &= 0.938
\end{align*}
\]

NOTE: Since the value of F(e) does not exceed unity (1.0), the exposure is within permissible limits.

### 7.5 Heat Injury and Illness Prevention Plan

In areas where heat stress may impact employee health and safety, acclimatization and heat stress shall be
assessed to establish proper work/rest regimens and fluid replacement. Heat Stress and heat strain are conditions
resulting from environmental factors including temperature, relative humidity, radiant heat transfer, and air
movement, as they are affected by clothing. The primary objective of the heat injury and illness plan is to prevent
heat stroke which is life threatening and the most serious of the heat-induced disabilities.

#### 7.5.1 Training

The SSHO will have received training developed by the American Red Cross or American Heart Association in first
aid and cardiopulmonary resuscitation (CPR), including training in heat related illnesses.

During hot environments, toolbox safety training will include recognizing, preventing, and treating the signs and
symptoms of heat stress. During potential heat stress conditions, ice should be readily available to rapidly cool
victims.

#### 7.5.2 Body Fluid Replacement

When heat stress is determined to be a concern by the SSHO, water will be made available at the Site for
employee fluid replacement. Balanced, electrolyte solutions to replace fluid and electrolyte loss may be present but
should not be a substitute for water. Employees will be provided with replacement fluids at a minimum rate of 8
ounces each half hour per person.

#### 7.5.3 Heat Assessment

The SSHO will assess employee and weather conditions to determine when to start heat stress assessment. For
employees with permeable work clothing, Wet Bulb Globe Temperature (WBGT) Index or physiological monitoring
shall be conducted. For employees in impermeable work clothing, only physiological monitoring shall be
conducted to determine appropriate controls.

**WBGT Monitoring**

The WBGT Index Monitoring for the Threshold Limit Values (TLVs) are provided as follows:
Chapter 7 – Occupational Health and Environmental Control

Table 7 - 7 WBGT Index Monitoring for TLV

<table>
<thead>
<tr>
<th>Allocation of Work in a Cycle of Work and Recovery</th>
<th>Light</th>
<th>Moderate</th>
<th>Heavy</th>
<th>Very Heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Sitting with light manual work with hands or hands and arms, and driving. Standing with some light arm work and occasional walking.)</td>
<td>75 to 100% 87.8</td>
<td>50 to 75% 87.8</td>
<td>25 to 50% 89.6</td>
<td>0 to 25% 90.5</td>
</tr>
<tr>
<td>(Sustained moderate hand &amp; arm work, moderate arm &amp; leg work, moderate arm and trunk work or light pushing and pulling. Normal walking.)</td>
<td>82.4</td>
<td>84.2</td>
<td>86</td>
<td>88.7</td>
</tr>
<tr>
<td>(Intense arm and trunk work, carrying, shoveling, manual sawing; pushing and pulling heavy loads and walking at a fast pace.)</td>
<td>-</td>
<td>81.5</td>
<td>84.2</td>
<td>86.9</td>
</tr>
<tr>
<td>(Very intense activity at fast to maximum pace.)</td>
<td>-</td>
<td>-</td>
<td>76.1</td>
<td>80.6</td>
</tr>
</tbody>
</table>

(Adapted from AGCIH 2011 TLV®s and BEI®s, Thermal Stress, Tables 2 and 3)

Operations conducted outdoors may expose workers to weather, ecological hazards, and other location-related hazards. The following sections summarize these hazards.

Physiological Monitoring

(The Section below is taken from AGCIH 2011 TLV®s and BEI®s, Thermal Stress Table 4)

One or more of the following measures may mark excessive heat strain, and an individual’s exposure to heat stress should be discontinued when any of the following occur:

- Sustained (several minutes) heart rate is in excess of 180 bpm (beats per minute) minus the individual’s age in years (e.g., 180-age), for individuals with assessed normal cardiac performance; or
- Body core temperature is greater than 101.3° F for medically selected and acclimatized personnel; or greater than 100.4° F in unselected, un-acclimatized workers; or
- Recovery heart rate at one minute after a peak work effort is greater than 120 bpm; or
- There are symptoms of sudden and severe fatigue, nausea, dizziness, or lightheadedness.

An individual may be at greater risk of heat-related disorders if:

- Profuse sweating is sustained over hours; or
- Weight loss over a shift is greater than 1.5% of body weight; or
- 24-hour urinary sodium excretion is less than 50 moles.

7.5.4 Acclimatization

According to the OSHA Technical Manual, a properly designed and applied heat acclimatization program decreases the risk of heat-related illnesses. Such a program basically involves exposing employees to work in a hot environment for progressively longer periods. The following protocol, based on NIOSH (1986), will be followed:
For workers who have had previous experience in jobs where heat levels are high enough to produce heat stress, the regimen should be 50% exposure on day one, 60% on day two, 80% on day three, and 100% on day four.

For new workers who will be similarly exposed, the regimen should be 20% on day one, with a 20% increase in exposure each additional day.

### 7.5.5 Rest Breaks

When heat stress conditions are applicable, all rest breaks should be taken out of the zone of exclusion into a cooler, shaded, rest area. If these conditions are not available, more frequent rest breaks will be taken. Persons who are not acclimatized shall be allowed additional breaks.

### 7.5.6 Sun Screen

Where there is potential for sun burn to exposed skin to solar radiation (short or long term) employees shall be provided sun screen, to use according to manufacturer’s directions, with a sun protection factor (SPF) appropriate for their skin type and exposure.

### 7.5.7 Monitoring Heat Stress

These procedures should be considered when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress.

The heart rate (HR) should be measured by the radial pulse for 30 seconds, as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 100 beats per minute or 20 beats per minute above resting pulse. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 100 beats per minute at the beginning of the next rest period, the work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 100 beats per minute or 20 beats per minute above resting pulse.

### Heat Stroke

Heat stroke is the most serious heat-related disorder. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. When heat stroke occurs, the body temperature can rise to 106 degrees Fahrenheit or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not given.

### Heat Exhaustion

Heat exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating. Workers most prone to heat exhaustion are those that are elderly, have high blood pressure, and those working in a hot environment.

### Heat Cramps

Heat cramps usually affect workers who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

### Heat Rash

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather.

### Heat Syncope
Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

### Table 7 - 8 Symptoms and Treatment of Heat Stress

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signs and Symptoms</td>
<td>Sluggishness or fainting while standing erect or immobile in heat.</td>
<td>A skin irritation caused by excessive sweating during hot, humid weather. Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure.</td>
<td>Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours.</td>
<td>Fatigue, nausea, headache, giddiness; skin cool, moist and/or clammy; complexion pale, muddy, flushed or red skin; may faint on standing; rapid thready pulse and low blood pressure; oral temperature normal or low</td>
<td>Life threatening. Red, hot, dry skin; dizziness; confusion; rapid breathing and rapid weak pulse; high oral temperature (as high as 105°F)</td>
</tr>
<tr>
<td>Treatment</td>
<td>Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.</td>
<td>Keep skin clean and dry, preventing infection. Avoid using ointments or creams as they keep the skin warm and moist and may make the condition worse. Try to work in a cooler, less humid environment when possible.</td>
<td>Remove to cooler area. Rest lying down. Increase fluid intake.</td>
<td>Remove to cooler area. Remove or loosen tight clothing and apply cool, wet cloths such as towels or wet sheets. Rest lying down, with head in low position. If person's awake and alert, give a half glass of cool water every 15 minutes. Do not let them drink too quickly. Seek medical attention.</td>
<td>CALL 911 or local Emergency Medical Services Move the person to a cooler place. Keep the person lying down. Quickly cool the body by wrapping wet sheets around the body and fan it. If you have ice packs or cold packs, wrap them in a cloth and place them on each victim's wrists and ankles, in the armpits and on the neck to cool the large blood vessels. Watch for signals of breathing problems and make sure the airway is clear.</td>
</tr>
</tbody>
</table>

### 7.6 Cold Stress Plan

This procedure applies to all employees who perform fieldwork in cold environments at risk of cold stress injury. Frostbite, hypothermia, and trench foot are the most common cold induced problems that personnel must be protected against.

#### 7.6.1 Training

Burns & McDonnell workers have been educated about cold stress as part of their HAZWOPER 40-hour initial training. Site workers will receive refresher training by the SSHS in cold stress safety and health procedures. The training program will include, at a minimum, instruction in the following areas:

- Proper first aid treatment
Proper clothing practices

Proper eating and drinking habits

Recognition of impending frostbite

Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body when shivering does not occur

Safe working practices

The SSHS will be trained in first aid, CPR and cold stress conditions.

7.6.2 Environmental Monitoring

Frostbite and hypothermia are two types of cold injury that personnel must be protected against during the performance of field duties. Factors influencing the development of a cold injury include ambient temperature, wind velocity, and moisture from the environment and/or sweating.

The SSHS will monitor environmental conditions by recording ambient temperature and estimated wind-speed. Information contained in Tables 7-1 and 7-2 will be used to evaluate the possibility of hypothermia among workers on-site.

7.6.3 Protective Clothing and Rest Breaks

Wear appropriate cold weather clothing when temperatures are at or below 40°F to protect exposed skin. These protective items can include coats, thermal suites, gloves, facemask, and foot wear. The objective is to protect all parts of the body, with emphasis on the hands and feet. If wind chill is a factor on the work site, the cooling effect of the wind will be reduced by shielding the work area or requiring workers to wear an outer windbreak layer garment. Eye protection against a glare and ultraviolet light are recommended in snowy and icy conditions.

The work rate should slow to reduce probability of heavy sweating that could result in wet clothing. If heavy work must be done, opportunities for rest breaks will be provided where workers have the opportunity to remove clothing layers and/or to change into dry clothing. Conversely, plan work activities to minimize time spent sitting or standing still. Rest breaks should be taken in a warm, dry area. When fine work is required to be performed with bare hands, do not allow more than 10-20 minutes of work to occur in temperatures below 50 °F, without providing a hand warm-up break. Workers handling evaporative solvents during cold stress conditions will take special precautions to avoid soaking gloves and clothing because of the added danger of prolonged skin contact and evaporative cooling.

In addition to wearing gloves for hand warmth, the following recommendations are adapted from OSHA’s 2007 cold-stress Emergency Preparedness Guide:

- Wear at least three layers of clothing. An inner layer of wool, silk or synthetic to wick moisture away from the body. A middle layer of wool or synthetic to provide insulation even when wet. An outer wind and rain protection layer that allows some ventilation to prevent overheating.

- Wear a hat or hood. Up to 40% of body heat can be lost when the head is left exposed.

- Wear insulated boots or other footwear that is waterproof.

- Keep a change of dry clothing available in case work clothes become wet.

- With the exception of the wicking layer do not wear tight clothing. Loose clothing allows better ventilation of heat away from the body.
Avoid touching cold metal surfaces with bare skin.

Monitor your physical condition and that of your coworkers.

Move into warm locations during work breaks; limit the amount of time outside on extremely cold days.

Drink plenty of liquids to keep hydrated; avoiding caffeine and alcohol.

### 7.6.4 Identification and Treatment of Cold Stress

When frostbite, hypothermia, or other cold stress symptoms are suspected, treat the patient to relieve symptoms or transport them to the medical facility identified in this plan.

#### Table 7 - 9 Threshold Limit Values for a Work/Warm Up Schedule

(For a Four-Hour Shift)

<table>
<thead>
<tr>
<th>Air Temp. Range / Sunny Sky</th>
<th>Wind Speed Miles per Hour, mph</th>
<th>No Noticeable</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>MWP #</td>
<td>MWP #</td>
<td>MWP #</td>
<td>MWP #</td>
<td>MWP #</td>
<td></td>
</tr>
<tr>
<td>-15 / -19</td>
<td>Normal 1</td>
<td>Normal 1</td>
<td>75  2</td>
<td>55  3</td>
<td>40  4</td>
<td>30  5</td>
</tr>
<tr>
<td>-20 / -24</td>
<td>Normal 1</td>
<td>75  2</td>
<td>55  3</td>
<td>40  4</td>
<td>30  5</td>
<td></td>
</tr>
<tr>
<td>-25 / -29</td>
<td>75  2</td>
<td>55  3</td>
<td>40  4</td>
<td>30  5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-30 / -34</td>
<td>55  3</td>
<td>40  4</td>
<td>30  5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-35 / -39</td>
<td>40  4</td>
<td>30  5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-40 / -44</td>
<td>30  5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ -45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MWP = Maximum Work Period in minutes;  
# = Number of Breaks per 4-hour shift  
Temperature degrees are approximate for °F, Fahrenheit; Adopted from TLV 2007.
### Table 7 - 10 Cooling Power of Wind on Exposed Flesh

[Expressed as Equivalent Temperature - Under Calm Conditions]

<table>
<thead>
<tr>
<th>Estimated Wind Speed (mph)</th>
<th>Actual Temperature Reading (° F)</th>
<th>Equivalent Chill Temperature (° F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calm</td>
<td>50 40 30 20 10 0 -10 -20 -30 -40 -50 -60</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>48 37 27 16 6 -5 -15 -26 -36 -47 -57 -68</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>40 28 16 4 -9 -24 -33 -46 -58 -70 -83 -95</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>32 18 4 -10 -25 -39 -53 -67 -82 -96 -110 -121</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>30 16 0 -15 -29 -44 -59 -74 -88 -104 -118 -133</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>27 11 -4 -20 -35 -51 -67 -82 -98 -113 -129 -145</td>
<td></td>
</tr>
</tbody>
</table>

Wind speeds > 40 mph have little additional effect

- **LITTLE DANGER**
  - If < 1 hour with dry skin.
  - Maximum danger of false sense of security.

- **INCREASING DANGER**
  - Danger from freezing of exposed flesh within one (1) minute.

- **GREAT DANGER**
  - Flesh may freeze within 30 seconds.

Trench foot and Immersion foot may occur at any point on this chart.

- Developed by the U.S. Army Research Institute of Environmental Medicine, Natick, MA.
- Shaded areas are equivalent chill temperature requiring dry clothing to maintain a core body temperature above 96.8°F per cold stress TLV.

This procedure applies to all employees who perform fieldwork in cold environments at risk of cold stress injury. Frostbite, hypothermia, and trench foot are the most common cold induced problems that personnel must be protected against.

Employee-Owners and subcontractors/consultants who are exposed to extreme cold or work in cold environments may be at risk of cold stress. Extreme cold weather is a dangerous situation that can bring on health emergencies in susceptible people, such as those without shelter, outdoor workers, and those who work in an area that is poorly insulated or without heat. What constitutes cold stress and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered factors for "cold stress." Whenever temperatures drop decidedly below normal and as wind speed increases, heat can more rapidly leave your body. These weather-related conditions may lead to serious health problems.

#### 7.6.5 Wind Chill

Consider monitoring the work conditions and adjusting the work schedule using guidelines developed by the U.S. Army (wind-chill index) and the National Safety Council (NSC).

Wind-Chill Index is used to estimate the combined effect of wind and low air temperatures on exposed skin. The wind-chill index does not take into account the body part that is exposed, the level of activity, or the amount or type of clothing worn. For those reasons, it should only be used as a guideline to warn workers when they are in a situation that can cause cold-related illnesses.
NSC Guidelines for Work and Warm-Up Schedules can be used with the wind-chill index to estimate work and warm-up schedules for fieldwork. The guidelines are not absolute; workers should be monitored for symptoms of cold-related illnesses. If symptoms are not observed, the work duration can be increased.

7.6.6 Hypothermia

When exposed to cold temperatures, your body begins to lose heat faster than it can be produced. Prolonged exposure to cold will eventually use up your body's stored energy. The result is hypothermia, or abnormally low body temperature. A body temperature that is too low affects the brain, making the victim unable to think clearly or move well. This makes hypothermia particularly dangerous because a person may not know it is happening and will not be able to do anything about it.

Symptoms of hypothermia can vary depending on how long you have been exposed to the cold temperatures.

Early Symptoms
- Shivering
- Fatigue
- Loss of coordination
- Confusion and disorientation

Late Symptoms
- No shivering
- Blue skin
Dilated pupils

Slowed pulse and breathing

Loss of consciousness

Take the following steps to treat a worker with hypothermia:

Alert the supervisor and request medical assistance.

Move the victim into a warm room or shelter.

Remove their wet clothing.

Warm the center of their body first—chest, neck, head, and groin—using an electric blanket, if available; or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.

Warm beverages may help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.

After their body temperature has increased, keep the victim dry and wrapped in a warm blanket, including the head and neck.

If victim has no pulse, begin cardiopulmonary resuscitation (CPR).

7.6.7 Chillblains

Chillblains are caused by the repeated exposure of skin to temperatures just above freezing to as high as 60 degrees F. The cold exposure causes damage to the capillary beds (groups of small blood vessels) in the skin. This damage is permanent and the redness and itching will return with additional exposure. The redness and itching typically occurs on cheeks, ears, fingers, and toes.

Symptoms of chilblains include:

- Redness
- Itching
- Possible blistering
- Inflammation
- Possible ulceration in severe cases

Workers suffering from chilblains should:

- Avoid scratching
- Slowly warm the skin
- Use corticosteroid creams to relieve itching and swelling
- Keep blisters and ulcers clean and covered

7.6.8 Frostbite
Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation. In extremely cold temperatures, the risk of frostbite is increased in workers with reduced blood circulation and among workers who are not dressed properly.

Symptoms of frostbite include:

- Reduced blood flow to hands and feet (fingers or toes can freeze)
- Numbness
- Tingling or stinging
- Aching
- Bluish or pale, waxy skin

Workers suffering from frostbite should:

- Get into a warm room as soon as possible.
- Unless absolutely necessary, do not walk on frostbitten feet or toes—this increases the damage.
- Immerse the affected area in warm—not hot—water (the temperature should be comfortable to the touch for unaffected parts of the body).
- Warm the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers.
- Do not rub or massage the frostbitten area; doing so may cause more damage.
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.

### 7.6.9 Cold Water Immersion

Cold water immersion creates a specific condition known as immersion hypothermia. It develops much more quickly than standard hypothermia because water conducts heat away from the body 25 times faster than air. Typically people in temperate climates don’t consider themselves at risk from hypothermia in the water, but hypothermia can occur in any water temperature below 70°F. Survival times can be lengthened by wearing proper clothing (wool and synthetics and not cotton), using a personal flotation device (PFD, life vest, immersion suit, dry suit), and having a means of both signaling rescuers (strobe lights, personal locator beacon, whistles, flares, waterproof radio) and having a means of being retrieved from the water.

### 7.7 Fatigue Management Plan

#### 7.7.1 General

Burns & McDonnell is committed to providing a safe workplace for the benefit of their employees and subcontractors. In order to provide a safe work environment, employees must be able to perform their job duties in a safe, secure, productive, and effective manner, and remain able to do so throughout the entire time they are working. Burns & McDonnell recognizes that an effective fatigue management program can contribute to reducing the incidents and injuries among their workers.
Managing fatigue also means recognizing and assessing it as a possible factor in workplace incidents. Normal incident investigation questions should provide the investigator with an indication if fatigue could have been a contributing cause of an incident.

What is an Extended/Unusual Shift and when are they used?

A normal work shift is generally considered to be a work period of no more than eight consecutive hours during the day, five days a week with at least an eight-hour rest. Any shift that incorporates more continuous hours, requires more consecutive days of work, or requires work during the evening should be considered extended or unusual.

Extended shifts may be used to maximize scarce resources. Long or unusual shifts are often required during response and recovery phases of emergency situations. These schedules ensure that the appropriate scarce resources are in place and accessible while full mobilization is being developed.

Extended or unusual work shifts may be more stressful physically, mentally, and emotionally. Non-traditional shifts and extended work hours may disrupt the body’s regular schedule, leading to increased fatigue, stress, and lack of concentration. These effects lead to an increased risk of operator error, injuries and/or accidents.

Society is oriented toward traditional daytime work hours and work at night will often intensify fatigue and reduce alertness. Workers generally will not acclimate to night work, and sleep patterns will generally be disrupted so the non-work periods do not provide full recovery, resulting in sleep deprivation. Studies suggest that it can take up to 10 days to adapt to a night time work schedule.

Fatigue is a message to the body to rest. It is not a problem if the person can and does rest. However, if rest is not possible, fatigue can increase until it becomes distressing and eventually debilitating. The symptoms of fatigue, both mental and physical, vary and depend on the person and his or her degree of overexertion. Some examples include: weariness, sleepiness, irritability, reduced alertness, lack of concentration and memory, lack of motivation, increased susceptibility to illness, depression, headache, giddiness, or loss of appetite and digestive problems.

A Fatigue Management Plan (FMP) shall be completed and implemented whenever work hours exceed:

- 10-hours a day for more than 5 consecutive days;
- 50-hours in a 5-day work week;
- 12-hours a day for more than 4 consecutive days, or
- 60-hours a week for sedentary (to include office) work.

The FMP shall address the following conditions for operator work hour limitations:

Rest Breaks

No work period shall exceed 4.5 hours.

All worker to have a minimum 30 minutes break after the each 4.5 hour work period.

In extreme conditions (agreed and recorded at tailgate meetings) high energy use tasks will have an additional 15 minute break between work periods.

Equipment Operators.

Any employee who shows signs of fatigue or who has reported fatigue will not be permitted to operate any heavy equipment or vehicle(s) until he/she has had a minimum of 14 hours of rest.
Operators of equipment, such as hoisting equipment and draglines, mobile construction equipment, electrical power systems, hydropower plants, industrial manufacturing systems, hydraulically operated equipment, powered vessels, and boats, shall not be permitted to exceed 12-hours of duty time in any 24-hour period, including time worked at another occupation. A minimum of 8 consecutive hours of rest between shifts in a 24-hour period is required.

Rest is defined as: a period of time during which the person concerned is off duty; is not performing work, including administrative tasks; and is afforded the opportunity for uninterrupted sleep. This does not include time for breaks, meals, or travel time to/from work.

Motor Vehicle Operators.

Operators of motor vehicles, while on duty, shall not operate vehicles for a continuous period of more than ten 10-hours in any 24-hour period; moreover, no employee, while on duty, may operate a motor vehicle after being in a duty status for more than 12-hours during any 24-hour period.

A minimum of 8 consecutive hours shall be provided for rest in each 24-hour period.

Floating Plant.

All floating plant personnel shall be scheduled to receive a minimum of 8-hours rest in any 24-hour period, except:

When quarters are provided immediately adjacent to, or aboard the work site, these hours of rest may be divided into no more than 2 periods, one of which must be at least 6 continuous hours in length.

Rest periods may be interrupted in case of emergency, drill, or other overriding operational necessity.

7.7.2 Responsibilities

Supervisors / Managers / Foreman are responsible for

Observing the attentiveness, performance, and behavior of the employees they supervise

Assuring the employees they supervise are fit for duty

Following their FMP when presented with circumstances or knowledge that indicate that an employee may be showing signs of fatigue

Managing work schedules to help control worker fatigue.

The Supervisor will monitor workers that are near the end of their shift cycle for any signs of fatigue. If and when this is observed the worker shall be informed that he/she is required to return to their room and get extra time to sleep.

Upon their return to work on the following day they are to be monitored for any continued signs of fatigue.

The supervisor will also monitor the work to insure that the worker is attentive and performing his/her tasks in a safe and efficient manner.

The Supervisor will present the information or observations to the employee at the earliest possible time in order to address the fatigue issues that may arise from their work schedule. This discussion will include the possibility of changes to their tasks and time requirements (these may be adjusted to minimize the work conditions placed on the worker).

Workers / Employees are responsible for
Managing their time away from the worksite in a manner that allows them to get plenty of rest and approximately 7-8 hours of sleep every evening

Taking micro breaks throughout the day and taking advantage designated breaks to minimize fatigue and increase mental fitness

Notifying their supervisors when they feel like they are getting fatigued and are not fit for duty

Notifying the supervisor when they observe a coworker acting in a manner that indicates the coworker may be fatigued

Reporting any medication being taken including any over the counter medication such as for cold or flu, as these may impair the employee’s ability to work safely and contribute to them getting fatigued at an quicker pace

7.8 Ultraviolet Radiation/Sun Exposure

7.8.1 Ultraviolet (UV) Rays

Ultraviolet (UV) rays are a part of sunlight that is an invisible form of radiation. UV rays can penetrate and change the structure of skin cells.

There are three types of UV rays: ultraviolet A (UVA), ultraviolet B (UVB), and ultraviolet C (UVC).

UVA is the most abundant source of solar radiation at the earth's surface and penetrates beyond the top layer of human skin. Scientists believe that UVA radiation can cause damage to connective tissue and increase a person's risk for developing skin cancer.

UVB rays penetrate less deeply into skin, but can still cause some forms of skin cancer.

Natural UVC rays do not pose a risk to workers because they are absorbed by the Earth's atmosphere.

7.8.2 Sunlight exposure

Sunlight exposure is highest during the summer and between 10:00 a.m. and 4:00 p.m. Working outdoors during these times increases the chances of getting sunburned.

Snow and light-colored sand reflect UV light and increase the risk of sunburn.

Employee-Owners and subcontractors/consultants are at risk of UV radiation even on cloudy days.

Many drugs increase sensitivity to sunlight and the risk of getting sunburn. Some common ones include Thiazides, Diuretics, Tetracycline, Doxycycline, Sulfur antibiotics, and NSAIDs, nonsteroidal anti-inflammatory drugs, such as ibuprofen.

7.8.3 Prevention

Supervisors should take the following steps to protect workers from exposure to UV radiation:

When possible, avoid scheduling outdoor work when sunlight exposure is the greatest

Provide training to workers about UV radiation including:

Their risk of exposure

How to prevent exposure
The signs and symptoms of overexposure

Workers should follow these recommendations to protect themselves from UV damage:

Wear sunscreen with a minimum of SPF 15.

Wear appropriate clothing

Sunscreen Performance and SPF

SPF refers to the amount of time that persons will be protected from a burn. An SPF of 15 will allow a person to stay out in the sun 15 times longer than they normally would be able to stay without burning. The SPF rating applies to skin reddening and protection against UVB exposure.

SPF does not refer to protection against UVA. Products containing Mexoryl, Parsol 1789, titanium dioxide, zinc oxide, or avobenzone block UVA rays.

Sunscreen performance is affected by wind, humidity, perspiration, and proper application.

Old sunscreens should be thrown away because they lose their potency after 1-2 years.

Sunscreens should be liberally applied at least 20 minutes before sun exposure.

Special attention should be given to covering the ears, scalp, lips, neck, tops of feet, and backs of hands.

Sunscreens should be reapplied at least every 2 hours and each time a person gets out of the water or perspires heavily.

Some sunscreens may also lose efficacy when applied with insect repellents, necessitating more frequent application when the two products are used together.

Follow the application directions on the sunscreen bottle.

Appropriate Clothing.

Clothing with a tight weave is more protective than loosely woven clothing.

High-SPF clothing has been developed to provide more protection for those with photosensitive skin or a history of skin cancer.

Workers should also wear wide-brimmed hats and sunglasses with almost 100% UV protection and side panels to prevent excessive sun exposure to the eyes.

7.9 Severe Weather & Lightning

7.9.1 Lightning

There is no safe place outside when thunderstorms are in the area. If you hear thunder, you are likely within striking distance of the storm. Lightning often strikes more than three miles from the center of the thunderstorm, far outside the rain or thunderstorm cloud and can strike 10-15 miles from the thunderstorm.

When thunderstorms threaten, don't start anything you can't quickly stop. Monitor the weather to identify potentially hazardous weather approaching the area (TV/cable, radio, etc.) and pay attention to the daily forecasts (www.nws.noaa.gov) so you know what to expect during the day. Also pay attention to early signs of thunderstorms: high winds, dark clouds, rain, distant thunder or lightning. If these conditions exist, do not start a task you cannot quickly stop.
Lightning’s distance: Count the time from the flash to the bang—for each 5 seconds between, the lightning is 1 mile away (activate lightning safety plan at count of 30 or 6 miles away). Stop work, stay in safe shelter and don’t resume activities for 30 minutes—it’s called the 30-30 rule.

**Note:** The 30-30 Rule is best suited for existing thunderstorms moving into the area. It cannot protect against the first lightning strike.

Caution is necessary in the field with regard to the hazards of lightning. Decide when to suspend activities and move to a safe location. The following precautions should be taken:

**Outdoors**

Be aware of the weather to foresee and watch for the buildup of possible thunderstorms.

Be prepared to demobilize and take shelter before thunderstorms are too close. A safe shelter is a substantial building with electricity or plumbing or an enclosed, metal-topped vehicle with windows up.

Stay off and away from anything tall or high, including rooftops, scaffolding, utility poles and ladders.

Stay off and away from large equipment such as bulldozers, cranes, backhoes, track loaders and tractors.

Do not touch materials or surfaces that can conduct electricity, including metal scaffolding, metal equipment, utility lines, water, water pipes and plumbing.

If you are caught outside with no safe shelter anywhere nearby the following actions may reduce your risk

- Immediately get off elevated areas such as hills, mountain ridges or peaks
- Never lie flat on the ground, seek shelter under and isolated tree, or shelter under a cliff or rocky overhang
- Immediately get out and away from ponds, lakes and other bodies of water
- Stay away from objects that conduct electricity (barbed wire fences, power lines, windmills, etc.)

**Indoor Lightning Safety**

Stay off corded phones, computers and other electrical equipment that put you in direct contact with electricity.

Avoid plumbing, including sinks, baths and faucets.

Stay away from windows and doors, and stay off porches.

Do not lie on concrete floors, and do not lean against concrete walls.

**Curtailment of Site Activity**

Lightning activity should be monitored using appropriate detection equipment. If lightning activity threatens during site activities, a number of incremental action steps to minimize personnel exposure are to be implemented.

Lightning at 20 miles – Action steps:

- Notify personnel of increased lightning hazard.
- Prepare to cease unnecessary outdoor activity.
- Have nonessential personnel find shelter.
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Lightning at 15 miles. Or thunder heard by personnel, but no lightning flash observed – Action steps:

Secure outdoor equipment.

Cease outdoor activity other than securing equipment and critical tasks.

Personnel not occupied due to activity curtailment should move to designated lightning shelter.

Lightning at 10 miles or lightning observed – Action steps:

Immediate cessation of outdoor activity. Abandon efforts to secure equipment if not completed.

All personnel take cover in designated shelter. If no other shelter is available, personnel can move to hardtop automobiles for shelter. Personnel on foot should find low risk locations and disperse if no other options are available

7.9.2 Tornado

Tornado Watch – Tornadoes are possible in the area; remain alert for approaching storm.

Tornado Warning – A Tornado has been sighted or indicated by weather radar. If a tornado warning is issued for your area and the sky becomes threatening, move to a pre-designated place of safety.

When events and activities are calendared during tornado seasons, it is important that all participants are well informed and have a plan of action for their occurrence. Upon notification of a tornado warning, all activities and events should be cancelled until weather conditions and field conditions allow the activity to resume.

Recognizing the Danger – What to Look and Listen for

Look out for dark, often greenish skies, and a wall cloud, large hail and loud roar similar to a freight train. If a warning is issued and you are indoors, stay away from windows and move to an interior room or hallway or the lowest floor; get under a sturdy piece of furniture if possible. At the fields or enroute, get out of automobiles, trailers, or camping type vehicles.

7.9.3 Thunderstorms

Monitor the weather to identify potentially hazardous weather approaching the area (TV/cable, radio, etc.).

Decide when to suspend activities and move to a safe location.

Safe evacuation sites include substantial and enclosed buildings and fully enclosed metal vehicles with the windows up.

Unsafe shelters include solitary trees, water, metal objects, electrical and electronic equipment, open fields, and high ground.

7.9.4 Flash Floods

Flash Flood Watch – Indicates that flash flooding is a possibility in or close to the watch area. Those in the affected area are urged to be ready to take action if a flash flood warning is issued or flooding is observed. These watches are issued for flooding that is expected to occur within 6 hours after the heavy rains have ended.

Flash Flood Warning – A flood warning issued for life/property threatening flooding that will occur within 6 hours. It could be issued for rural or urban areas as well as for areas along the major rivers. Very heavy rain in a short period of time can lead to flash flooding, depending on local terrain, ground cover, degree of urbanization, amount
of man-made changes to the natural river banks, and initial ground or river conditions. Dam breaks or ice jams can also create flash flooding.

Listen to local radio and TV stations for information and advice.

Stop work if advised to evacuate, do so immediately!!

Move to a safe area...not cut off by floodwaters.

DO NOT attempt to drive over a flooded roadway. Do not drive into barricaded areas; the barricades are there for a reason!

7.9.5 Hurricane Safety Tips

Important Terms

It is important to remain informed and understand the terminology. By international agreement, all cyclone circulation originating over tropical waters are referred to as "tropical cyclones" and classified by form and intensity as follows:

- Tropical Disturbance: A moving area of thunderstorms in the tropics that maintains its identity for 24 hours or more.

- Tropical Depression: Rotary circulation at the surface, highest constant windspeed 38 mph or 33 knots.

- Tropical Storm: Distinct rotary circulation, constant wind speed ranges from 39 – 73 mph or 34 – 63 knots.

- Hurricane: A tropical cyclone with wind speeds or 74 mph or greater that is usually accompanied by heavy rain, thunder, lightning, coastal tidal surges and possible tornadoes. These storms are also known as typhoons in the Western Pacific and cyclones in the Indian Ocean and South Pacific Ocean.

- Hurricane Watch: Issued for a coastal area where there is a threat of hurricane conditions within 24 - 36 hours.

- Hurricane Warning: Issued when hurricane conditions are expected in a specified coastal area in 24 hours or less. Actions for protection of life and property should begin immediately.

- Flash Flood Watch: A flash flood is possible in the area. Stay alert for deteriorating conditions.

- Flash Flood Warning: A flash flood is imminent. Take immediate protective actions.

While forecasting methods and tools are improving year after year, people are still at great risk to tropical storms and hurricanes because they continue to build along the coastline. The following is a list of helpful hints that you can use before hurricane season, when a watch or warning is issued, before, during, and after a tropical storm, or hurricane strikes your area.

Pre-Season Preparation

Enter the season prepared; Know all evacuation routes if you live close to the coast.

Make sure your home / building/facility meets building codes for withstanding hurricanes, and they have storm shutters.

Maintain a current list of telephone numbers and contacts for emergency action team members, emergency management (civil defense), local police and fire departments, medical facilities, utilities, contractors, vendors, insurance agent/ broker, building owner, HVAC contractor, electrician, plumber, etc.
Contact local authorities to plan and coordinate activities before the need for emergency action. That way you will both be better prepared.

Designate a person to monitor weather conditions and keep the action plan leader up to date on weather conditions before, during, and after a hurricane. Arrange backup communications, such as two-way radios or cellular phones.

Arrange an off-site emergency communications control center, such as a hotel meeting room just outside the hurricane area, in case it becomes too dangerous to remain on site.

Review your business continuity plan and update as needed, including employee contact information. If you do not have a business continuity plan, consider utilizing the Liberty Mutual Disaster Recovery and Business Continuity Plan Property Risk Management Guide to assist in developing one.

Remind employees of key elements of your business continuity plan, including post-event communications procedures and work/payroll procedures. Make sure all employees have a paper copy of the plan.

Ensure that post-event communications procedures discuss how employees will be notified when to return to work. (Local radio or TV station public service announcement, telephone call, employee intranet, etc.)

Inspect all fire protection and life safety equipment.

Provide diesel or gasoline-driven emergency generator on site with full tank of fuel and reserve fuel on hand. (High demand may make it difficult to obtain a generator. Advance arrangements and/or retainers may ensure availability.)

Determine which company records are vital and make plans to protect/relocate them.

Identify vulnerable and/or critical equipment and processes. Provide instructions for safely shutting down processes, data processing equipment, etc. Consider disconnecting and relocating critical equipment to higher elevations.

Identify key equipment and stock that will need to be protected with tarpaulins or waterproof covers.

Identify a hot site (an off-site data processing location for immediate business resumption) or a cold site (an off-site location ready for setup of your own data processing equipment). Also, consider an off-site business recovery facility where you can resume general business operations.

Identify actions to take in the event of live electrical wires, leaking gas, flammable liquids, corrosive/toxic materials, and damage to foundations or underground piping.

Evaluate the interdependency of your facilities and develop a contingency plan.

Maintain ongoing agreements with contractors for supplies and repairs needed after a hurricane.

When possible, use contractors who are outside potential hurricane areas, as local contractors may also have storm damage or local authorities’ needs may be given a higher priority.

Have proper tools, supplies, plenty of batteries and flashlights, and a first aid kit

Always have plenty of non-perishable foods on hand.

Listen to a NOAA Weather Radio (Available on the Red Cross Store) for critical information from the National Weather Service (NWS).

Check your disaster supplies. Replace or restock as needed
Create a hurricane evacuation plan with members of your household. Planning and practicing your evacuation plan minimizes confusion and fear during the event.

Find out about your community’s hurricane response plan. Plan routes to local shelters, register family members with special medical needs and make plans for your pets to be cared for.

**When a Watch or warning is issued**

Leave low lying areas.

Protect windows with plywood boards, or storm shutters.

Secure outside objects. Bring in anything that can be picked up by the wind (bicycles, lawn furniture).

Close your windows, doors and hurricane shutters. If you do not have hurricane shutters, close and board up all windows and doors with plywood.

Turn your refrigerator and freezer to the coldest setting. Keep them closed as much as possible so that food will last longer if the power goes out.

Make sure you have plenty of fuel and water. Have several days’ supply of food and water for each family member.

If called to evacuate, do so immediately.

**Before the Storm**

Be ready to put your plan and preparation into action. Pay attention to local weather reports on radio, television, or the internet.

Have house boarded up, or have storm shutters in place.

Have plenty of food and water.

Make sure all your tools, supplies, and first aid kit available for use.

Have a secure room available.

Turn off propane tank.

Unplug small appliances.

Fill your car’s gas tank.

Obey evacuation orders. Avoid flooded roads and washed out bridges.

**During the Storm**

Emergency personnel should stay at the facility only if safe to do so. Notify local authorities if personnel are staying on site.

Keep names and phone numbers of your electrician, heating contractor, plumber, fire department, and building owner easily accessible.

In an emergency situation, comply with all directions provided by authorities. Always keep your first-aid kit available.
Designate times for key staff members to call into conference calls for situation overviews.

Update employee emergency hotline and/or company intranet and website with posting on the status of the facility.

When safe to do so, patrol the property continuously. Watch for roof leaks, pipe breakage, fire, or structural damage. Constantly monitor any boilers that must remain online.

During power failure, turn off electrical switches to prevent re-energizing of equipment until necessary checks are completed.

Stay in a secure room; away from windows.

Do not use the phone, or candles.

Monitor Weather and Civil Service Bulletins on either regular or NOAA radio.

Have supplies on hand.

Remain indoors when the eye moves over your area because the storm will resume shortly.

After the Storm

Make sure that all is definitely clear outside, and the storm has completely passed before going out.

Report downed power lines, and stay away from them.

Use stored water and food.

Continue listening to a NOAA Weather Radio or the local news for the latest updates.

Stay alert for extended rainfall and subsequent flooding even after the hurricane or tropical storm has ended.

If you evacuated, return home only when officials say it is safe.

Drive only if necessary and avoid flooded roads and washed out bridges.

Keep away from loose or dangling power lines and report them immediately to the power company.

Stay out of any building that has water around it.

Inspect your home for damage. Take pictures of damage, both of the building and its contents, for insurance purposes.

Use flashlights in the dark. Do NOT use candles.

Avoid drinking or preparing food with tap water until you are sure it’s not contaminated.

Check refrigerated food for spoilage. If in doubt, throw it out.

Wear protective clothing and be cautious when cleaning up to avoid injury.

Watch animals closely and keep them under your direct control.

Use the telephone only for emergency calls.

### 7.9.6 Earthquakes
Action to Take If an Earthquake Strikes

One of the greatest threats during an earthquake is falling debris. Earthquakes are unpredictable and strike without warning. Therefore, it is important to know the appropriate steps to take when one occurs, and to be so thoroughly familiar with these steps, that you can react quickly and safely. If you are in a commercial or residential building, remember the following procedures.

Steps to Take During An Earthquake:

Remain inside the building.

Seek immediate shelter under a heavy desk or table—or brace yourself inside a door frame or against an inside wall.

Stay clear of windows—at least 15 feet away.

Stay put. If shaking causes the desk or table to move, be sure to move with it.

Resist the urge to panic. Organize your thoughts. Think as clearly as possible, and anticipate the sights and sounds that may accompany an earthquake.

Don't be surprised if the electricity goes out, fire or elevator alarms begin ringing, or the sprinkler system is activated.

Expect to hear noise from broken glass, creaking walls, and falling objects.

Steps To Take Immediately After An Earthquake:

Remain in the same "safe" location for several minutes after the earthquake, in case of aftershocks.

Do not attempt to evacuate or leave your immediate area unless absolutely necessary or when instructed to do so by a proper authority.

Check for injuries and administer necessary first aid. Recognize and assist co-workers who are suffering from shock or emotional distress.

Implement your survival plan. Establish a temporary shelter if rescue teams are expected to be delayed.

Use a stairway when instructed to exit building.

Steps to Take Before An Earthquake:

Prepare an earthquake kit, with warm clothing, food and water to last at least 72 hours.

Organize a planning session to be conducted by your local emergency response authorities.

7.10 Working Over or Near Water Hazards

7.10.1 Working Over or Near Water, Barges and Boats

Employees when working over or near water, where the danger of drowning exists shall be provided with U.S. Coast Guard (USCG) - approved personal flotation devices.

Inspect personal floatation devices before and after each use for defects which would alter their strength or buoyancy.
Do not use defective units.

Employees who will be working over or near water must be adequately trained in their responsibilities and the safe work practices associated with this task. All water work activities shall be documented and discussed on the PTA (project task analysis) and shall be signed by all members of the crew prior to the start of work activities near or over water.

At least one person in each crew shall be trained in cardiopulmonary resuscitation, first aid, and basic emergency-response skills.

Employees who are unable to swim must notify their supervisor.

Employees, who will be performing work over or near water, where the danger of drowning exists, are not permitted to work alone at any time.

Ensure a 30 in. diameter life ring with 150 ft. of (3/8" dia. – 600 lb. capacity) line is readily available and that travel distance between the life rings does not exceed 200 ft.

Warning rope and flags / barricade tape shall be installed a minimum of 10 ft. from the water's edge to restrict access.

All personnel will be accounted for on site by the person in charge of the operation, safety equipment will remain in place for the complete operation and until all persons are accounted for.

When preparing to go out on a boat the operator must check that the required safety equipment is onboard and the boat and other equipment is in good operating condition.

All boats must carry one wearable (Type I, II, III or V) USCG - approved PFD for each person onboard or being towed.

All protective equipment must be worn in a manner that does not create a hazard in itself (loose straps, catch hazards, wrong sized etc.) Everyone who uses personal protective equipment shall be trained in its use, operation and maintenance.

All on-water activities must have a communication plan to ensure prompt and effective communication with boats, shoreline crews and On-Site Supervisor or trip plan holder.

The communication plan should make use of whatever technology is available.

All boat operators and shoreline captains should be equipped with radios and trained in the use of the radios.

Hand signals should also be reviewed and understood by all as a back-up communication system.

7.10.2 Boating Safety

Review and participate in barge/boat tailgate safety meeting, including emergency escape procedures and emergency escape route assignments;

Ramps to barges/boats shall be of adequate strength, provided with side boards, well maintained, and properly secured;

The subcontractor shall eliminate, to the extent possible, conditions causing slippery working and walking surfaces used by employees;

Active work areas shall be kept free of equipment and materials not in use, and clear of debris not necessary for the work in progress;
The barge/boat shall have (a) suitable lifeboat(s) to handle the number of people on the barge/boat;

A first aid kit and blanket or other suitable covering shall be available on the barge

Trip Plans will be filed before any boat leaves a custodian

Boat Crew and Passenger Briefing checklists must be completed before any boat leaves shore and any on-water activity takes place

Boat Equipment and Service Checklists must be completed at the beginning and end of each day of operation

All operations that involve the deployment of larger equipment (booms, anchors, shorelines etc.) will be conducted with a minimum of two appropriately sized boats with at least one boat being assigned safety boat duties.

Boats must have a minimum crew of two before leaving shore (operator plus one).

All personnel in a boat must wear a USCG approved Lifejacket or Personal Floatation Device.

Marker Buoys are required if any area of the watercourse is obstructed from normal navigation (when any lines, booms, anchors or other “in water” equipment is tied to shore or across a channel or narrow channels obstructed by work activities). Hazard and information buoys must be placed upstream and downstream with enough warning distance to allow users to safely navigate the hazard.

If a boat or boats are being used with no shoreline crew or On Site Supervisor (one or more boats going on a river or lake run, site assessment etc.) a reliable means of communicating with a control person (trip plan holder) must be in place.

In areas where there is no cellular or radio service, boat operators must research communication options (e.g. location of public telephones, satellite telephones, and other means of communication) and devise a communication plan which identifies a means of communication to be implemented in case of emergency.

No boats are to operate within 440 yards upstream or 110 yards downstream of any low head dam, weir or water control structure.

Live lines (lines from the boat to any other object) will be looped (not tied) in such a way that it can be released when under pressure, the line must be under the immediate control of a crew member. The boat should only be tied to the shore.

Parked boats must be tied to the shore.

Loading and unloading of equipment will only occur when the boat is secured to shore and stable.

Equipment transported by boat must be secured in such a way that movement or shifting cannot occur.

No alcohol is allowed in the boats or along the shoreline at any time. Operation of the boats by persons impaired by drugs (both prescription and non-prescription) or alcohol is prohibited. Drivers suspended from operating a motor vehicle by an impaired driving conviction are prohibited from operating project boats.

7.10.3 Responsibilities

On-Site Supervisor

Overall site safety. Ensure site control, accident management plan and appropriate site safety and first aid personnel are in place.

Ensure compliance with all project guidelines and applicable regulations (accident reporting, spill reporting etc.)
Brief team captains on the operation and their duties

Approve Water Activity Hazard Assessment

Exercise emergency authority to stop and prevent unsafe activities.

**Boat Captain**

The Boat Captain may also act as a boat operator

Safety briefing of boat operators

Assign work boat and safety boat duties

Participate in Water Activity Hazard Assessment

Supervise all boat activities

Set up traffic patterns and speed control for multi-boat operations

Ensure effective communications between boats and shoreline

Exercise emergency authority to stop and prevent unsafe activities.

**Boat Operators**

Responsible for the safety of the boat and crew

Responsible for compliance to all boating legislation and WCSS Guidelines

Ensure the Equipment & Service Checklist is completed (pre and post use)

Complete Crew/Passenger Briefing Checklist

Supervise equipment loading and securing

Filing of Trip Plan with On Site Supervisor (or Responsible Person if no Supervisor or ground support present)

Exercise emergency authority to stop and prevent unsafe activities.

**Safety Boat**

Placement of any hazard or information buoys

Ensure all public using the water way or immediate shoreline is notified of the operation and how to safely avoid the hazards

Monitor the water and shoreline activities

Act as a rescue boat

**Boat Crew**

As assigned by Boat Captain or Boat Operator

Must receive Crew/Passenger Briefing prior to leaving shore and conducting any on water activity
Safety Captain (Safety Captain should not be assigned to work on a crew):

Participate in the Water Activities Hazard Assessment

Supervise the safety of all personnel

Complete Shoreline Crew/Observer Briefing & Checklist

Ensure appropriate placement of shoreline safety/rescue stations

Exercise emergency authority to stop and prevent unsafe activities.

**Shoreline Worker:**

As assigned by Captain or other team leaders

### 7.10.4 Shoreline Safety

Shoreline crew and observer briefing checklists must be completed before any activity takes place.

If chest waders are worn by personnel working on shore, in or near the water, they must have a waist belt capable of stopping water from entering the lower portion of the wader.

The “buddy system” will be used for any shoreline crews where water entry is required.

Shoreline safety equipment stations must be in place on any exercise or operation where shoreline crews are working in water.

Full body harnesses and safety lines will be used by shoreline crews that enter water with steep banks, or they are working immediately upstream of weirs, log jams, deep holes or rapids. These areas should be avoided if possible as equipment deployment sites.

### 7.10.5 Personal Flotation Devices

When preparing to go out on a boat the operator must check that all the required safety equipment is onboard.

All boats must carry one wearable (Type I, II, III or V) U. S. Coast Guard-approved PFD for each person onboard or being towed.

All PFDs must be:

- U. S. Coast Guard-approved
- In good and serviceable condition.
- Readily accessible.

Readily accessible means you must be able to put the PFD on in a reasonable amount of time in an emergency.

PFDs should not be stowed in plastic bags, in locked or closed compartments or have other gear stowed on top of them.

Of the proper size for the intended wearer. Sizing for PFDs is based on body weight and chest size.
Inherently buoyant Type III, Type V work vests, or better USCG-approved personal flotation devices (PFDs) shall be provided and properly worn (zipped, tied, latched, etc., in closed fashion) by all persons in the following circumstances: See Chapter 9 “Personal Protective Equipment” - Working Over Near Water - Figure 9 -1.

On floating pipelines, pontoons, rafts, or stages;

On structures or equipment extending over or next to water except where guardrails, personal fall protection system, or safety nets are provided for employees;

Working alone at night where there are drowning hazards, regardless of other safeguards provided;

In skiffs, small boats, or launches, unless in an enclosed cabin or cockpit; or

Whenever there is a drowning hazard.

Automatic-Inflatable PFDs Type V or better, USCG Approved for Commercial Use, may be worn by workers in lieu of inherently buoyant PFDs, provided the following criteria are met:

PFDs are worn only by workers over 16 years of age and those who weigh 90 lb. or more;

An AHA must be performed for this activity;

PFDs must be inspected, maintained, stowed and used only in accordance with the manufacturer’s instructions (currently not intended to be used in areas of heavy construction or maintenance or where hot work (welding, brazing, cutting, soldering, etc.) is to be performed;

PFDs shall provide a 30-lb. minimum buoyancy post deployment;

USACE projects shall comply with USACE’s Auto-Inflatable Personal Flotation Device, Standards of Use Procedures, and current edition.

The USCG-approval for auto-inflatable PFD’s is contingent upon the PFD being worn, not stowed. All auto-inflatable PFDs must be worn at all times drowning hazard exists.

Throwable devices (Type IV PFD):

On USCG-inspected vessels, ring buoys are required to have automatic floating electric water lights.

On all other floating plant and shore installations, lights on life rings are required only in locations where adequate general lighting (e.g., floodlights, light stanchions) is not provided. For these plants and installations, at least one life ring, and every third one thereafter, shall have an automatic floating electric water light attached.

All PFDs shall be equipped with retro-reflective tape in accordance with USCG requirements.

Life rings (rope attachment not required) and ring buoys (rope attachment required) shall be USCG-approved; shall have at least 70 ft. of 3/8 in of attached solid braid polypropylene, or equivalent. Throw bags may be used in addition to life rings or ring buoys. Life rings or ring buoys shall be readily available and shall be provided at the following places:

At least one, not less than 24 in. dia. on each safety skiff up to 26 ft. in length

At least one (1) 30 in. in diameter on all motor boats longer than 26 ft. in length up to 65 ft. in length and for motor boats 65 ft. in length or longer, a minimum 3 life buoys of not less than 30 in dia. and one additional for each increase in length of 150 ft. or fraction thereof; and
At least one (1) at intervals of not more than 200 ft. on pipelines, walkways, wharves, piers, bulkheads, lock walls, scaffolds, platforms, and similar structures extending over or immediately next to water, unless the fall distance to the water is more than 45 ft., in which case a life ring shall be used. (The length of line for life rings at these locations shall be evaluated, but the length may not be less than 150 feet.)

At navigation locks, an analysis of the benefits versus the hazards of using floating safety blocks (blocks that may be quickly pushed into the water to protect individuals who have fallen in the water from being crushed by vessels) shall be made.

This analysis shall be documented as an AHA.

If the use of blocks is found acceptable, consideration shall be given to the size and placement of the blocks, the appropriate means of securing and signing the blocks, etc.

When the use of blocks is found unacceptable, alternative safety measures shall be developed.

### 7.10.6 Lifesaving and Safety Skiffs

At least one skiff shall be immediately available at locations where employees work over or immediately next to water. Skiffs shall be kept afloat or ready for instant launching.

Personnel trained in launching and operating the skiff shall be readily available during working hours. Lifesaving personnel shall perform a lifesaving drill, including the launching and recovery of the skiff, before the initiation of work at the site and periodically thereafter (but at least monthly or whenever new personnel are involved).

Skiffs shall be kept afloat or ready for instant launching. A lifesaving skiff is considered as being "immediately available" when the following criteria are met:

- The skiff must be in the water or capable of being quickly launched by one person.
- There must be at least one person present and specifically designated to respond to water emergencies and operate the skiff at all times when there are employees above water.
- When the operator is on break another operator must be designated to provide the requisite coverage while employees are above water.
- The designated operator must either man the skiff at all times or remain in the immediate area such that the operator can quickly reach the skiff and get underway.
- The skiff operator may be assigned other tasks provided the tasks do not interfere with the operator's ability to quickly reach the skiff and get underway.
- The communication system, such as a walkie-talkie, must be used to inform the skiff operator of an emergency and to inform the operator where the skiff is needed.
- The skiff must be equipped with both a motor and oars.

Required equipment must be onboard and meet or exceed USCG requirements. Skiffs shall be equipped as follows:

- Four (4) oars (two (2) if the skiff is motor powered);
- Oarlocks attached to gunwales or the oars;
- One (1) ball-pointed boat hook;
One (1) ring buoy with 70 ft. of 3/8 in. solid braid polypropylene, or equivalent, line attached; and
PFDs in number equaling the skiff rating for the maximum number of personnel allowed on board.

Fire Extinguisher.

In locations where waters are rough or swift, or where manually operated boats are not practical, a power boat suitable for the waters shall be provided and equipped for lifesaving.

Skiffs and power boats shall have buoyant material capable of floating the boat, its equipment, and the crew.

On vessels (such as skiffs) without permanently mounted navigation lights, portable battery-operated navigation lights will be available and used for night operations.

Lifesaving Boats.

One or more lifesaving boats, either manually or power-operated, shall be provided and readily accessible at all times.

Lifesaving boats shall be properly maintained, ready for emergency use and equipped with oars and oarlocks attached to the gunwales, boathook, anchor, ring buoy with 50 ft. of 600 pound capacity line and two life preservers. Oars are not required on boats that are powered by an inboard motor.

Where, because of swift current, lifeboats cannot be used, a line shall be stretched across the stream with tag lines or floating planks trailing in the water at intervals not to exceed 6 ft. If this is impracticable, some other arrangement for providing effective life lines near the water surface shall be provided.

The employer shall ensure that there is in the vicinity of each barge in use at least one portable or fixed ladder which will reach from the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that the barge is in use.

7.10.7 Access to and from Wharves, Floats, Barges, and/or Boats.

Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained, and properly secured.

Unless employees can step safely to or from the wharf, float, barge, or river towboat, either a ramp or a safe walkway shall be provided.

When dredge discharge pipe lines are used as walkways, they shall be provided with a flat surface walkway at least 12 in. wide, anchored to the pipe line to prevent displacement. A railing providing at least a single rail or taut rope 42 to 45 in. high shall be provided along one side. When rope is used, it shall be at least as strong as 3/4-in. diameter Manila or at least 3/8-in. diameter wire rope, or equivalent.

Catwalks or platforms shall be at least 20 in. wide with railings provided at all locations over bodies of water more than 4 feet deep. Plank for such use at those locations subject to immersion shall be rough sawn and treated to resist rot. Railings shall be installed in accordance OSHA guardrail regulations.

When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial hand rail not less than thirty-four (34) in. or more than thirty-eight (38) in. above the tread nosing shall be provided between the top of the bulwark and the deck.

Obstructions shall not be laid on or across the gangway, ramp, catwalk or other means of access.

The means of access shall be adequately illuminated for its full length.
Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured.

A Jacob's ladder shall either hang without slack from its lashings or be pulled up entirely.

7.10.8 Working Surfaces of Barges.

Employees shall not be permitted to walk along the sides of covered lighters or barges with coamings more than 5 ft. high unless there is a 3-ft. clear walkway or a grab or a taut hand line is provided.

Decks and other working surfaces shall be maintained in a safe condition.

Employees shall not be permitted to pass fore and aft, or over, or around deck loads, nor shall employees be permitted to walk over deck loads from rail to coaming, unless there is a safe passage.

If it is necessary for an employee to stand at the outboard or inboard edge of the deck load where less than 36 in. of bulwark, rail, coaming, or other protection exists, the employee shall be provided with a suitable means of protection against falling from the deck load.

7.11 Outdoor Biological Exposures

7.11.1 Bees, Wasps, and Hornets

Stinging insects such as bees, wasps, and hornets are found throughout the United States. Workers should take the following steps to prevent insect stings:

<table>
<thead>
<tr>
<th>Figure 7 - 3 Stinging Insects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bees</strong></td>
</tr>
<tr>
<td>Honey Bee</td>
</tr>
<tr>
<td>Bumble Bee</td>
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<tr>
<td>Carpenter Bee</td>
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<tr>
<td>Sweat Bee</td>
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<tr>
<td><strong>Wasps</strong></td>
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<tr>
<td>Yellow Jacket</td>
</tr>
<tr>
<td>Common Wasp</td>
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<tr>
<td>Mud Dauber</td>
</tr>
<tr>
<td>Paper Wasp</td>
</tr>
<tr>
<td><strong>Hornets</strong></td>
</tr>
<tr>
<td>European Hornets</td>
</tr>
<tr>
<td>Baldfaced Hornet</td>
</tr>
<tr>
<td>Oriental Hornet</td>
</tr>
</tbody>
</table>
Wear light-colored, smooth-finished clothing.

Avoid perfumed soaps, shampoos, and deodorants.

Don't wear cologne or perfume.

Avoid bananas and banana-scented toiletries.

Wear clean clothing and bathe daily. (Sweat may anger bees.)

Wear clothing to cover as much of the body as possible.

Avoid flowering plants when possible.

Keep work areas clean. Social wasps thrive in places where humans discard food.

Remain calm and still if a single stinging insect is flying around. (Swatting at an insect may cause it to sting.)

If you are attacked by several stinging insects at once, run to get away from them. (Bees release a chemical when they sting, which may attract other bees.)

Go indoors.

A shaded area is better than an open area to get away from the insects.

If you are able to physically move out of the area, do not attempt to jump into water. Some insects (particularly Africanized Honey Bees) are known to hover above the water, continuing to sting once you surface for air.

If a bee, wasp, or hornet comes inside your vehicle, stop the car slowly and safely and open all the windows.

**CAUTION:** Workers with a history of severe allergic reactions to insect bites or stings should carry an epinephrine auto injector (EpiPen) and should wear a medical identification bracelet or necklace stating their allergy.

If a worker is stung by a bee, wasp, or hornet:

Have someone stay with the worker to be sure that they do not have an allergic reaction.

Wash the site with soap and water.

Remove the stinger using gauze wiped over the area or by scraping a fingernail over the area.

Never squeeze the stinger or use tweezers.

Apply ice to reduce swelling.

Do not scratch the sting as this may increase swelling, itching, and risk of infection.

### 7.11.2 Fire Ants
Workers should take the following steps to prevent fire ant stings and bites:

- Do not disturb or stand on or near ant mounds.
- Be careful when lifting items (including animal carcasses) off the ground, as they may be covered in ants.
- Fire ants may also be found on trees or in water, so always look over the area before starting to work.

Workers should take the following steps if they are stung or bitten by fire ants:

- Rub off ants briskly, as they will attach to the skin with their jaws.
- Antihistamines may help.
- Follow directions on packaging.
- Drowsiness may occur.
- Take the worker to an emergency medical facility immediately if a sting causes severe chest pain, nausea, severe sweating, and loss of breath, serious swelling, or slurred speech.

**CAUTION:** Workers with a history of severe allergic reactions to insect bites or stings should carry an epinephrine auto injector (EpiPen) and should wear a medical identification bracelet or necklace stating their allergy.

### 7.11.3 Scorpions

**Figure 7 - 5 Scorpion Identification and Range**
The average length of mature Bark Scorpions is 1.5 inches.

The Arizona Bark Scorpion is typically a golden-yellow color or very light brown. It has a slender tail and pincers.

In the United States, the Arizona Bark Scorpion is found in Arizona, California, Nevada, New Mexico and Utah.

This species has a very painful sting. Although once an extremely feared scorpion that’s sting was considered lethal, research suggests that this species probably poses no serious threat to a healthy adult. The sting of this species is, however, considered to be medically significant and can be dangerous and potentially lethal to children or the elderly.

The average length of mature Stripebacked Scorpions is 2.5 inches.

The Stripebacked Scorpion varies in color from yellowish-tan to brown. As you can see in the picture below, the Stripebacked Scorpion has 2 dark gray lines that run the length of its back. Older scorpions tend to be a darker brown, and the stripes may not be as obvious.

In the United States, the Stripebacked Scorpion is found in Arizona, Arkansas, Colorado, Illinois, Kansas, Louisiana, Mississippi, Missouri, Nebraska, New Mexico, Oklahoma, Tennessee, and Texas. It is the most widespread scorpion in the United States.

Opinions are varied about the potential danger of the Stripebacked Scorpion ranging from it’s harmless to its being reported as extremely painful and potentially dangerous.

Scorpions usually hide during the day and are active at night. They may be hiding under rocks, wood, or anything else lying on the ground.

Workers should take the following steps to prevent scorpion stings:

- Wear long sleeves and pants.
- Wear leather gloves.
- Shake out clothing or shoes before putting them on.

**CAUTION:** Workers with a history of severe allergic reactions to insect bites or stings should carry an epinephrine auto injector (EpiPen) and should wear a medical identification bracelet or necklace stating their allergy.

Workers should take the following steps if they are stung by a scorpion:

- Contact a qualified health care provider or poison control center for advice and medical instructions.
- Ice may be applied directly to the sting site (never submerge the affected limb in ice water).
- Remain relaxed and calm.
- Do not take any sedatives.
- Capture the scorpion for identification if it is possible to do so safely.
7.11.4 Dog Safety

Dogs will bite the first thing they come to. If an employee holds out their hand to fend off the dog, that is what the dog will bite. If a large enough stick is nearby, that can be used to give something else to bite on while the employee moves towards safety (while the employee pulls it and inches towards safety – similar to a less friendly game of tug of war with a dog toy).

Any dog may bite - even one familiar to you.

Most dog bites occur on the owner’s premises.

Avoid all dogs - both leashed and stray.

Be aware that chained dogs are also dangerous. Dogs do not like to be restrained. A chained dog is only as secure as the chain holding it.

Do not disturb a dog while it is sleeping, eating, or caring for puppies.

A dog is wary of anything it does not understand; if you have tools or equipment in your hands, a dog may consider these a threat to its safety.

Dogs react strongly to body language; strangers should project confidence.

If a dog approaches to sniff you, stay still and do not reach out to the dog; this may be interpreted as an act of aggression.

Dogs are more aggressive when they travel in packs. Even docile dogs often become uncharacteristically violent and vicious when they are in a pack.

Dogs may attack if they are angry, afraid, or rabid. Know how to spot an angry, afraid, or rabid dog and leave the area immediately.

If you are threatened by a dog, remain calm, do not scream, and avoid direct eye contact – staring a strange dog directly in the eyes can be perceived as a challenge.

If you say anything, speak calmly and firmly.

Dogs want to attack from the rear, coming up from behind. Even one who sits up in his yard ahead of you may wait until you pass before giving chase. Do not turn your back on a dog.

While working position yourself so you face your partner, so you have a view of any animals, people, or vehicles that may come up from behind.

Don’t turn and run (running from a dog will trigger its natural chase instinct and increase its aggression, and you will not be able to outrun the dog). Try to stay still until the dog leaves, or back away slowly until the dog is out of sight or you have reached safety (e.g., vehicle, outside a gated/fenced area).

If attacked, retreat to vehicle or attempt to place something between you and the dog.

Get a solid object between you and the dog if possible. Or, if you are holding a jacket or other soft item, stuff it in the dog’s mouth.

If you cannot reach your vehicle, try to climb on the roof of a nearby car, or get on the other side of a nearby gate or doorway until you get assistance or wait for the dog to leave.
If you fall or are knocked to the ground, curl into a ball with your hands over your head and neck, and protect your face.

If there is no chance to retreat and no chance of using any of the above techniques, do whatever you can to defend yourself and get out of the situation; kicking is safer than using your hands and arms (assuming you are wearing jeans).

If a dog grabs a hand or a leg, go limp, the dog may let go.

If bitten, immediately scrub the bite site vigorously with soap and water, seek medical attention as soon as possible, and report the incident to your supervisor and the local authorities.

Report all dog-related incidents to your supervisor, even if they do not result in a bite.

7.11.5 Mosquitoes (ZIKA and West Nile Virus)

The West Nile and ZIKA virus is most often spread to humans from the bite of an infected mosquito. West Nile Virus was first reported in the United States in 1999. By 2004, the virus was reported throughout the United States.

Most human infections with West Nile Virus (about 80%) cause no symptoms. Approximately 20% of those infected experience flu-like symptoms. Less than 1% of those infected develop severe symptoms. Employee-Owners and subcontractors/consultants of all ages may be affected.

Exposure Symptoms, Prevention and Treatment

Workers are at risk of West Nile Virus exposure any time infected mosquitoes are biting, the most are most active from dusk to dawn from July to September.

Workers who have potential for exposure should:

- Use insect repellent when mosquitoes are biting
- Apply insect repellent containing DEET (more than 20% DEET for longer protection), picaridin, or oil of lemon eucalyptus to exposed skin and to clothing
- Use permethrin on clothing only
- Carefully follow label directions for repellent use
- Do not apply pump or aerosol products directly to the face
- Spray products onto the hands and carefully rub them over the face, avoiding the eyes and mouth
- Use a repellent that provides protection for the amount of time that you will be outdoors and reapply it if needed. The percentage of active ingredient in the repellent determines the length of protection
- Wash skin treated with insect repellent with soap and water after returning indoors
- Use protective clothing when mosquitoes are biting, such as long-sleeved shirts, long pants, and socks
- Spray clothing with products containing DEET, picaridin, oil of lemon eucalyptus, or permethrin, as mosquitoes may penetrate thin clothing
- Use permethrin repellents on clothing as directed; Do Not apply them to skin
- Wash clothing treated with insect repellent before wearing it again
Do not apply repellent to skin that is covered by clothing

7.11.6 Poison Ivy, Poison Oak and Poison Sumac

Poison ivy, poison oak, and poison sumac can release urushiol, when the leaf or other plant parts are bruised, damaged, or burned. When the oil gets on the skin an allergic reaction, referred to as contact dermatitis, occurs in most exposed people as an itchy red rash with bumps or blisters.

**Figure 7 - 6 Poisonous Plant Locations**

*Poison Ivy* is Across the United States, except California, Alaska, and Hawaii

*Poison Oak* is Primarily the Southeast and West Coast

*Poison Sumac* is abundant along the Mississippi River and boggy areas of the Southeast
Plant Identification

The old saying "Leaves of three, Let it be!" is a helpful reminder for identifying poison ivy and oak, but not poison sumac which usually has clusters of 7-13 leaves.

Figure 7 - 7 Poisonous Plant Identification

<table>
<thead>
<tr>
<th>Poison Ivy</th>
<th>Poison Oak</th>
<th>Poison Sumac</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Poison Ivy" /></td>
<td><img src="image2" alt="Poison Oak" /></td>
<td><img src="image3" alt="Poison Sumac" /></td>
</tr>
</tbody>
</table>

Exposure Prevention, Symptoms, and Treatment

Workers can prevent contact with poisonous plants by taking these steps:

- Wear long sleeves, long pants, boots, and gloves.
- Wash exposed clothing separately from the rest of the laundry using hot water with an oil cutting detergent.
- Use barrier creams

Barrier skin creams, such as a lotion containing bentoquatatum, may offer some protection before contact.

Barrier creams should be washed off and reapplied twice a day.

After use, clean tools with rubbing alcohol (isopropanol or isopropyl alcohol) or soap and lots of water.

Urushiol can remain active on the surface of objects for up to 5 years.

Wear disposable gloves during this process.

Do not burn plants that may be poison ivy, poison oak, or poison sumac as inhaling smoke from burning plants can cause severe allergic respiratory problems. Supervisors should prevent workers from being exposed to burning poisonous plants whenever possible. However, when exposure to burning poisonous plants is unavoidable, supervisors should provide workers with:

- A NIOSH-certified half-face piece particulate respirator rated R–95, P–95, or better.

  These respirators should protect against exposure to burning poisonous plants, but will not protect against all possible combustion products in smoke, such as carbon monoxide.

  Respirators must be worn correctly and consistently throughout the time they are used.

  For respirators to be effective there must be a tight seal between the user’s face and the respirator.

  Respirators must be used in the context of a written comprehensive respiratory protection program.

Workers who have come in contact with poisonous plants should:
Immediately rinse skin with rubbing alcohol, specialized poison plant washes, degreasing soap (such as dishwashing soap) or detergent, and lots of water.

Rinse frequently so that wash solutions do not dry on the skin and further spread the urushiol.

Scrub under nails with a brush.

Apply wet compresses, calamine lotion, or hydrocortisone cream to the skin to reduce itching and blistering.

Follow the directions on any creams and lotions. Do not apply to broken skin, such as open blisters.

Oatmeal baths may relieve itching.

An antihistamine such as diphenhydramine (Benadryl) can be taken to help relieve itching.

Follow directions on the package.

Drowsiness may occur.

In severe cases or if the rash is on the face or genitals, seek professional medical attention.

Call 911 or go to a hospital emergency room if the worker is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had a severe reaction in the past.

### 7.11.7 Venomous Snakes

Venomous snakes found in the United States include rattlesnakes, copperheads, cottonmouths/water moccasins, and coral snakes. They can be dangerous to Employee-Owners and subcontractors/consultants. Although rare, some workers with a severe allergy to snake venom may be at risk of death if bitten. It is important for supervisors to train their workers about their risk of exposure to venomous snakes, how they can prevent and protect themselves from snake bites, and what they should do if they are bitten.

Below is a guide to identifying poisonous snakes from non-poisonous snakes.

<table>
<thead>
<tr>
<th>Table 7 - 11 Major Identification Features of Snakes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Venomous Snake</strong></td>
</tr>
<tr>
<td>1. Round pupils</td>
</tr>
<tr>
<td>2. No sensing pit</td>
</tr>
<tr>
<td>3. Head slightly wider than neck</td>
</tr>
<tr>
<td>4. Divided anal plate</td>
</tr>
<tr>
<td>5. Double row of scales on the underside of the tail</td>
</tr>
</tbody>
</table>

**Figure 7 - 8 Rattlesnakes**
Rattlesnakes are the largest of the venomous snakes in the United States. They can accurately strike at up to one-third their body length. Rattlesnakes use their rattles or tails as a warning when they feel threatened. Rattlesnakes may be found sunning themselves near logs, boulders, or open areas. These snakes may be found in most work habitats including the mountains, prairies, deserts, and beaches across the US.

U.S. Geographic Region: Across the entire United States

Copperheads vary in color from reddish to golden tan. The colored bands on their body are typically hourglass-shaped. Most adults are 18–36 inches long. They are not usually aggressive, but will often freeze when frightened. Workers are more likely to be bitten when they unknowingly step on or near a copperhead. Copperheads are often found in the Eastern states and extending as far west as Texas and are most likely located in forests, rocky areas, swamps, or near sources of water like rivers.

U.S. Geographic Region: Eastern states, extending as far west as Texas
Cottonmouth snakes average 50–55 inches long. The adult snake’s skin is dark tan, brown, or nearly black, with vague black or dark brown cross-bands. Juveniles have a bold cross-banded pattern of brown or orange with a yellow tail. Cottonmouths are frequently found in or around water. They do not scare easily and will defend themselves when threatened.

U.S. Geographic Region: Wetland areas, rivers, lakes, etc., in the southeastern states

Coral snakes are often confused with non-venomous king snakes, which have similar colored bands although in a different arrangement.

However, if the red bands are touching the yellow bands, then it is a venomous coral snake. Coral snakes tend to hide in leaf piles or burrow into the ground.

U.S. Geographic Region: Wooded, sandy, or marshy areas of the Southern United States
Exposure Symptoms, Prevention, and Treatment

Workers should take the following steps to prevent a snake bite:

- Do not try to handle any snake.
- Stay away from tall grass and piles of leaves when possible.
- Avoid climbing on rocks or piles of wood where a snake may be hiding.
- Be aware that snakes tend to be active at night and in warm weather.
- Wear boots, snake chaps and long pants when working in areas with the potential for venomous snake presence.
- Wear leather gloves when handling brush and debris.

Workers should take the following steps if they are bitten by a snake:

- Seek medical attention as soon as possible (dial 911 or call local Emergency Medical Services.)
- Try to remember the color and shape of the snake, which can help with treatment of the snake bite.
- Keep still and calm. This can slow down the spread of venom.
- Inform your supervisor.
- Apply first aid if you cannot get to the hospital right away.
- Lie or sit down with the bite below the level of the heart.
- Wash the bite with soap and water.
- Cover the bite with a clean, dry dressing.

Workers should NOT do any of the following steps if they are bitten by a snake:

- Do not pick up the snake or try to trap it.
- Do not wait for symptoms to appear if bitten, seek immediate medical attention.
- Do not apply a tourniquet.
Do not slash the wound with a knife.

Do not suck out the venom.

Do not apply ice or immerse the wound in water.

Do not drink alcohol as a painkiller.

Do not drink caffeinated beverages

7.11.8 Venomous Spiders

Venomous spiders found in the United States include the black widow, brown recluse, and hobo spiders. Spiders are usually not aggressive and most bites occur because a spider is trapped or unintentionally contacted.

**Figure 7 - 12 Black Widows**

Black widow spiders are found throughout North America, but are most common in the southern and western areas of the United States. They are identified by the pattern of red coloration on the underside of their abdomen. They are usually found in workplaces containing undisturbed areas such as woodpiles, under eaves, fences, and other areas where debris has accumulated. They may also be found living in outdoor toilets where flies are plentiful.

Black widow spiders build webs between objects, and bites usually occur when humans come into direct contact with these webs.

A bite from a black widow can be distinguished from other insect bites by the two puncture marks it makes in the skin. The venom is a neurotoxin that produces pain at the bite area and then spreads to the chest, abdomen, or the entire body.

**Figure 7 - 13 Brown Recluse Spiders**

The brown recluse spider, also known as the violin spider, is most commonly found in the Midwestern and southern states of the United States. It is brown in color with a characteristic dark violin-shaped (or fiddle-shaped) marking on its head and has six equal-sized eyes (most spiders have eight eyes). Brown recluse spiders are usually found in workplaces with secluded, dry, sheltered areas such as underneath structures logs, or in piles of rocks or leaves. If a brown recluse spider wanders indoors, they may be found in dark closets, shoes, or attics.
The brown recluse spider cannot bite humans without some form of counter pressure, for example, through unintentional contact that traps the spider against the skin. Bites may cause a stinging sensation with localized pain. A small white blister usually develops at the site of the bite. The venom of a brown recluse can cause a severe lesion by destroying skin tissue (skin necrosis). This skin lesion will require professional medical attention.

Figure 7 - 14 Hobo Spiders

The hobo spider is found throughout the Pacific Northwest. It is large and brown with a distinct pattern of yellow markings on its abdomen. Unlike many other similar looking spiders, hobo spiders do not have dark bands on their legs. To catch their prey, hobo spiders build funnel webs in holes, cracks, and recesses. They may be found in outdoor workplaces with retaining walls, and in foundations, window wells, and stacks of firewood and bricks. Indoors, they can nest between boxes or other storage items, on window sills, under baseboard heaters or radiators, behind furniture, and in closets. Hobo spiders do not climb like most spiders but are fast runners. These spiders are much more likely to attack if provoked or threatened. The bite of a hobo spider may go unnoticed; however, a moderate to severe, slow-healing wound will develop.

Exposure Symptoms, Prevention, and Treatment

Workers can take the following preventive steps:

- Inspect or shake out any clothing, shoes, towels, or equipment before use.
- Wear protective clothing such as a long-sleeved shirt and long pants, hat, gloves, and boots when handling stacked or undisturbed piles of materials.
- Minimize the empty spaces between stacked materials.
- Remove and reduce debris and rubble from around the outdoor work areas.
- Trim or eliminate tall grasses from around outdoor work areas.
- Store apparel and outdoor equipment in tightly closed plastic bags.
- Keep your tetanus boosters up-to-date (every 10 years). Spider bites can become infected with tetanus spores.

Workers should take the following steps if they are bitten by a spider:

- Stay calm. Identify the type of spider if it is possible to do so safely. Identification will aid in medical treatment.
- Wash the bite area with soap and water.
Apply a cloth dampened with cold water or filled with ice to the bite area to reduce swelling.

Elevate bite area if possible.

Do not attempt to remove venom.

Notify your supervisor.

Immediately seek professional medical attention.

7.11.9 Ticks

Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to one-quarter inch (6.4 mm) in size.

In some geographic areas, exposure is not easily avoided. Wear tightly woven light-colored clothing with long sleeves and pant legs tucked into boots; spray only outside of clothing with permethrin or permanone and spray skin with only DEET; and check yourself frequently for ticks.

Where site conditions warrant (vegetation above knee height, tick endemic area) or when tasks warrant (e.g., having to sit/kneel in vegetation) that diminish the effectiveness of the other controls mentioned above, bug-out suits (check with your local/regional warehouse)/Tyvek shall be used. Bug-out suits are more breathable than Tyvek.

Avoid habitats where possible; reduce the abundance through habitat disruption or application of acaricide. If these controls aren’t feasible, contact your local/regional warehouse for preventative equipment such as repellants, protective clothing, and tick removal kits. Use the buddy system and perform tick inspections prior to entering the field vehicle. If ticks were not planned to be encountered and are observed, do not continue fieldwork until these controls can be implemented.

Figure 7 - 15 Tick Varieties Identification and Ranges

American Dog Tick

American dog tick is the most commonly identified species responsible for transmitting Rickettsia rickettsii, which causes Rocky Mountain spotted fever in humans. The American dog tick can also transmit tularemia. This tick is widely distributed east of the Rocky Mountains and also occurs in limited areas on the Pacific Coast. American Dog Tick larvae and nymphs feed on small rodents. Dogs and medium-sized mammals are the preferred hosts of adults, although it feeds readily on other large mammals, including humans.

Blacklegged Tick
The blacklegged tick, commonly known as a "deer tick," can transmit the organisms responsible for anaplasmosis, babesiosis, and Lyme disease. This tick is widely distributed in the northeastern and upper midwestern United States. Blacklegged Tick larvae and nymphs feed on small mammals and birds, while adults feed on larger mammals and will bite humans on occasion. It is important to note that the pathogen that causes Lyme disease is maintained by wild rodent and other small mammal reservoirs, and is not transmitted everywhere that the blacklegged tick lives. In some regions, particularly in the southern U.S., the tick has very different feeding habits that make it an unlikely vector in the spread of human disease.

**Brown Dog Tick**

The brown dog tick has recently been identified as a reservoir of *R. rickettsii*, causing Rocky Mountain spotted fever, in the southwestern U.S. and along the U.S-Mexico border. Brown dog ticks are found throughout the U.S. and the world. Dogs are the primary host for the brown dog tick for each of its life stages, although the tick may also bite humans or other mammals.

**Gulf Coast Tick**

The Gulf Coast tick resides in coastal areas of the United States along the Atlantic coast and the Gulf of Mexico. The Gulf Coast tick can transmit *Rickettsia parkeri* rickettsiosis, a form of spotted fever. Gulf Coast tick larvae and nymphs feed on birds and small rodents, while adult ticks feed on deer and other wildlife. Adult ticks have been associated with transmission of *R. parkeri* to humans.

**Lone Star Tick**

The Lone Star Tick transmits *Ehrlichia chaffeensis* and *Ehrlichia ewingii*, causing human ehrlichiosis, tularemia, and STARI. The lone star tick is primarily found in the southeastern and eastern United States. White-tailed deer are a major host of lone star ticks and appear to represent one natural reservoir for *E. chaffeensis*. Lone Star Tick larvae and nymphs feed on birds and deer. Both nymphal and adult ticks may be associated with the transmission of pathogens to humans.
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**Rocky Mountain Wood Tick**
Rocky Mountain wood tick can transmit Rocky Mountain spotted fever and tularemia to humans. This tick is found in the Rocky Mountain states. Adult ticks feed primarily on large mammals. Larvae and nymphs feed on small rodents. Adult ticks are primarily associated with pathogen transmission to humans.

**Western Blacklegged Tick**
The western blacklegged tick can transmit the organisms responsible for causing anaplasmosis and Lyme disease in humans. Wild rodents and other mammals are likely reservoirs of these pathogens. This tick is distributed along the Pacific coast of the United States. Larvae and nymphs feed on birds and small rodents, while adult ticks feed on deer and other mammals. Both adult and nymphal ticks are known to transmit disease to humans.

**Illnesses, Signs, and Symptoms**
Six notable tick-borne pathogens cause human illness in the United States. These pathogens may be transmitted during a tick bite, normally hours after attachment (a reason to find tick bites and remove ticks quickly). The illnesses, presented in order of most common to least, include:

<table>
<thead>
<tr>
<th>Table 7 - 12 Table Tick Borne Diseases and Common US Regions</th>
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<tbody>
<tr>
<td><strong>Tick-Borne Disease</strong></td>
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<tr>
<td>Lyme disease (bacteria)</td>
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<tr>
<td>Babesia / Babesiosis (protozoan parasite)</td>
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<tr>
<td>Ehrlichiosis (bacteria)</td>
</tr>
<tr>
<td>RMSF Rocky Mountain Spotted Fever (bacteria)</td>
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<tr>
<td>STARI Southern Tick-Associated Rash Illness (bacteria)</td>
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<tr>
<td>Tick-Borne Relapsing Fever</td>
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<tr>
<td>Tularemia (Rabbit Fever) (bacteria)</td>
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<tr>
<td>Anaplasmosis</td>
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<tr>
<td>Colorado Tick Fever</td>
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<tr>
<td>Powassan Encephalitis</td>
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<tr>
<td>Q fever</td>
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</tbody>
</table>

These illnesses include some or all of the following: fever, headache, muscle aches, chills, stiff neck, joint aches, nausea, vomiting, abdominal pain, bone pain, diarrhea, fatigue, malaise, weakness, and small solid ring-like or spotted rashes.

Symptoms will vary based on the illness, and may develop in infected individuals typically between 3 and 30 days after transmission. Some infected individuals will not become ill or may develop only mild symptoms. Lyme: a rash
might appear that looks like a bull’s-eye with a small welt in the center. RMSF: a rash of red spots under the skin 3 to 10 days after the tick bite. In both RMSF and Lyme disease, chills, fever, headache, fatigue, stiff neck, and bone pain may develop.

If symptoms appear, contact the site safety and health supervisor and seek medical attention.

**Controls**

The methods for controlling exposure to ticks include, in order of most- to least-preferred:

Avoiding tick habitats, and ceasing operations in heavily infested areas

Reducing tick abundance through habitat disruption or application of insecticide

Personal protection through use of protective clothing, repellants (DEET), and contact insecticides (permethrin or permanone)

Frequent tick inspections and proper hygiene

*Note: Vaccinations are not available and preventative antibiotic treatment after a bite is generally not recommended.*

When avoiding the habitat or reducing tick abundance is not feasible, to prevent tick bites:

**Clothing**

Wear light-colored clothing so they may be more easily seen before they bite.

Wear long sleeves and long pants.

Tuck in your clothes (shirt inside your pants, and pants legs inside your socks or boots)

Check your clothing frequently for ticks.

**Repellants and Contact Insecticides**

Use repellents (DEET) on your skin with contact insecticide (permethrin or permanone) on your clothing only, as directed on the product label; these products are nearly 100-percent effective in preventing tick bites when used together, and used correctly.

Apply repellants to all areas of exposed skin. Insects may only need unprotected skin the size of a quarter, repellant on nearby skin or on clothes will not protect this area of skin.

Reapply repellants before the duration of protection expires:

- 5 to 10 percent: 2-4 hours
- 15 percent: 6 hours
- 25 to 30 percent: up to 8 hours
- 100 percent: 10+ hours

**Tick Check**
A tick check should be performed after field activities in potential tick habitats, before entering the field vehicle (you do not want to infest your field vehicle with ticks).

Have your field partner check your back; the backs of your legs, arms and neck; and your hairline. Shake off clothing as thoroughly as possible before entering the vehicle.

Once the field day is completed, repeat this procedure and perform a thorough self-check at the end of the day, search your entire body carefully for ticks, (particularly the groin, armpits, neck and head), and shower.

**Tick Removal**

If a tick has embedded itself into the skin, remove the tick, preferably using a Tick Removal Kit, if available.

The tick should be removed quickly, the sooner it is removed the less likely the transmission of potentially infectious organisms, if it is carrying them.

The tick should be removed cleanly, to prevent the bite wound from becoming infected.

The tick should be removed intact, to prevent infecting the tick's fluids into the bite wound, which may contain infectious organisms. In addition, if intact, the tick may be assessed to determine if it is carrying infectious organisms (see procedures below).

Use pointed precision tweezers. Cosmetic tweezers with wide, flat ends may crush the tick, increase the potential of the transmission of potentially infectious organisms if the tick is carrying them, and make the wound worse. Choose un-rasped fine-pointed tweezers whose tips align tightly when pressed firmly together.

After disinfecting the area first, grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure.

Do not twist or jerk the tick as this may cause the tick's mouth parts to break off and remain in the skin. If this happens, remove the mouthparts with tweezers, and consult your healthcare provider if infection occurs.

Do not grasp, squeeze, crush, or puncture the body of the tick because its fluids (saliva, hemolymph, gut contents) may contain infectious organisms. Releasing these organisms to the outside of the tick's body or into the bite area may increase the chance of infectious organism transmission.

Do not handle the tick with bare hands because infectious agents may enter through mucous membranes or breaks in the skin.

Place tick in a zip lock bag in the event that management or the health-care provider asks for analysis of the tick.

Thoroughly disinfect the bite wound and wash your hands with soap and water.

**Tick Bite Treatment**

Tick bites should be treated with first aid. Clean and wash hands and disinfect the bite wound site before and after removing the embedded tick. Monitor the site of the bite for the appearance of a rash or early tick-borne illness symptoms beginning 3 to 30 days after the bite.

### 7.12 Lone Worker / Working Alone

#### 7.12.1 General

The purpose of this section is to establish methods to maintain the safety of personnel who are working alone. This includes providing a method to identify potential hazards, pre-planning to eliminate or protect against these hazards, establishing itineraries and communication plans, and responsibilities for plan implementation and
activities. Concern for the lone worker is fundamental to Burns & McDonnell’s responsibility to providing a safe workplace to all employees. Effective risk assessment can play a major role in controlling or eliminating risks associated with health, violence, travel, or level of work experience.

7.12.2 Definitions

Effective Means of Communication – Radio, telephone (landline or cellular) or other electronic communication device

Hazard Assessment – A documented review of working conditions and foreseeable emergency situations, e.g. fire, equipment failure, illness, and accidents in all situations where employees may be working alone and identification of the mitigation and controls necessary to assure worker safety.

Imminent Danger – A danger that is not normal for that occupation. A danger under which a person engaged in that occupation would not normally carry out his/her work

Lone Worker – Persons are considered to be a lone worker if they have neither visual nor audible communication with someone who can summon assistance in the event of an injury or illness. Some examples of times when personnel might work alone are the beginning and end of flexible working periods, holidays, and weekends and after hours.

7.12.3 Hazard Assessment

All employees who will have to work alone must fill out an Activity Hazard Analysis (AHA) prior to performing the work. The AHA shall identify and document existing or potential hazards arising from the conditions and circumstances of the work, shall address hazards and identify control measures in order to minimize risk associated with working alone, and shall specify procedures for emergency response including provisions for contacting appropriate local officials. The hazard assessment will identify specific criteria to determine when an employee search is necessary cover all aspects of the work at hand and countermeasure that need to be put in place to minimize the risk associated with the work.

This written hazard assessment will document and be used to communicate that assessment to all affected workers. The hazard assessment will address hazards and identify control measures in order to minimize risk associated with working alone. The AHA shall be reviewed with the employee’s department head or designee as they will be communicating to them during their work activity.

Any type of field work (day, overnight, remote or not) requires the completion of a trip itinerary by the work supervisor. The trip itinerary must be posted in the site office and a copy should be taken into the field. Workers and supervision should be familiar with their responsibilities prior to any field work being conducted.

Note: When a danger is judged to be imminent due to work being done by a lone worker, postpone the work and put mitigation procedures in place. Perform the work at such time that the risk(s) can be effectively controlled or eliminated.

7.12.4 Communications

The employee shall make contact with the appropriate authorities prior to commencing work operations informing them of the future work and the details of the work scope.

Employees will carry an appropriate communication device that, no matter where the employee is located, can communicate back to their supervisor for checking in at a minimum of every two hours or more frequently if defined by the risk assessment of the AHA. A back up means of communication shall also be carried by the employee in case an unforeseen event happens to the primary means of communication. The selected communication shall be readily available (easily within the immediate reach) of the employee and shall be tested prior to the start of work to verify that it effectively operates in the area/environment.
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When the employee calls their supervisor they shall communicate their current location and direction they are heading, wellbeing, and estimated time until completion of their work assignment. The supervisor shall document this information during each call.

If the employee misses a scheduled call the supervisor shall attempt to make contact with the employee. If after a reasonable amount of time the supervisor cannot make contact with the employee, then the supervisor shall contact the appropriate authorities and report the employee's last known location and the direction the employee would be traveling to enable the authorities to begin a search for the employee.

If effective means of communication is not practicable or readily available at the work site, the company shall ensure that there is a minimum of two people dispatched to the job, or that a system is in place so that the worker is visited at regular set intervals, or that the worker contacts a company representative on regular set intervals.

7.12.5 Training

Instruction and training help ensure that staff understands the risks and required safety precaution associated with their work. Training should include, but is not limited to:

Burns & McDonnell Work Alone standard
Identification and participation in hazard assessment
Requirements and limitations of working alone situation
Use and maintenance of any required personal protective equipment
Instruction to perform tasks safely

7.13 Project Site Ergonomics and Manual Material Handling

7.13.1 General

Some of the most common injuries in construction are the result of job demands when workers must often lift, stoop, kneel, twist, grip, stretch, reach overhead, or work in other awkward positions to do a job. Repeated or continual exposure to one or more of these factors initially may lead to fatigue and discomfort. Over time, injury to the back, shoulders, hands, wrists, or other parts of the body may occur. Injuries may include damage to muscles, tendons, ligaments, nerves, and blood vessels. These workers are at risk of developing a work-related musculoskeletal disorder (WMSD). These risks can be reduced by performing a hazard analysis of the job focusing on the interaction between the worker's capabilities and the work demands and providing appropriate countermeasures.

7.13.2 Goals

The goals of construction ergonomics are to assure that jobs and tasks can be performed by the workers in a safe, efficient, effective and pain-free manner, achieve those interactions between the work and the worker that will optimize productivity, and preserve the safety and health of the workforce.

7.13.3 Ergonomic Concerns (What to Look for)

The ergonomic concerns during construction include, but are not limited to the following:

Repetitive motions
Examples are bending and lifting, twisting, reaching
Awkward postures
Examples are low headroom, restricted accessibility, twisting, kneeling, squatting, standing, sitting in one position too long, reaching and lifting –low or high, load obscuring the carrier's vision, static posture where fixed positions are maintained for extended periods.

Forceful exertions (Weight places stress on the back at a 10:1 ratio)

Lifting heavy materials or equipment (>50lbs.)

Carrying heavy materials or equipment

Lifting or carrying awkward or odd shapes, or load instability

Pressure points

Examples are grasping [or contact from] loads, leaning against parts or surfaces that are hard or have sharp edges

Environmental issues

Examples are temperature and humidity, vibration, lighting, air movement, or the walking surface and path where the object is to be carried.

Stress – tense muscles are more susceptible to strains and sprains

7.13.4 Hazard Assessment - PTA

Before manual lifting/carrying is performed, a hazard assessment must be completed. This assessment can be included in the daily PTA using Burns & McDonnell Safety Form C-10. Supervisors must also periodically evaluate work areas and employees' work techniques to assess the potential for and prevention of injuries as well as evaluate any new operations to engineer out hazards before work processes are implemented.

The pre-task assessment must consider the ergonomic concerns noted above and implement hazard mitigation and controls for the identified hazards. These controls should follow the hierarchy of controls, some examples include the following:

Engineering improvements

- Provide mechanical devices, tools, or equipment
- Ergonomically designed handles and grips
- Tool balancers / supports
- Benches and material stands / lift tables to maintain material near waist height and in lifting zone
- Tool and/or tooling extensions
- Mechanical lifting and/or transporting equipment
- Aerial lift usage to get personnel closer to work
- Dividing the load into smaller units, repackaging
- Redesigning the packaging with lifting grips or using non-slip materials
- Automatic material feeds
Administrative improvements

Proper lifting techniques

Using a two-person lift

Alternate heavy tasks with light tasks.

Provide variety in jobs to eliminate or reduce repetition (i.e., overuse of the same muscle groups).

Adjust work schedules, work pace, or work practices.

Provide recovery time (e.g., short rest breaks).

Modify work practices so that workers perform work within their power zone (i.e., above the knees, below the shoulders, and close to the body).

Rotate workers through jobs that use different muscles, body parts, or postures.

Working at ground level rather than overhead

PPE

Anti-vibrations gloves

Slip resistant coated gloves

Kneeling pads / knee pads / kneeling creepers

7.13.5 Training

Training of workers should include the general principles of ergonomics, recognition of ergonomic hazards and types of injuries, the project procedures for reporting hazardous conditions, and the methods and procedures for early reporting of injuries. Additionally, job specific training should be given on safe lifting and work practices, and ergonomic hazards and controls. This training should include planning the lift/carry and injury prevention/reduction techniques:

Body management - Don’t overdo it.

Set a work pace that is comfortable for you on certain tasks.

Slow down if you’re doing a lot of heavy, repetitive lifting, take it slowly if you can.

Allow yourself more recovery time between lifts, as well.

Stretch first

If you know that you’re going to be doing work that might be hard on your back, take the time to stretch your muscles before starting, just like a professional athlete would do before a workout.

This will help you avoid painful strains and sprains

Rest your body (back, hands, neck, etc.)

Take frequent, short (micro) breaks.
Taking a one minute stretch break every now and then can help you avoid stiff & sore symptoms

Prevention of injuries

Relocate materials equipment and objects up off the floor.

Raise / lower shelves.

The best zone for lifting is between your shoulders and your waist.

Put heavier objects on shelves at waist level, lighter objects on lower or higher shelves.

Avoid repetitive lifting and carrying

Use carts and dollies to move objects, instead of carrying them yourself.

Push the cart rather than pull it

Reduce the amount of weight lifted.

Use proper lifting techniques

Lift with the legs, not the back

Turn properly without twisting

Keep the load close using a good grip

Plan the lift

Where use of lifting equipment is impractical or not possible, two man lifts must be used.

Use manual lifting equipment such as dollies, hand trucks, lift-assist devices, jacks, carts, or hoists

Utilize other engineering controls such as conveyors, lift tables, cranes and hoists

Use of provided manual lifting equipment by employees must be enforced.

Reduce forceful exertions

Periodically switch to easier tasks.

Use power tools rather than manual tools.

Use tools that are ergonomically designed

Alternate hands while performing a repetitive task
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8 Process Safety Management and HAZWOPER

8.1 Process Safety Management of Highly Hazardous Chemicals

- Process Safety Management of Highly Hazardous Chemicals
- Application
- Worker Participation
- Process Safety Information
- Process Hazard Analysis
- Operating Procedures
- Training
- Contractors
- Pre-Startup Safety Review
- Mechanical Integrity
- Hot Work Permit
- Management of Change
- Incident Investigation
- Emergency Planning and Response
- Compliance Audits
- Trade Secrets

Appendices:

- Appendix A List of Highly Hazardous Chemicals, Toxics and Reactives
- Appendix B Block Flow Diagram and Simplified Process Flow Diagram
  - Diagram (a) Block Flow
  - Diagram (b) Process Flow
- Appendix C Compliance Guidelines and Recommendations for Process Safety Management
- Introduction to Process Safety Management
- Worker Involvement in Process Safety Management
- Process Safety Information
- Process Hazard Analysis
- Operating Procedures and Practices
- Worker Training
- Contractors
- Pre-Startup Safety
- Mechanical Integrity
- Non-Routine Work
- Managing Change
- Investigation of Incidents
- Emergency Preparedness
- Compliance Audits
- Appendix D - Sources Of Further Information (Non-mandatory)
8.1.1 Hot Work Permit

The workplace shall issue Burns & McDonnell Health & Safety Form C-7 “Work Permit” for hot work operations conducted on or near a covered process.

The permit shall document that the fire prevention and protection requirements have been implemented prior to beginning the hot work operations; it shall indicate the date(s) authorized for hot work; and identify the object on which hot work is to be performed.

The permit shall be posted at the site until completion of the hot work operations.

8.1.2 Incident Investigation

Each incident which resulted in (Accident), or could reasonably have resulted (Near Miss) in a catastrophic release of highly hazardous chemical in the workplace shall be investigated using the Burns & McDonnell Health & Safety Form C-2 “Incident / Accident Investigation Report”.

The incident shall be reported in conformance with Chapter 3 – Program Administration, part (3) “Reporting Requirements”, the investigation shall be initiated as promptly as possible, with the report due to Corporate Health & Safety not later than 24 hours following the incident.

The incident investigation team shall consist of at least one person knowledgeable in the process involved, including a contract worker if the incident involved work of the contractor, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.

The report shall be reviewed with all affected personnel whose job tasks are relevant to the incident findings including contract workers where applicable.

Incident investigation reports shall be retained for five years.

8.1.3 Emergency Planning and Response

Burns & McDonnell Health & Safety Form E-1 “EAP and Fire Prevention Plan” shall be completed and made available on site.
8.2 HAZWOPER

Hazardous Waste Operations and Emergency Response
Scope, Application, and Definitions
Health & Safety Program
Site Characterization and Analysis
Site Control
Training
Medical Surveillance
Engineering Controls, Work Practices, and Personal Protective Equipment for Worker Protection
Monitoring
Informational Programs
Handling Drums and Containers
Decontamination
Emergency Response by Workers at Uncontrolled Hazardous Waste Sites
Illumination
Sanitation at Temporary Workplaces
New Technology Programs
Emergency Response Program to Hazardous Substance Releases
8 Personal Protective Equipment

General Requirements
   Application
   Worker-Owned Equipment
   Design
   Hazard Assessment and Equipment Selection
   Defective and Damaged Equipment
   Training

Eye and Face Protection
   General Requirements
   Criteria for Protective Eye and Face Devices

Respiratory Protection
   Permissible Practice
   Respiratory Protection Program
   Selection of Respirators
   Medical Evaluation
   Fit Testing
   Use of Respirators
   Maintenance and Care of Respirators
   Breathing Air Quality and Use
   Identification of Filters, Cartridges and Canisters
   Training and Information
   Appendix B-2 Respirator Cleaning Procedures (Mandatory)
   Appendix C OSHA Respirator Medical Evaluation Questionnaire (Mandatory)
   Appendix D Information for Workers Using Respirators When Not Required (Mandatory)

Head Protection
   General Requirements
   Criteria for Protective Helmets

Foot Protection
   General Requirements
   Criteria for Protective Footwear

Electrical Protective Devices
   Design Requirements
   In-Service Care and Use

Hand Protection
   General Requirements
   Selection

Respiratory Protection Program
   Respirator Selection
   Training
   Fit Testing
   Tests
   Medical Evaluations
   Work Area Surveillance
   Unknown Atmospheres
   Additional Considerations
9.1 General Requirements

9.1.1 Application

If a hazard requires affected workers to use PPE - all workers within 10’ of the (originally) affected workers shall be required to wear equivalent protection.

9.1.2 Hazard Assessment and PPE equipment Selection

The workplace shall verify that an activity hazard analysis (AHA) has been performed through a written certification that identifies the workplace evaluated; the person certifying that the AHA has been performed; the date(s) of the AHA; and, which identifies the document as an AHA. Burns & McDonnell Health & Safety Form C-12 “Activity Hazard Analysis”.

The subcontractor shall assure that the worker is instructed in and uses protective equipment in accordance with the manufacturer's instructions and the hazard assessment.

The subcontractor shall assure that all required safety devices and safeguards, whether employer or worker provided, including personal protective equipment for the eyes, face, head, hand, foot, and extremities (limbs), protective clothing, respiratory protection, protective shields and barriers, comply with the applicable standards, are adequate for the hazards, and are maintained in a safe, sanitary condition.

Protectors shall be of such design, fit and durability as to provide adequate protection against the hazards for which they are designed. They shall be reasonably comfortable and shall not unduly encumber the worker's movements necessary to safely perform his or her work.

Defective and damaged equipment shall be removed from service until repaired or destroyed. Defective or damaged personal protective equipment shall not be used.

9.1.3 Training

Initial

Training shall be provided to each worker required to use PPE.

Each worker shall demonstrate an understanding of the training and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

Documentation of training shall be submitted using Burns & McDonnell “Certification of Training” Health & Safety Form C-9.

Each such worker shall be trained to know the following:

- When PPE is necessary;
- What PPE is necessary;
- How to properly don, doff, adjust, and wear PPE;
- The limitations of the PPE; and,
- The proper care, maintenance, useful life and disposal of the PPE.

Re-Training
When there is reason to believe that any affected worker who has already been trained does not have the understanding and skill required to properly use the PPE, they shall be retrained such that they can demonstrate their ability and understanding of the training items listed above.

Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete; or
- Changes in the types of PPE to be used render previous training obsolete; or
- Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

### 9.2 Body Protection

#### 9.2.1 General

The minimum general protection shall be full length work pants, coveralls, jeans, etc. and a work shirt with a minimum 4” sleeve length. Tank tops and sleeveless shirts are not allowed.

Clothing material which is in direct contact with the skin is considered a primary personal protection zone when performing a hazard assessment.

Primary personal protection zone clothing includes socks, underwear, T-shirts, shirt or blouse, and pants or overalls. All primary personal protection zone apparel must be in good repair -- frays and holes are not acceptable.

**NOTE:** 100% cotton clothing is not a PPE item.

Workers exposed to the hazards of flames or electrical arc shall not wear clothing that, when exposed to flames, electric arcs, or hot piping, could increase the extent of injury.

Workers shall wear appropriate clothing when exposed to welding operations, poisonous plants, insects, hazardous chemicals or when scratches, abrasions, or burns could occur.

Loose clothing or jewelry shall not be worn near rotating equipment.

Clothing shall not be worn if they are torn or have holes. If damaged at work, precautions should be taken to reduce employee’s exposure to injuries for the completion of the shift.

Exposed jewelry shall not be worn near exposed energized equipment.

The bottoms of pant legs shall be taped, bloused, or otherwise secured while working near power augers and mowing equipment.

#### 9.2.2 Chemical resistant

Coveralls and splash suits shall be required as determined by the hazard assessment.

#### 9.2.3 FRC and/or Arc Flash Clothing

FRC and/or Arc Flash Resistant with ratings determined by the hazard assessment

Workers working in areas where there are potential electrical hazards shall be provided with, and shall use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.
Chapter 9 – Personal Protective Equipment

Electric arc flash protection shall be provided for any person who enters the flash protection zone. They must wear flame-resistant clothing and PPE, based on the incident exposure associated with the specific task. Refer to NFPA 70E for specific Hazard Risk Classifications and clothing/equipment requirements.

Synthetic clothing such as acetate, nylon, polyester, rayon, either alone or in blends with cotton, may not be worn while in the flash protection zone.

Protective equipment shall be maintained in a safe, reliable condition and shall be periodically inspected or tested.

9.2.4 Vests - heating and/or cooling,

Vests with internal pockets which are used to hold the cooling or heating packets which assist with controlling the core body temperature.

9.2.5 Outerwear

Raincoat/Raingear

Cold Weather Wear – A. Exterior garments include coats, jackets, overalls, coveralls, parkas, etc., which are worn over the primary work clothing.

Outer apparel shall meet the minimum requirements for the hazard rating, e.g. FRC 2 required for working in the “zone”, then outmost apparel shall be rated at FRC2 or higher.

9.2.6 High Visibility apparel rated for traffic zone

High visibility apparel meeting, at a minimum, ANSI/ISEA 07-2004 Performance Class 2 requirements, shall be worn by workers (such as, but not limited to, signal persons, spotters, survey crews, and inspectors) whenever:

- Workers are exposed to vehicular or equipment traffic at speeds up to 45 mph (72.4 kph)
- There is limited visibility of workers exposed to mobile/heavy equipment operations, vehicles, load handling, or other hazardous activities
- Reduced visibility conditions exist due to weather conditions, illumination, or visually complex backgrounds where ambient visibility is at least 50ft (15.2 m); or
- Workers are involved in activities in close proximity to vehicular traffic with no protective barriers

The following conditions require the determination (based on risk assessments) if Performance Class 3 high-visibility apparel is needed:

- Exposed to vehicular traffic in excess of 50 mph (72.4 kph)
- Reduced visibility conditions exist due to weather conditions, illumination, or visually complex backgrounds where ambient visibility is less than 50 ft. (15.2 m); or
- Workers are performing tasks which divert attention from approaching vehicular traffic, traveling in excess of 50 mph (72.4 kph), as posted

9.3 Head Protection

9.3.1 General Requirements
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Affected workers shall wear a protective helmet in all work areas other than in the office/trailers.

The protective helmet designed to reduce electrical shock hazard shall be worn by affected workers when near exposed electrical conductors.

Workers name (first and last) shall be clearly visible on the front of the hard hat.

Burns & McDonnell projects shall require the use of a Class E/G hard hat.

The hard hats shall not be reversed even if suspension is reversed.

9.3.2 Criteria for Protective Helmets

Protective helmets shall comply with ANSI Z89.1-1986, American National Standard for Personal Protection-Protective Headwear for Industrial Workers-Requirements.

9.4 Occupational Foot Protection

9.4.1 Criteria for Protective Footwear

Each affected worker shall use protective footwear in all work areas other than in the office/trailers.

Protective footwear shall comply with:

- ASTM F2413-11 Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear
- Footwear certified as meeting ASTM F2413-11 must first meet the requirements of Section 5.1 Impact Resistant Footwear and Section 5.2 Compression Resistant Footwear.
- Additional requirements such as metatarsal protection, conductive protection, electric hazard resistance, static dissipative protection and protection against punctures can be met.
- ASTM F2412-11 Standard Test Methods for Foot Protection,

Identification requirements

All footwear manufactured to the ASTM specification must be marked with the specific portion of the standard with which it complies. One shoe of each pair must be clearly and legibly marked (stitched in, stamped on, pressure sensitive label, etc.) on either the surface of the tongue, gusset, shaft or quarter lining. The marking must be enclosed in a rectangular border and a four-line format is suggested. Line four is used only when more than three sections of the standard applies to the footwear.

Line #1 - This line identifies the ASTM standard. It indicates that the protective footwear meets the performance requirements of ASTM F2413 issued in 2011.

Line #2: M I/75 C/75 Mt75 - This line identifies the gender (M [Male] or F [Female]) of the user. It also identifies the existence of impact resistance (I), the impact resistance rating (75 foot-pounds), compression resistance (C) and the compression resistance rating (75) which correlates to 2500 pounds of compression. The metatarsal designation (Mt) and rating (75 foot-pounds) is also identified.

Lines 3 & 4: PR - Lines 3 and 4 are used to identify footwear made to offer protection from other specific types of hazards referenced in the standard. They are used to designate conductive (Cd) properties, electrical hazard resistance properties (EH), footwear designed to reduce the accumulation of excess static electricity (SD) and puncture resistance (PR).
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Any changes to the original components of safety toe footwear such as replacing or adding aftermarket foot-beds/inserts could cause failure to any or all parts of the ASTM standard and the marking would be invalid.

*Note: The ASTM standard does not allow for the use of add-on type devices (strap-on foot, toe or metatarsal guards) as a substitute for protective footwear. However, OSHA allows with the appropriate documentation from the manufacturer (must be available on site).*

Footwear shall be of leather, or equivalent non-porous material,

Footwear shall extend above the ankle (minimum 6” height) and have a defined heel.

9.5 Eyel and Face Protection

9.5.1 General Requirements

Each affected worker shall use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

Each affected worker shall use eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors (e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

Each affected worker who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.

Affected worker shall use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation.

9.6 Hearing Protectors

9.6.1 General Requirements

Hearing protection will be made available at no cost to all workers whose exposure equals or exceeds 85 dBA TWA and required for all workers who work in areas where exposure may equal or exceed the limiting values in OSHA Standard 1910.95 App A, Table G-16A.

If a worker has experienced an STS, the worker is required to wear hearing protection if the noise exposure equals or exceeds 85 dBA.

Workers will be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors.

Hearing protectors will be replaced as necessary.

Each hearing protector available for selection must have a Noise Reduction Rating (NRR) sufficient to reduce the noise level below 90 dBA.

Workers required to wear hearing protectors will receive training in the proper use, care, and fitting of hearing protection issued to them.
Hearing protection will be periodically evaluated to ensure that the hearing protection attenuates noise levels to less than 90 dBA, or less than 85 dBA for workers who have had a threshold shift. Methods specified in Appendix B of the OSHA Occupational Noise Exposure Standard will be used.

The adequacy of hearing protector attenuation will be re-evaluated whenever worker noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. More effective hearing protectors will be provided, if needed.

### 9.6.2 Training

All workers who are exposed to noise at or above a TWA of 85 dBA will be included in an annual hearing conservation training program.

Initial training must be provided upon assignment to a job that has been identified as having an exposure level above the 85 dBA TWA. Training must be provided annually thereafter.

### 9.7 Hand Protection

#### 9.7.1 General Requirements

Contractor / subcontractor employees shall be required to use appropriate hand protection at all times while on the project site, with exception given for field project offices and lunch / break areas, providing work activity requiring hand protection is not being performed.

#### 9.7.2 Selection

Appropriate hand protection shall be selected based upon evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, the hazards and potential hazards identified, and in accordance with the minimum requirements of the Hand Protection Reference Guide.

<table>
<thead>
<tr>
<th>Activity / Exposure</th>
<th>Glove Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light lifting, moving boxes, etc.</td>
<td>Cotton, Leather, or cut-resistant</td>
</tr>
<tr>
<td>Handling lumber, steel, rebar, etc.</td>
<td>Leather or cut-resistant</td>
</tr>
<tr>
<td>Exposure to sharp edges, glass, box cutters, etc.</td>
<td>Cut-resistant</td>
</tr>
<tr>
<td>Exposure to open flame or molten metal, etc.</td>
<td>Insulating gloves w/ gauntlet cuff (welding glove, etc.)</td>
</tr>
<tr>
<td>Low Temperature</td>
<td>Insulating gloves</td>
</tr>
<tr>
<td>Electrical</td>
<td>Use appropriate PPE for high voltage - NFPA 70E</td>
</tr>
<tr>
<td>Chemicals</td>
<td>Refer to SDS / manufacturer recommendations</td>
</tr>
</tbody>
</table>

### 9.8 Respiratory Protection

#### 9.8.1 General

Due to the respiratory hazards associated with chemical and dust exposures, respiratory protection is a crucial part of the Health and Safety Program. At no time shall an employee be forced to work in a hazardous situation without proper respiratory protection. Respiratory protection shall be in compliance with federal, state and local regulations. (29 CFR 1910.134 & 1926.103)
Chapter 9 – Personal Protective Equipment

The nature of the hazard must be identified to make sure that and overexposure does not occur. Relevant factors include oxygen deficiency, physical and chemical properties of the hazard, physiological effects on the body, concentrations of the toxic substances, the Permissible Exposure Limits (PEL) and warning properties (odor, skin or upper respiratory irritation).

When feasible engineering controls are not enough to control airborne hazardous materials, the contractor shall provide respiratory protective equipment for its employees. NIOSH, OSHA and EPA safety criteria will be used as guidelines for selecting the equipment. Only NIOSH approved respiratory protective equipment shall be used. Employees who are required to use the respirators will be medically screened, properly fit-tested, fitted with the appropriate respirator and filters, and trained.

The effective use of a respirator depends on an individual’s ability to wear a respirator, which must be determined by a physician or other licensed health care professional (PLHCP).

Burns and McDonnell employee owners working at the project site who are required to utilize respiratory protection shall refer to the Burns & McDonnell Policy Manual, Chapter 9 for respiratory protection program requirements.

Burns & McDonnell employee owners are not allowed, under any circumstances, to enter any work area containing an atmosphere with unknown concentrations of a hazardous air contaminant or a measured atmosphere determined to be Immediately Dangerous to Life or Health (IDLH).

The IDLH levels for many substances are published by the National Institute for Occupational Safety and Health (NIOSH). Air monitoring must be performed to determine air contaminant levels prior to respiratory protection equipment selection and prior to entry into an unknown concentration during routine entry or emergency releases of hazardous chemicals.

9.8.2 Duration of Respiratory Protection Use

The length of time a respirator will be worn by an employee owner must be evaluated. This is very important when using a self-contained breathing apparatus (SCBA) in which the air supply is limited, or when using an air-purifying respirator whose filter cartridges can become clogged or saturated to the point that they do not protect the worker from gases and vapors. Therefore, a respirator cartridge change-out schedule will be implemented depending upon the type and concentration of chemicals expected to be present.

9.8.3 Selection of Respirators

The two general types of respirators typically used include:

- Air-purifying respirators use cartridges or particulate air filters to remove contaminants from the breathing zone.
- Air-supplying respirators use supplied air from compressed air tanks or air compressors.

Respirators for IDLH atmospheres. Even with an appropriate respirator under no circumstances shall an IDLH atmosphere be entered.

9.8.4 Assigned Protection Factors (APF)

The protection afforded by respirators depends on the seal of the face-piece to the face; no leakage should be evident around valves and through or around cartridges or canisters. Depending on these criteria, the degree of protection may be ascertained and a relative safety factor assigned. Protection factors are only applicable if all elements of an effective respirator program are in place and being enforced. APFs are used to determine what type of respiratory protection is required to be worn depending upon the hazardous atmosphere. Respirators may be worn in atmospheres where the contaminants are less than the APF when multiplied by the Occupational Safety and Health Administrations Permissible Exposure Limit.
9.8.5 Fit Testing

Employees whose work includes tasks that require respirator use will be fit tested to determine if a proper face-piece-to-face seal has been accomplished. However, they must first be medically cleared to wear a respirator.

If a successful fit-test cannot be achieved, alternate sizes and manufacturer’s equipment will be tried and tested. If a proper seal remains unattainable, the employee may be offered a powered-air-purifying-respirator (PAPR), a supplied-air respirator, or will not be allowed to perform work requiring respiratory protection.

9.8.6 Field Tests

Positive and negative pressure fit tests are used to check the seal of the respirator being used in the field. Both tests must be performed each time a respirator is put on and prior to entering a contaminated area. Although the positive and negative tests are essential to a good respiratory protection program and should always be used prior to entering an area of exposure, they are solely used as a field test and cannot be substituted for the qualitative or quantitative fit test.

9.8.7 Inspection, Cleaning, Maintenance, and Storage

Respirators must be stored in a clean area unlikely to be contaminated by the work in progress. They should be stored in a secure atmosphere, such as a plastic bag, in a way that does not deform the shape of the face-piece.

Employees will be responsible for the inspection, cleaning and maintenance of their own air-purifying respirators. The respirators will be inspected by the employee prior to and after each use. Cleaning and

Table 9 - 2 Respirator Assigned Protection Factor

<table>
<thead>
<tr>
<th>Type of Air Purifying Respirator</th>
<th>Assigned Protection Factor, APF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance-Free and Dual Cartridge-Half Face</td>
<td>10²</td>
</tr>
<tr>
<td>Maintenance-Free and Dual Cartridge-Full Face</td>
<td>50⁴</td>
</tr>
<tr>
<td>Powered Air Purifying</td>
<td></td>
</tr>
<tr>
<td>Loose Fitting Face Piece</td>
<td>25</td>
</tr>
<tr>
<td>Half Mask</td>
<td>50</td>
</tr>
<tr>
<td>Full Face Piece</td>
<td>1000</td>
</tr>
<tr>
<td>Helmet / Hood</td>
<td>25 - 1000⁴</td>
</tr>
</tbody>
</table>

Notes:
1. Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.
2. The assigned protection factors in Table 9-2 are only effective when the employer implements a continuing, effective respirator program, including training, fit testing, maintenance, and use requirements.
3. This APF category includes filtering facepieces, and half masks with elastomeric facepieces.
4. The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.
5. These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134(d)(2)(ii).
6. To Achieve an APF of 50, a quantitative fit test is required.
disinfecting will be performed after each day's use (or sooner if necessary). Only employees who have completed the appropriate training courses and are qualified can perform maintenance on respirators.

9.8.8 Training and Information

Training shall be provided prior to requiring the worker to use a respirator in the workplace. At a minimum, all employees using respirators will be trained in basic respirator practices, their Respiratory Protection Program, the hazards of the job and related topics required by the OSHA regulations in 29 CFR 1910.134. This training shall be documented via Burns & McDonnell Safety Form I-1 "Respirator Training Record".

Respirators are effective only when they are fitted to the employee owner and worn properly. Since proper use often depends upon the wearer’s motivation, it is important that the need for the respirator be explained fully.

9.9 Personal Hydrogen Sulfide Monitors

Company and subcontract personnel (excluding visitors escorted at all times) are required to wear a personal H₂S monitor in all Operating areas which have the potential for H₂S release. The employees and contractors are exempt from wearing monitors while using supplied air respirators (fresh air). The personal monitors are instruments designed to alarm when the H₂S concentrations exceed 10 PPM. The H₂S monitor should never be used in place of properly preparing a job or as a replacement for selecting and wearing the proper personal protective equipment.

Personal shall take proper care of the monitor and perform the required daily and monthly testing in accordance with manufacturer’s recommendations to assure the proper operation of the unit. They shall replace the H₂S personal monitor when it begins to not function properly or low battery warnings are present.

The H₂S personal monitor may not alarm quickly enough to provide protection to an employee upon sudden and close range release of large amounts of concentrated H₂S. Due to the immediate effect of H₂S, if high concentrations and large volumes of H₂S gas are released, employees may be affected before/during monitor activation. The H₂S personal monitor may also be affected by exposure to certain chemicals (acids/caustics) and low humidity.

The personal H₂S monitors must be placed in the employees breathing zone between the head and the chest. The monitor must not be covered by the employee’s clothing, hair, hats, equipment, coveralls and/or tools. The recommended placement of the monitor is clipped on the outside of the front lapel of coveralls, shirt or jacket. The monitor is not permitted to be attached to the hard hat.

The monitor should be placed in a designated storage area free from exposure to H₂S when not in use.

9.10 Personal Floatation Devices

9.10.1 Working Over or Near Water, Barges and Boats

Employees when working over or near water, where the danger of drowning exists shall be provided with U.S. Coast Guard (USCG) - approved personal flotation devices.

Inspect personal floatation devices before and after each use for defects which would alter their strength or buoyancy.

Do not use defective units: remove from site and destroy.

Ensure a 30 in. diameter life ring with 150 ft. of (3/8"dia. – 600 lb. capacity) line is readily available and that travel distance between the life rings does not exceed 200 ft.
Chapter 9 – Personal Protective Equipment

All boats must carry one wearable (Type I, II, III or V) USCG-approved PFD for each person onboard or being towed. All personnel in the boat must wear a USCG approved Lifejacket or Personal Floatation Device.

All protective equipment must be worn in a manner that does not create a hazard in itself (loose straps, catch hazards, wrong sized etc.) Everyone who uses personal protective equipment shall be trained in its use, operation and maintenance.

9.10.2 Personal Flotation Devices

All PFDs must be:

- U. S. Coast Guard-approved
- In good and serviceable condition.
- Readily accessible.
- Readily accessible means you must be able to put the PFD on in a reasonable amount of time in an emergency.
- PFDs should not be stowed in plastic bags, in locked or closed compartments or have other gear stowed on top of them.
- Of the proper size for the intended wearer. Sizing for PFDs is based on body weight and chest size.

Life rings (rope attachment not required) and ring buoys (rope attachment required) shall be USCG-approved; shall have at least 70 ft. of 3/8 in of attached solid braid polypropylene, or equivalent. Throw bags may be used in addition to life rings or ring buoys. Life rings or ring buoys shall be readily available.

All wearable PFDs shall be of a highly visible orange/reddish color. Each PFD shall have at least 31 in\(^2\) of retro-reflective material attached to its front side and at least 31 in\(^2\) on its back side, per USCG requirements.

Each PFD shall be equipped with a USCG-approved automatically activated light. Lights are not required for PFDs on projects performed exclusively during daylight hours.

Before and after each use, the PFD shall be inspected for defects that would alter its strength or buoyancy.

Throwable devices (Type IV PFD).

On USCG-inspected vessels, ring buoys are required to have automatic floating electric water lights.

On all other floating plant and shore installations, lights on life rings are required only in locations where adequate general lighting (e.g., floodlights, light stanchions) is not provided. For these plants and installations, at least one life ring, and every third one thereafter, shall have an automatic floating electric water light attached.

All PFDs shall be equipped with retro-reflective tape in accordance with USCG requirements.

**TYPE I: Offshore Life Jacket**

These vests are geared for rough or remote waters where rescue may take a while.

They are excellent for flotation and will turn most unconscious persons face up in the water.

**TYPE II: Near-Shore Vest**
These vests are good for calm waters and fast rescues.

Type II vests may lack the capacity to turn unconscious wearer’s face up.

**TYPE III: Flotation Aid**

These vests or full-sleeved jackets are good for calm waters and fast rescues.

They are not for rough waters since they will not turn a person’s face up.

**TYPE IV: Throw-able Device**

To be acceptable, Type V - PFDs must be used in accordance with their label.

These cushions or ring buoys are designed to be thrown to someone in trouble.

They are not for long hours in rough waters, non-swimmers or the unconscious.

**TYPE V: Special-Use Device**

These windsurfing vests, deck suits, hybrid PFDs and others are designed for specific activities, such as kayaking or water skiing.

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**Figure 9 - 1 Personal Floatation Device Type Classification**

- **Off-Shore Life Jacket** (Type I PFD): Best for open, rough or remote water, where rescue may be slow coming.
- **Near-Shore Buoyant Vest** (Type II PFD): Good for calm, inland water, or where there is a good chance of fast rescue.
- **Flotation Aid** (Type III PFD): Good for calm, inland water, or where there is a good chance of fast rescue.
- **Throwable Device** (Type IV PFD): For calm, inland water with heavy boat traffic, where help is always nearby.
- **Special Use Devices** (Type V PFD): Only for special use or conditions.
- **Inflatable Device** (Type V Hybrid): Only for special use or conditions.
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10.1.1 Determination of Requirements

Site specific excavations requirements shall be determined (and followed) using Burns & McDonnell Site Specific Excavation Plan Safety Form J-1.

10.1.2 Inspection by Competent Person

Any excavation which is bodily entered by any worker must first be inspected by a competent person using Burns & McDonnell Excavation Inspection Safety Form J-2. The form shall be completed at the start of each shift, posted at the entrance to the excavation and updated as often as necessary.

10.2 Requirements for Protective Systems

10.2.1 Protection of Workers in Excavations

Burns & McDonnell Selection of Protective Systems Safety Form J-5 shall be used to determine requirements.

10.3 Appendix A - Soil Classification

Basis of classification - The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using the tests described in Burns & McDonnell Soil Classification Safety Form J-3. This completed form shall be transmitted to Burns & McDonnell as documentation of the soil classification.

Soil classification - Soil and rock deposits shall be classified in accordance with appendix A of this chapter. Burns & McDonnell Soil Classification Safety Form J-3 shall be transmitted to Burns & McDonnell as documentation of the soil classification.

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11.1.1 Incident Accident Injury Tracking Log

The Burns & McDonnell “Incident Accident Injury Tracking Log” Safety Form K-1, log will be utilized to track all first aid cases on the project.

11.1.2 First Aid Kits

First aid kits shall be checked by the employer before being sent out on each job. While on the project site the first aid kits shall be inspected at least weekly to ensure that the expended items are replaced. The Burns & McDonnell “Weekly First Aid Kit Inspection” Safety Form K-2, shall be used to document the weekly inspections.

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12.1.1 Fire Brigades

Fire Brigades shall not be utilized. Trained workers are only authorized to combat fires at the incipient stage.

12.2 Flammable and Combustible Liquids

12.2.1 "Fire control for flammable or combustible liquid storage"

At least one portable fire extinguisher, having a rating of not less than 20-B units, shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage of more than 60 gallons of flammable or combustible liquids.

At least one portable fire extinguisher having a rating of not less than 20-B units shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.

At least one portable fire extinguisher having a rating of not less than 20-B:C units shall be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable or combustible liquids.

12.3 Temporary Aboveground Storage Tanks

12.3.1 General requirements

Provide a completed initial installation checklist (Burns & McDonnell Safety and Health Form L-2, Initial Installation Checklist for Aboveground Flammable and Combustible Liquid Tanks) to the project manager for approval prior to installation of the temporary storage tank. The installation checklist includes items for the following:

- Storage Tank Design - Atmospheric
- Normal Venting for Tanks
- Emergency Relief Venting for Fire Exposure
- Tank System Corrosion Protection
- Foundations for and Anchoring of Tanks
- Location with Respect to Property Lines, Public Ways, and Important Buildings on the Same Property
- Shell-to-Shell Spacing Between Any Two Adjacent Aboveground Tanks
- Control of Spills from Aboveground Tanks
- Collision Protection for the tank(s)
- Testing Requirements for Tanks
- Fire Prevention and Control
- Emergency Planning and Training
- Inspection and Maintenance
Prevention of Overfilling of Tanks

12.3.2 Inspection, Maintenance and Testing

The aboveground flammable and combustible liquid storage tank(s) shall be inspected monthly using Burns & McDonnell Safety and Health Form L-3, "Aboveground Storage and Dispensing Tanks Monthly Inspection Checklist". The checklist includes items for the following:

- Identification markings
- Labeling
- Spill control and spill containment maintained for
- Equipment is in good repair and safe operating condition
- Alarms, interlocks, and controls are tested and working
- Demarcation of hazard areas is in place
- Ignition source controls in place for
- Separation distances maintained from
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14.1 General Requirements for Equipment

14.1.1 General

All equipment shall have a daily pre-use inspection performed prior to each shift of operation, using the appropriate Burns & McDonnell Safety form, e.g. Burns & McDonnell Safety form N-8 “Daily Construction Vehicle Pre-Use Inspection Checklist”, Burns & McDonnell Health & Safety Form N-5 “Daily Forklift Pre-Inspection” or Burns & McDonnell “Crane Inspection” Safety Forms N-1A or N-1B

All equipment operators shall be trained and qualified to operate the specific equipment

Operator’s license in accordance with OSHA (Burns & McDonnell Safety Form C-21 “OSHA Required Training and Training Guidelines” as identified on the Burns & McDonnell Safety Form C-9 “Certification of Training”

14.2 Cranes and Derricks

14.2.1 General

Superintendents, General Foremen, Foremen, or other members of management (persons supervising workers) shall not operate cranes on Burns & McDonnell projects.

14.2.2 Cranes and Derricks in Construction

14.2.3 Crane Inspection and Lift Plan Submittal:

An annual third party crane inspection shall be conducted and certification shall be submitted to Burns & McDonnell prior to the use of any crane on site. This inspection shall be performed by a qualified crane inspector or by a certified inspection service.

This procedure shall in no way eliminate any requirements set forth for crane inspections in the OSHA Standard 1926.1400.

Critical Lift plans shall be completed for all lifts that are over 20 tons, lifts that involve more than one crane, lifts are over an operating or occupied area, or the load to be lifted exceeds 75% of the crane manufacturer’s load rating chart for configuration of the crane. Burns & McDonnell Safety & Health Form N-2 “Critical Lift Plan” shall be used to document this information.

Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standard for the type of crane in use. An illustration of the signals shall be posted at the job site Burns & McDonnell Safety & Health Form N-4 “Hand Signals”.

A competent person shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Competent persons shall be designated on Burns & McDonnell Safety & Health Form C-17 “Competent Person Designation”. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

A third party annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment. No crane shall be used on a Burns & McDonnell project prior to transmittal of the inspection document to Burns & McDonnell.

14.2.4 General Requirements for Personnel Platforms
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The use of a crane or derrick to hoist workers on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

This use must be approved by Burns & McDonnell Corporate Safety & Health. The Burns & McDonnell Safety & Health Form N-3 “Suspended Personnel Platform Checklist” shall be completed and submitted to Burns & McDonnell for review and approval prior to use of the personnel platform.

14.3 Material Hoists, Personnel Hoists, and Elevators

14.3.1 Personnel Hoists

Following assembly and erection of hoists, and before being put in service, an inspection and test of all functions and safety devices shall be made under the supervision of a competent person designated to Burns & McDonnell by transmittal, Burns & McDonnell Health & Safety Form C17 “Competent Person Designation. A similar inspection and test is required following major alteration of an existing installation.

All personnel hoists shall be inspected and tested at not more than 3-month intervals. A certification record which includes the date the inspection and test of all functions and safety devices was performed; the signature of the person who performed the inspection and test; and a serial number, or other identifier, for the hoist that was inspected and tested shall be maintained onsite.

These hoists shall be inspected and maintained on a weekly basis, using Burns & McDonnell Health & Safety Form N3 “Suspended Personnel Platform Checklist”.

Whenever the hoisting equipment is exposed to winds exceeding 35 miles per hour it shall be inspected and put in operable condition before reuse.

14.4 Conveyors

14.4.1 General Requirements

Conveyors shall be locked out using the Burns & McDonnell Health & Safety Form G1 – Lockout Tagout Procedure or otherwise rendered inoperable, and tagged out with a Do Not Operate tag during repairs and when operation is hazardous to workers performing maintenance work.

14.5 Powered Industrial Trucks

14.5.1 Operator Training

Certification - The employer shall certify that each operator has been trained and evaluated. The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation. Documentation of the certification shall be transmitted to Burns & McDonnell via Burns & McDonnell Health & Safety Form C-9 “Certification of Training”. Additionally, all PIT operators shall carry on their person documentation of their training (card, hard hat sticker, etc.)

14.5.2 Maintenance of PITs

PITs shall be examined before being placed in service, and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examination shall be made at least daily and documented via Burns & McDonnell Health & Safety Form N-5 “Daily Forklift Pre-Inspection”.

14.6 Rigging Equipment for Materials Handling

14.6.1 General
Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service. Inspections shall be documented using the Burns & McDonnell Health & Safety Form N6 "Rigging Inspection Record".
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15.1 Motor Vehicles Project Program

15.1.1 Coverage

This procedure covers all motor vehicles that operate on the project jobsite. All vehicles regardless of ownership, including employee owned or leased vehicles being used for company business; company rented or fleet vehicles; and Contractor vehicles, including but not limited to: automobiles, trucks, utility vehicles (gators, carts, mules, etc.)

15.1.2 Objective:

The primary objective of the motor vehicle project safety program is to prevent injuries, deaths and expenses related to vehicular accidents while operating at the jobsite.

15.1.3 General Requirements

All motor vehicles operating on the project site shall

- Be checked using Burns & McDonnell Safety & Health form O-1 “Vehicle Checklist” at the beginning of each shift to assure that the equipment is in safe operating condition. Defects shall be corrected before vehicles are placed in service

- Have a service brake system, an emergency brake system, and a parking brake system, and shall be maintained in operable condition.

- Be equipped with at least two headlights and two taillights in operable condition.

- Have brake lights in operable condition.

- Be equipped with an operable audible warning device at the operator's station.

- Have seats adequate for the number of workers to be carried.

- Have Seat belts and anchorages installed.

- Be backed into parking spots

All equipment shall have an un-obstructed view to the rear unless:

- The vehicle has a reverse signal alarm or:

- The vehicle is backed up only when an observer signals that it is safe to do so.

- Or the vehicle horn must be sounded before backing the vehicle.

All vehicles with cabs shall be equipped with windshields, and operable windshield washers and powered wipers.

Cracked and broken glass shall be replaced.

Vehicles shall be equipped with operable defogging or defrosting devices.

All hauling vehicles shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.
Tools and material shall be secured to prevent movement when transported in the same compartment with workers.

15.2 All Subcontractor Site Supervision

Superintendents, General Foremen, Foremen, or other members of management (persons supervising workers) shall not operate equipment (e.g. material handling, monitoring, etc.) on Burns & McDonnell projects.

15.3 Dump Trucks

15.3.1 Operator’s station of dump trucks shall be clear of dump area.

Dump trucks shall be capable of being locked in position to prevent accidental lowering of the body.

Operating levers shall be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.

15.4 Pneumatic Rubber Tired Vehicles

All pneumatic rubber-tired motor vehicles shall be equipped with fenders.

Mud flaps may be used in lieu of fenders whenever motor vehicle equipment is not designed for fenders.

15.5 Earthmoving Equipment

15.5.1 General

All equipment on Burns & McDonnell projects shall be equipped with roll over protective structures.

15.5.2 Audible alarms

All bi-directional equipment, such as rollers, compacters, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn shall be maintained in an operative condition.

Earthmoving or compacting equipment which has an obstructed view to the rear shall not be used in reverse gear unless the equipment has a reverse signal alarm or a worker (spotter) signals that it is safe to do so.

Scissor points on equipment shall be guarded.

Where necessary for safe operation a spotter or spotters, equipped with Hi-visibility vests, flags, horns or the like, shall be used for moving equipment.

15.6 Vacuum Truck

15.6.1 General

Before starting any vacuum truck operations— make sure that workers understand the following:

- The hazards associated with the liquids or substances to be vacuumed or transferred
- Sources of ignition
- Flammable atmospheres
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Toxic vapor PEL and STEL limits

The evacuation and rescue procedures in the event of a toxic gas leak

Specific site hazards which may affect the truck operation the safe operation of the vacuum equipment

15.6.2 Bonding and Grounding

The complete vacuum transfer system needs to be bonded so that there is a continuous conductive path from the vacuum truck through the hose and nozzle to the tank or source container and grounded to dissipate stray currents to earth (ground).

Prior to starting transfer operations, vacuum truck need to be grounded directly to the earth or bonded to another object that is inherently grounded (due to proper contact with the earth) such as a large storage tank or underground piping

15.6.3 Operations

The operator shall ensure that:

Air quality monitoring at the work site is conducted at such locations as the discharge area of the vacuum truck venting hose. Testing should be completed by a qualified person using properly calibrated and adjusted detectors.

First aid is readily available on site in the event of exposure to toxic gas.

The manufacturer’s instructions are consulted to confirm that the vacuum equipment is designed for the particular transfer operation.

All equipment—including tank and vacuum trucks, and pumping equipment—is in safe working condition.

The tank interior, filter baghouse, and cyclone separators are clean and free of any substances that may react with the liquids to be vacuumed or transferred.

The Vacuum hose is constructed of conductive material or thick walled hose with imbedded conductive wiring, shall be used when transferring flammable and combustible liquids when the potential for a flammable atmosphere exists in the area of operations.

Conductive hose shall provide suitable electrical conductance less than or equal to 1 mega ohm per 100 feet (as determined by the hose manufacturer).

Thin walled metallic spiral-wound conductive hoses should not be used because of the potential for electrical discharge through the thin plastic that covers the metal spiral.

Any required permits and inspect for vacuum trucks, equipment, and loading/off-loading sites have been obtained to assure safe operations

Smoking, or any other source of ignition, shall not be permitted within at least 100’ (depending on local procedures and atmospheric conditions) of the truck, the discharge of the vacuum pump, or any other vapor source

To prevent exposure to toxic gases during transfer operations:

Vacuum trucks shall not enter into tank dike area until such areas have been checked/monitored and rendered safe:
Vacuum trucks cargo tanks shall be depressurized

All personnel shall leave the vacuum truck cab during loading and off-loading operations.

When transferring flammable liquids or hazardous materials, vacuum truck operators shall remain positioned between the vacuum truck and the source or receiving tank, vessel, or container and within 25' of the vacuum truck throughout the duration.

Vacuum truck operators shall monitor the transfer operation and be ready to quickly close the product valve and stop the pump in the event of a blocked line or release of material through a broken hose or connection;

Never transfer fluids from one truck to another unless it has been established that no chemical reaction will occur.

Position trucks to minimize exposure to any discharged gases and fumes.

Ensure that discharge lines are long enough and large enough for safe operation.

Position vent lines away from workers and workstations, including control panels, valve handles, gauges, shut-offs, and hose attachment points. If possible, use a vertical exhaust stack to divert exhaust gases away from workers and ignition sources.

Check air monitoring equipment during operations to confirm that venting is proceeding safely.

Monitor the following: tank level indicators to avoid overfilling tank pressure gauges to avoid overpressurizing receiving tanks or creating excessive vacuum in supply tanks tank temperature gauges to help identify possible chemical reactions.

Under normal conditions, the absence of oxygen minimizes the risk of ignition in a vacuum truck.

Operating blowers and vacuum pumps at high speeds creates high air movement and high vacuum levels, resulting in high discharge air temperatures and high discharge vapor concentrations that can present potentially ignitable conditions.

Minimize the air introduced into the system when pressure loading or unloading. Submerge the suction line in liquid, or reduce the vacuum pump speed when skimming or nearing the end of a load.

Maintain a fog of transported fluids and any potential residue.

Use gravity loading and unloading whenever possible.

Use a vapor recovery system—when available—to avoid venting tanks directly to the atmosphere.

**15.6.4 Training**

Employers are responsible for properly training, instructing, and supervising workers. These responsibilities include the following:

- Vacuum truck operators shall be trained and properly licensed in accordance with applicable regulations:
- Vacuum truck operators must be aware of the effect of speeds, turns and the changing center of gravity:
- Vacuum truck operators shall maintain proper distances when operating vacuum trucks inside facilities with restricted clearances.
All workers involved with the process shall attend pre-work meetings. These meetings should cover the hazards to which workers are exposed by their work.

Training should include:

- Slip, trip and fall awareness
- The use of personal protective equipment—such as H2S personal alarms and air-supplied respirators.
- The hazards of toxic gas exposure and trained to know what to do in case of a release.

A site-specific orientation which includes:

- Hazards of the petroleum products, by-products, wastes and materials being transferred
- Relevant government and facility safety procedures and emergency response requirements
- SDS locations
- Appropriate PPE

15.7 Drilling, Boring, and Direct-Push

The following safety procedures cover various boring methods, including but not limited to rotary (mud and air rotary), sonic, hollow-stem auger, hammer, cable-tool, top drive, direct-push, and directional boring.

15.7.1 Overhead Obstructions

Check for proper clearance of overhead lines and other obstructions prior to setup and each time the rig derrick or drilling rods are raised, lowered, or moved.

Borings should not be conducted in locations that will place any part of the rig, rods, or equipment within 20 feet of overhead power lines, even when raised. If any part of the drill rig will be closer than 20 feet to an overhead line, prior arrangements must be made to take the line out of service or have it booted (blanketed and insulated) by the electric utility. Refer to OSHA 29 CFR 1910.333 (i) (1) and Table S-5 and 29 CFR 1926.550 (a) (15) for proper clearance distances.

Avoid unnecessary touching of the rig when being raised or lowered.

Do not move the rig when in a raised position.

15.7.2 Underground Utilities

Initiate a utility clearance call in advance of boring (and sub-surface) activities for each designated work area and document the utility clearance prior to start of work, including the ticket number, utilities notified, and the names of all persons granting utility clearance and record on the Field Safety Checklist- Intrusive Activities (Form J-4). It is illegal in some states to perform any subsurface excavation without calling the utilities clearance service for the state (e.g. One Call).

Coordinate with the Owner to confirm known locations of underground utilities.

If a utility clearance cannot be obtained for a certain area (such as within plant boundaries) then use non-mechanical methods such as hydro-excavation/pot-holing, air-knifing, or hand-tool methods.
If a significant increase in resistance to drilling or digging occurs in an area where bedrock is not expected, STOP WORK immediately, reassess the situation, reevaluate the data on the locations of underground utilities, and do not proceed until safety has been verified.

Call the Project Manager if any uncertainty exists as to the clearance of utilities.

Minimize borings in the immediate vicinity of known or suspected underground utilities.

In the event that underground utilities are encountered, the following steps should be taken:

- Cease drilling or digging immediately.
- Notify the Project Manager.
- Submit an incident notification through the Safety & Health reporting system.

15.7.3 Turning or Rotating Machinery

The principal hazard of turning or rotating machinery is the danger of snagging clothing or body parts. Therefore, the following guidelines should be observed:

- Whenever possible, stay at least two feet from turning or rotating machinery. This includes augers, cathead, engine power takeoff, and drill rods.
- If machinery must be approached closer than two feet, minimize the amount of time in close proximity to the machinery and use caution.
- Near turning or rotating machinery, be aware of where other workers are standing and moving so that no one is jostled into the machinery.
- Use caution when wearing loose or baggy clothing
- Keep clear of the cathead rope at all times it may break while in use, also, it is often coiled on the ground and presents a tipping hazard.

15.7.4 Hydraulic Machinery

The hazards of hydraulic machinery include the following guidelines:

- Stay at least two feet from the hydraulic systems. When under pressure, hydraulic hoses are subject to breaking and 'whipping' around or they may sustain a pinhole leak which can spray out hydraulic fluid at a high pressure.
- If machinery must be approached closer than two feet, minimize the amount of time in close proximity to the machinery and use caution.
- Do not allow the operator to 'overdrive' the equipment, which could cause a 'blow-out' of hydraulic equipment or hoses.

15.7.5 Working Safely Around Vehicles

Use extra caution when on a site with traffic and/or construction vehicles. The investigation area may be present in the following traffic areas and extra precautions should be taken:

- Highway and road shoulders
City streets
Parking lots
Construction site equipment
Landfills
Airports

Precautions to be taken when working near other operating equipment or traffic include:

- Wear high-visibility clothing,
- Establish controlled areas using traffic barricades, cones, or signs,
- Utilize a flagger for traffic watch and control
- Beware of heavy truck and vehicle traffic as the view of operators of large equipment may be limited. Do not position yourself or your vehicle behind equipment or haul trucks.

Precautions to be taken when working near the operating equipment include:

- Watch the rig operations to know where all machinery and equipment are located
- Stay visible to the operator as much as possible when near operations.
- Keep out of, or move cautiously, in areas where work is in progress, including the hoist and derrick, sample driving equipment, auger and drill rod storage and hoisting areas, water pump or compressor, and rig exhaust.
- When equipment or the hole must be approached, signal for the operator to stop work.
- Work inside buildings requires venting of the rig exhaust and monitoring of the air for exhaust gasses.
- As possible, position yourself and work up-wind from the vehicle exhaust.

Terrain Hazards

While working around borings, excavations, and backhoe test pits the following precautions should be taken:

- Stay at least 6-feet away from the edge of holes or provide barricades / fall protection.
- Watch for stress cracks, forming in the ground near the edge of the excavation and holes, as a sign of potential soil collapse into the excavation.
- Keep 6-feet away from the soil stockpile as it may be unstable and collapse

Additional concerns to be alert and watch for are:

- Stability of the rig:
- Sliding of the rig in muddy conditions
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Tipping or rolling of the rig on sloping or muddy ground
Tipping of the rig while the hydraulic leveling jacks are being raised or lowered
Tipping of the rig because of poor support structures or timbering under the hydraulic leveling jacks
Possible collapse of the rig derrick
Possible falling or flying rig and derrick parts
Possible breakage of the Standard Penetration Test hammer
Possible bending or breaking of drilling rods if the driller is inappropriately stacking the drill rods above the top of the derrick while pulling rods
Breaking of hydraulic lines.

Work at quarry and construction sites requires caution in the following areas:

Stay well back from precipitous terrain and rock walls.
Beware of falling rock.
Coordinate your schedule to avoid blasting operations, and check in with the quarry operator before entering.

Rig Kill Switch

If the rig has a kill switch, learn where it is and how to use it to shut the rig off in case of an emergency. A discussion should be held with the driller on each rig at the startup of the field work to discuss the location and use of the kill switch.

15.8 Rail Car and Truck Dock Procedures

15.8.1 General Requirements

Personal Protective Equipment (PPE)

Approved hard hats, approved metatarsal boots and approved safety glasses with permanently attached side shields shall be worn in designated areas.

Training

Appropriate training based on complexity of the job and potential hazards related to in plant rail shall be provided to all applicable employees.

Assessments shall be used to determine whether the personnel have the knowledge and have demonstrated skills to safely perform their work assignments.

Retraining and testing shall be required for unsatisfactory/unsafe performance of job assignments.

Training shall be documented; form C-9 Training Certification

Date of class completion
Traffic Crossing

In all cases pedestrians/employees shall cross at existing designated pedestrian rail crossings where provided.

Additionally, vehicle crossings are not intended as pedestrian crossings unless they are so identified and/or located, and no other pedestrian crossings exist in the area.

If a designated crossing is not available.

   Do not cross within 10 feet of the end of a parked rail car,
   do not cross between uncoupled cars,
   Stop, look and listen prior to proceeding across the tracks, and
   Never step on rails, as they may be slippery.

Crossing around / through equipment:

   Never attempt to crawl under rail equipment or
   Never climb over moving rail equipment or
   Never attempt to cross in front of moving equipment.

   Never position any part of the body in a potential pinch point, as rail equipment can move in either direction at any time.

Working around RR tracks

Obtain permission from the railroad supervisor (or designated person) prior to performing work within six (6) feet of any railroad track,

Permission must be obtained to take the track out of service.

15.8.2 Rail Dock Procedure

A warning system and operational procedure shall be in place

The use of de-rails or derailing devices shall be included in the system

Track wells, internal tracks and loading and unloading areas shall be equipped with audible and visual warning devices that operate while the derail is disengaged

Electronic locking devices operated by trained /designated personnel are to be used to lock the derails in place

Spotted cars shall be secured by chocks, blocks, or the handbrake
Employees shall be trained in the use of car shakers, mechanical assists, etc.

Employees who enter a full or partially full bulk car shall be provided with fall protection and/or confined space entry procedures (hazards such as engulfment, material bridging, auger pits, etc.

Lockout control procedures shall be in place when performing activities where rail car movement could present a hazard.

Note: Examples include, but are not limited to, cleaning around rails, maintenance of tracks or track areas, work in or around rail track wells or rail car bumpers

Ensure that the railroad is contacted and made aware of where and when the employees will be working

The procedure to move trains into and out of a facility shall be under the control and responsibility of a trained/ designated person

Designated personnel shall inspect the rail dock area and tracks at the beginning of each shift ensuring:

- The warning system /equipment are properly positioned and functional.
- Audible and visual warning devices are operating properly while the derail is disengaged.
- The tracks are clean and free of debris

The local procedures shall include the designated personnel ensuring the following during switching activities:

- The track well is clear and no one is working in the area around the tracks.
- All pedestrian doors into the track well are secured during switching.
- All dock plates have been removed. bridges have been lifted and overhead doors have been opened
- The audible and visual warning devices are operating properly
- Electronic locking devices are operational.
- A system shall be in place to prevent rail cars from moving once they are in place on the dock
- Chocks and wheel stops shall be periodically inspected for cracking and other deterioration
- Hand brake shall be set

Powered or portable dock boards when used, shall be:

- Provided a good fit between the dock edge and the rail car
- Prevented from slipping
- Periodically visually inspected for cracking and other deterioration

**Boxcar loading and/or unloading**

Visually inspect all doors before opening and closing
Regularly lubricate the rail car doors

Use a mechanical assist which moves parallel with the travel of the door

Assure no other employees are in the “line-of-fire” during the opening and closing of the door

**Tank cars loading and/or unloading**

If located remote from the rail dock, requires separate warning operation

Spotted cars shall be secured by chocks, blocks, or the handbrake

If the tank car contains a hazardous material:

- Are the people loading /unloading it trained in the safe handling of the material?
- Are they trained in emergency procedures?
- Are proper warning signs used during loading and unloading operations?

**15.8.3 Truck Dock Procedures**

The facility shall have a written safe operating practice for truck dock operations including, but not limited to:

- The spotting, securing and inspecting trailers prior to loading/unloading activities
- The covering of trailers or trucks which are loaded or unloaded away from the dock areas (i.e. loading/unloading from ground level, side loading/unloading of open side trailers).

The Inspection of the trailers prior to any loading or unloading operations including:

- Interior items including: floor, sidewalls, doors and roof structure.
- Exterior items including: floor cross members and fasteners, top and bottom rails, sidewalls, doors, rear impact bar (ICC bar), trailer landing gear.

The dock safety procedures shall be posted in a highly visible location which provides easy access

The SOP shall ensure that

- Outside tractor drivers do not place or remove trailer control (stop) signs or perform any other dock safety procedures unless specifically authorized to do so
- All dock spots are marked with a unique means of identification visible to both dock employees and drivers from inside the building, the dock well, and the outside of the dock.

All fork trucks used at the loading dock shall clearly be marked with the vehicle’s lifting capacity

Markings should be in the format: CAP: 6,000 lbs.

Trucks with a capacity greater than 8,000 lbs., but less than 10,000 lbs. must also be marked “H D”.

“HD” heavy-duty fork trucks are prohibited from entering standard-duty over the road trailers to load and unload material
HD fork trucks are only used in heavy-duty trailers, which are properly identified and marked.

Fork trucks with lifting capacities in excess of 10,000 lbs. are prohibited from entering highway trailers except where the trailer floor system has been certified and labeled by the manufacturer to match or exceed the capacity of the fork truck being used.

All trailers shall be chocked and properly restrained prior to any loading or unloading operations.

- Single and double axle trailers require a chock on each side. Triple axle trailers require two chocks on each side.

- Moveable axles must be locked in the rear most position.

Trailer “dock locks” or other automatic restraint systems in use shall be visually verified they are properly engaged.

Jack stands shall be used properly for dropped trailers.

A single center-mount spreader beam style jack stand or two corner-post style jack stands are required.

The jack stands must be placed under the trailer supporting the frame (not the floor).

Jack stands must make contact with the underside of the trailer frame.

They should be adjusted up to the trailer frame equally.

Trailers with an overhang of six (6) feet or more or equipped with adjustable axle positions that cause the rear of the trailer to over/hang the rear axles a distance of six (6) feet or more must have corner-post style jack stands placed under the rear corners.

Trailers equipped with Air-Ride systems must have the system deflated and jack stands placed under the rear corners.

**Truck Dock Facilities & Equipment**

Chocks and jack stands shall be periodically inspected for cracks, wear and deterioration.

Procedures shall be in place to protect workers while performing maintenance work on dock plates, dock locks or other automatic restraint systems, including:

- Prohibit work being performed between a parked trailer and the dock plate.

- Requiring dock plates on either side of the work location be taken out of service, barricaded or marked with caution tape to prevent other activities from occurring.

- Require trailers on either side of the work location be moved out where possible.

- Adequate lighting shall be provided on the dock and in loading areas.
# Chapter 16 – Hand & Portable Power Tools

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  - Portable Abrasive Wheels
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  - Abrasive Blast Cleaning Nozzles
16.1 Hand and Portable Powered Tools and Other Hand-Held Equipment

16.1.1 General Requirements

Each company shall be responsible for the safe condition of tools and equipment used by workers, including tools and equipment which may be furnished by the workers. Any tool which does not pass the pre-use inspection or is not in compliance with any applicable requirement is prohibited and shall be identified as unsafe by tagging or locking the controls to render them inoperable and removed from the site for repair or disposal.

Workers using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists vapors, or gases shall be provided with particular PPE necessary to protect them from the hazard. (See Chapter 9 for the requirements for a Hazard Assessment and determination of the appropriate PPE)

The Burns & McDonnell Health & Safety Form P1 - Hand & Portable Power Tools Pre-Operation Inspection Checklist can serve as a basis for the daily pre-use inspection of the tools, as well as to document the monthly inspection.

16.1.2 Tool Guarding

Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such way that will compromise its integrity or compromise the protection in which intended. Guarding shall meet the requirements set forth in ANSI B15.1.
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17.1 Gas Welding and Cutting

17.1.1 Hose

Flashback arrestors shall be used at both the gauge and the torch end of the hose.

17.1.2 Additional Rules

For additional details not covered in this chapter, applicable technical portions of American National Standards Institute, Z49.1-1967, Safety in Welding and Cutting, shall apply.

17.2 Arc Welding and Cutting

17.2.1 Ground Returns and Machine Grounding

The frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current.

Grounding circuits, other than by means of the structure, shall be checked to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

17.2.2 Operating Instructions

When welding on galvanized metals a respirator with a P100 filter is required.

17.2.3 Welding Equipment Inspection

Daily pre-operational equipment inspections shall be performed on all welding machines and equipment. The inspections shall be documented using the Burns & McDonnell Safety Form Q-1.
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18.1 Electric Power Generation, Transmission, and Distribution

18.1.1 General

18.1.2 Training

Workers shall be trained in and familiar with the safety-related work practices, safety procedures, and other safety requirements in this section that pertain to their respective job assignments. Workers shall also be trained in and familiar with any other safety practices, including applicable emergency procedures, that are not specifically addressed by this section but that are related to their work and are necessary for their safety.

Documentation of this training shall be submitted via Burns & McDonnell Pole & Bucket Rescue Safety Form R-2.

18.1.3 Job Briefing

Daily job briefing is required, using Burns & McDonnell Daily Job Briefing Safety Form R-1, and shall be conducted with all the workers involved before they start each job.

Information Transfer.

Before work begins:

The host company shall inform the contractor of the characteristics of the host company’s installation that are related to the safety of the work to be performed such as:

- Conditions that are related to the safety of the work to be performed that are known to the host company;
- Information about the design and operation of the host company’s installation that the contractor needs to make the assessments required by this section; and
- Any other information about the design and operation of the host company’s installation that is known by the host company that the contractor requests, and that is related to the protection of the contractor’s employees.

Contractors shall comply with the following requirements:

- The contractor shall ensure that each of its employees is instructed in the hazardous conditions relevant to the employee’s work that the contractor is aware of as a result of information communicated to the contractor by the host company.
- Before work begins, the contractor shall advise the host company of any unique hazardous conditions presented by the contractor’s work.
- The contractor shall advise the host company of any unanticipated hazardous conditions found during the contractor’s work that the host company did not previously mention. The contractor shall provide this information to the host company within 2 working days after discovering the hazardous condition.

The contractor and the host company shall coordinate their work rules and procedures so that each worker is protected.

Confirmation of the information exchange shall be documented on Burns & McDonnell Safety Form R-10 “Host – Contractor Information Transfer”
18.1.4 Personal Protective Equipment

Fall protection equipment shall be inspected Burns & McDonnell Safety Form R-8 "Fall Protection Equipment Inspection". See Chapter 9, Personal Protective Equipment for additional PPE requirements.

18.1.5 Crane Lifting Plans

Lifting plans shall be developed prior to any crane lifts to verify reasons for lift, the description of work responsibilities, the crane inspection, and operator qualifications. The lift plan shall be reviewed at the PTA / Daily Job Briefing / lift crew meeting to assure personnel are aware of the work to be performed, hazards, and control measures prior to the crane lift.

A pre-lift crane permit Burns & McDonnell Safety Form R-4 "Pre-Lift Crane Permit" and pre-lift safety checklist Burns & McDonnell Safety Form R-5 "Pre-Lift Safety Checklist" shall be completed.

Additionally, Critical Lift Plans shall be completed for all lifts that are over 20 tons, lifts that involve more than one crane or the load to be lifted exceeds 75% of the manufacturer’s load rating chart for configuration of the crane. Burns & McDonnell Safety Form N-2 “Critical Lift Plan” shall be used to document this information.

18.1.6 Substations

Upon entering an attended substation, each worker other than those regularly working in the station shall report his or her presence to the worker in charge in order to receive information on special system conditions affecting worker safety.
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18.2 Telecommunications

18.2.1 General

Tower Climbers and Ground Crew Workers

All work crews must be provided with and must use proper safety equipment at all times.

If proper safety equipment is unavailable or not functioning, no work at heights should be done.

All workers should annually certify their commitment to “100 percent tie off.”

For every level in the contracting chain, however, “100 percent tie off” cannot simply be a written policy. All entities and individuals involved, particularly job site supervisors and individual workers, must have a firm commitment to enforcing 100 percent tie off at every worksite at all times when workers are climbing.

All climbing work should include comprehensive safety planning, including Activity Hazard Analysis (AHA) and Emergency Action Plan (EAP), for every job site.

When starting work for the day, foremen should conduct a toolbox meeting where the Activity Hazard Analysis (AHA) is discussed. Part of the AHA review should also include a mental and physical check-in with climbers. Do they feel mentally and physically ready to climb safely that day? If there are any situations or conditions that may prevent them from being focused on climbing safely, the foreman has a responsibility to remove that climber from the climbing team.

Subcontractors should take special care when training new employees and ensure that each new employee is working alongside experienced workers at all times.

All work crews should not work at heights when weather conditions raise safety risks.

Keep track of employee work schedules, including travel and driving time, to ensure that employees are not climbing while fatigued.

All work crews should continually seek to enhance their safety skills and awareness through regular trainings and stand-downs.

Particular attention should be paid to inspections, including equipment inspections and PPE inspections.

18.2.2 Work Site Safety Practices:

All contractors shall require supervisors to conduct a tailgate meeting at the beginning of each work day. The purpose of these meetings is to highlight the most important safety issues for the day.

In addition to covering issues such as the location of rescue equipment, other topics to address include possible hazards specific to the jobsite, the need for hard hats and eye protection at all times, the need to be aware of overhead hazards, especially during lifts, and keeping clear of the load.

Other critical topics include the location of the nearest hospital, and how to direct someone to call 911 in an emergency.

Activity Hazard Analysis: Before any worker sets foot on a job site, the contractor shall complete a comprehensive Activity Hazard Analysis. The AHA is required to be on-site for all work activities.
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The AHA should provide an overview of the location of the work site, the type of tower, and an overview of the work to be done. It should include the precise location of the work site, the location and contact information for all local emergency services including the nearest hospital or medical center.

It should provide a detailed analysis of each individual job task to be completed, the hazards associated with that task, as well as the preventative measures to avoid those hazards, including applicable personal protective equipment.

Finally the JHA should include a list of all personnel working on site, along with information regarding the training and certifications held by each individual.

For work sites where personnel will be working at heights and/or where hoisting personnel or materials will be performed, a more detailed AHA is be required, and shall include specific hazard control measures unique to the work activities being performed on that job site.

Subcontractors shall institute work policies and procedures that guarantee that safe work practices will always be followed on site.

For example: when contractors begin every single work day with a tailgate meeting discussing the day’s work, and then immediately follow the meeting with daily equipment inspections, critical safety practices are less likely to be overlooked.

18.2.3 Zero-Tolerance Policy to Unsafe Work Practices

Subcontractors shall institute a zero-tolerance policy regarding unsafe practices, in particular towards free climbing and shall require 100 percent tie off. Any individual employee who is found to be violating that rule is shall be immediately disciplined, with penalties ranging from mandated re-training to dismissal depending on the individual circumstances.

18.2.4 Rescue

Subcontractors must ensure that there is a competent person on site at all times. This person should monitor the mental and physical wellbeing of climbers on their team. The competent person has the responsibility and obligation to remove an unfit worker from climbing duty for any reason.

18.2.5 Tools and Personal Protective Equipment

Personal protective equipment, protective devices and special tools needed for work shall be provided and used. Daily a competent person shall inspect and ensure that these personal protective devices, tools, and equipment are in good condition. Burns & McDonnell Daily Job Briefing Safety Form R-1

18.2.6 Personal Climbing Equipment

General - Harnesses with safety belts and straps shall be provided and used when work is performed at positions more than 4 feet above ground, on poles, and on towers. Inspection of this equipment shall be completed daily, using the Burns & McDonnell Safety Form V-2 “Fall Protection Equipment Inspection”.

18.2.7 Vehicle-Mounted Material Handling Devices and Other Mechanical Equipment

Visual inspections of equipment shall be made by a competent person each day the equipment is to be used to ascertain that it is in good condition. Burns & McDonnell Boom Truck Inspection Safety Form R-3

18.2.8 Derrick Trucks and Similar Equipment

Derricks and its associated equipment are to be inspected by a competent person at intervals set by the manufacturer but in no case less than once per year. Records shall be maintained including the dates of
inspections, and necessary repairs made, if corrective action was required. Burns & McDonnell Boom Truck Inspection Form R-3

18.2.9 Underground Lines

Requirements prior to entering manholes and unvented vaults. Before a worker enters a manhole, a Confined Space permit is to be completed. Burns & McDonnell Safety Form C-7 "Work Permit" (Confined Space Entry Section)

18.2.10 Definitions

For definitions for this Chapter refer to definitions within 1910.269 - Electric Power Generation, Transmission, and Distribution.

Figure 18 - 1 Radio Frequency Radiation Hazard Sign

![Radio Frequency Radiation Hazard Sign Diagram]

1. Place bonding and bonding instructions on reverse side.
2. O - Stamping unit.
   - Regular Triangle: 5 to 1 Letter
   - Medium Triangle: 4 to 1 Normal
   - Medium: 5 to 1 Medium
4. Symbols are square, triangles are right-angle isosceles.

Figure G-11
Radio-Frequency Radiation Hazard Warning Symbol
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19 Electrical Site Specific

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19.1 Electrical Safe Work Practices

19.1.1 Contractor Relationships

Host Site Responsibilities.

The host site shall inform the contractor of known electrical hazards related to the contract that might not be recognized by the contractor's employees and any other pertinent electrical information the contractor needs to make the required safety assessments.

Contractor Responsibilities.

The contractor shall ensure that each of his workers is instructed in the electrical hazards communicated by the host site.

The contractor shall ensure that each of his workers follows electrical safe work practices including CLIENT NAME safety-related work rules.

The contractor shall advise the host site of any unique hazards presented by his work, any unanticipated hazards found during the work, and any additional needed measures taken to perform the work.

19.1.2 Training Requirements.

Safety Training.

The training requirements shall apply to employees who face a risk of electrical hazard that is not reduced to a safe level by the applicable electrical installation requirements.

Employees shall be trained to understand the specific hazards associated with electrical energy.

They shall be trained in the safety-related work practices and procedural requirements needed to provide protection from the electrical hazards associated with their work.

Employees shall be trained to identify and understand the relationship between electrical hazards and possible injury.

The training shall be classroom, on-the-job, or a combination of the two.

Emergency Procedures.

Employees exposed to shock hazards shall be trained in methods of release of victims from contact with exposed energized electrical conductors or circuit parts.

Employees shall be regularly instructed and annually certified in methods of first aid and emergency procedures, such as approved methods of resuscitation, if their duties warrant such training.

Employee Training.

Qualified Person - A qualified person shall be trained and knowledgeable of the construction and operation of equipment or a specific work method and be trained to recognize and avoid the electrical hazards that might be present with respect to that equipment or work method.
They shall also be familiar with the proper use of the special precautionary techniques, personal protective equipment, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

A person can be considered qualified with respect to certain equipment and methods but still are unqualified for others.

Workers permitted to work within the Limited Approach Boundary of exposed energized electrical conductors and circuit parts operating at 50 volts or more shall, at a minimum, be additionally trained in all of the following:

- The skills and techniques necessary to distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment
- The skills and techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts
- The approach distances specified in Table 6
- The decision-making process necessary to determine the degree and extent of the hazard
- The personal protective equipment and job planning necessary to perform the task safely

An employee, who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person shall be considered to be a qualified person for the performance of those duties.

Tasks that are performed less often than once per year shall require retraining before the performance of the work practices involved.

Employees shall be trained to select an appropriate voltage detector and shall demonstrate how to use a device to verify the absence of voltage, including interpreting indications provided by the device and understand all limitations of each specific voltage detector that may be used.

Unqualified Persons.

Unqualified persons shall be trained in and be familiar with any of the electrical safety related practices that are necessary for their safety.

Retraining.

An employee shall receive additional training (or retraining) under any of the following conditions:

- If the supervision or annual inspections indicate that the employee is not complying with the safety-related work practices
- If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those that the employee would normally use
- If the employee must use safety-related work practices that are not normally used during his or her regular job duties

Training Documentation.

The employer shall document that each employee has received the required training when the employee demonstrates proficiency in the work practices involved.
Shall be maintained for the duration of the employee’s employment.

Shall contain each employee’s name and the dates of the training.

19.1.3 Electrical Safety Program.

Procedures.

The procedures for working within the Limited Approach Boundary of energized electrical conductors and circuit parts operating at 50 volts or more or where an electrical hazard exists shall be identified before work is started.

Hazard/Risk Evaluation Procedure.

The hazard/risk evaluation procedure shall be determined prior to work starting within the Limited Approach Boundary when energized electrical conductors and circuit parts are operating at 50 volts or more.

The procedure shall identify the hazard/risk process that shall be used by employees to evaluate tasks before work is started.

Pre-job briefing.

Before starting each job, the employee in charge shall conduct a job briefing with the employees involved.

The briefing shall cover such subjects as hazards associated with the job, work procedures involved, special precautions, energy source controls, and personal protective equipment requirements.

If the work or operations to be performed during the work day or shift are repetitive and similar, at least one job briefing shall be conducted before the start of the first job of the day or shift.

Additional job briefings shall be held if changes that might affect the safety of employees occur during the course of the work.

If the work involved is routine, a brief discussion shall be reasonably expected to accomplish the briefing for hazard recognition and avoidance.

A more extensive discussion shall be conducted if either of the following apply:

- The work is complicated or particularly hazardous.
- The employee cannot be expected to recognize and avoid the hazards involved in the job.

Other Precautions for Personnel Activities

Alertness

Employees shall be alert at all times when they are working within the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more and in work situations where electrical hazards might exist.

Employees shall not be permitted to work within the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more, or where other electrical hazards exist, while their alertness is recognizably impaired due to illness, fatigue, or other reasons.
Employees shall be instructed to be alert for changes in the job or task that may lead the person outside of the electrically safe work condition or expose the person to additional hazards that were not part of the original plan.

Blind Reaches

Employees shall be instructed not to reach blindly into areas that might contain exposed energized electrical conductors or circuit parts where an electrical hazard exists.

Illumination

Employees shall not enter spaces containing electrical hazards unless illumination is provided that enables the employees to perform the work safely.

Where lack of illumination or an obstruction precludes observation of the work to be performed, employees shall not perform any task within the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

Conductive Articles and Materials

Conductive articles of jewelry and clothing shall not be worn where they present an electrical contact hazard with exposed energized electrical conductors or circuit parts. Conductive materials, tools, and equipment that are in contact with any part of an employee's body such as watchbands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, metal headgear, or metal frame glasses shall be handled in a manner that prevents accidental contact with energized electrical conductors or circuit parts.

Such materials and equipment include, but are not limited to, long conductive objects, such as ducts, pipes and tubes, conductive hose and rope, metal-lined rules and scales, steel tapes, pulling lines, metal scaffold parts, structural members, bull floats, and chains.

19.1.4 Working While Exposed to Electrical Hazards.

General.

Safety-related work practices shall be used to safeguard employees from injury while they are exposed to electrical hazards from electrical conductors or circuit parts that are or can become energized.

The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards.

Energized Electrical Conductors and Circuit Parts — Safe Work Condition.

Energized electrical conductors and circuit parts to which an employee might be exposed shall be put into an electrically safe work condition before an employee works within the Limited Approach Boundary of those conductors or parts.

Energized Electrical Conductors and Circuit Parts — Unsafe Work Condition.

Only qualified persons shall be permitted to work on electrical conductors or circuit parts that have not been put into an electrically safe work condition.

Working Within the Limited Approach Boundary of Exposed Electrical Conductors or Circuit Parts that Are or Might Become Energized.

Prior to working within the Limited Approach Boundary of exposed electrical conductors and circuit parts operating at 50 volts or more, lockout/tagout devices shall be applied.
Electrical Hazard Analysis.

If the energized electrical conductors or circuit parts operating at 50 volts or more are not placed in an electrically safe work condition, other safety-related work practices shall be used to protect employees who might be exposed to the electrical hazards involved.

Such work practices shall protect each employee from arc flash and from contact with energized electrical conductors or circuit parts operating at 50 volts or more directly with any part of the body or indirectly through some other conductive object.

Work practices that are used shall be suitable for the conditions under which the work is to be performed and for the voltage level of the energized electrical conductors or circuit parts.

Appropriate safety-related work practices shall be determined before any person is exposed to the electrical hazards involved by using both shock hazard analysis and arc flash hazard analysis.

Shock Hazard Analysis. A shock hazard analysis shall determine the voltage to which personnel will be exposed, boundary requirements, and the personal protective equipment necessary in order to minimize the possibility of electrical shock to personnel.

Arc Flash Hazard Analysis. An arc flash hazard analysis shall determine the Arc Flash Protection Boundary and the personal protective equipment that people within the Arc Flash Protection Boundary shall use.

Energized Electrical Work Permit.

When working on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition (i.e., for the reasons of increased or additional hazards) work shall be performed by written permit only.

Unqualified Persons.

Unqualified persons shall not be permitted to enter spaces that are required to be accessible to qualified employees only, unless the electric conductors and equipment are placed in an electrically safe work condition.

Safety Interlocks.

Only qualified persons following the requirements for working inside the Restricted Approach Boundary shall be permitted to defeat or bypass an electrical safety interlock and then only temporarily while the qualified person is working on the equipment.

The safety interlock system shall be returned to its operable condition when the work is completed.

Overhead lines.

If work is to be performed near overhead lines, the lines shall be de-energized and grounded, or other protective measures shall be provided before work is started. If the lines are to be de-energized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to de-energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

Qualified Persons
Qualified workers must adhere to the approach distances in the Table when working in the vicinity of overhead lines.

<table>
<thead>
<tr>
<th>Voltage range (phase to phase)</th>
<th>Minimum approach distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>300V and less</td>
<td>Avoid Contact</td>
</tr>
<tr>
<td>Over 300V, not over 750V</td>
<td>1 ft. 0 in.</td>
</tr>
<tr>
<td>Over 750V, not over 2kV</td>
<td>1 ft. 6 in.</td>
</tr>
<tr>
<td>Over 2kV, not over 15kV</td>
<td>2 ft. 0 in.</td>
</tr>
<tr>
<td>Over 15kV, not over 37kV</td>
<td>3 ft. 0 in.</td>
</tr>
<tr>
<td>Over 37kV, not over 87.5kV</td>
<td>3 ft. 6 in.</td>
</tr>
<tr>
<td>Over 87.5kV, not over 121kV</td>
<td>4 ft. 0 in.</td>
</tr>
<tr>
<td>Over 121kV, not over 140kV</td>
<td>4 ft. 6 in.</td>
</tr>
</tbody>
</table>

Unqualified Persons.

When an unqualified person is working in an elevated position near overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:

- For voltages to ground 50kV or below - 10 feet (305 cm);
- For voltages to ground over 50kV - 10 feet (305 cm) plus 4 inches (10 cm) for every 10kV over 50kV.

When an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object closer to unguarded, energized overhead lines than the distances given above.

**Note:** For voltages normally encountered with overhead power line, objects which do not have an insulating rating for the voltage involved are considered to be conductive.

19.1.5 Use of Equipment.

Test Instruments and Equipment.

Rating.

Test instruments, equipment, and their accessories shall be rated for circuits and equipment to which they will be connected.

Design.

Test instruments, equipment, and their accessories shall be designed for the environment to which they will be exposed, and for the manner in which they will be used.

Visual Inspection.

Test instruments and equipment and all associated test leads, cables, power cords, probes, and connectors shall be visually inspected for external defects and damage before each use. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and no employee shall use it until repairs and tests necessary to render the equipment safe have been made.

Operation Verification.
When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument shall be verified before and after an absence of voltage test is performed.

**Portable Electric Equipment.**

This section applies to the use of cord-and-plug-connected equipment, including cord sets (extension cords).

Portable equipment shall be handled in a manner that will not cause damage.

Flexible electric cords connected to equipment shall not be used for raising or lowering the equipment.

Flexible cords shall not be fastened with staples or hung in such a fashion as could damage the outer jacket or insulation.

**Grounding-Type Equipment.**

A flexible cord used with grounding-type utilization equipment shall contain an equipment grounding conductor.

Attachment plugs and receptacles shall not be connected or altered in a manner that would interrupt continuity of the equipment grounding conductor. Additionally, these devices shall not be altered in order to allow use in a manner that was not intended by the manufacturer.

Adapters that interrupt the continuity of the equipment grounding conductor shall not be used.

**Visual Inspection of Portable Cord-and-Plug-Connected Equipment and Flexible Cord Sets.**

**Frequency of Inspection.**

Before each use, portable cord-and-plug-connected equipment shall be visually inspected for external defects (such as loose parts or deformed and missing pins) and for evidence of possible internal damage (such as a pinched or crushed outer jacket).

**Defective Equipment.**

If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item shall be removed from service, and no employee shall use it until repairs and tests necessary to render the equipment safe have been made.

**Proper Mating.**

When an attachment plug is to be connected to a receptacle, the relationship of the plug and receptacle contacts shall first be checked to ensure that they are of mating configurations.

**Conductive Work Locations.**

Portable electric equipment used in highly conductive work locations or in job locations where employees are likely to contact water or conductive liquids shall be approved for those locations.

**Connecting Attachment Plugs.**
Employees' hands shall not be wet when plugging and unplugging flexible cords and cord-and-plug-connected equipment if energized equipment is involved.

Energized plug and receptacle connections shall be handled only with insulating protective equipment if the condition of the connection could provide a conductive path to the employee's hand (if, for example, a cord connector is wet from being immersed in water).

Locking-type connectors shall be secured after connection.

**GFCI Protection Devices.**

GFCI protection devices are required on all jobs

GFCI protection devices shall be tested per manufacturer's instructions and prior to use; and the GFCI testing shall be documented at least monthly

**Overcurrent Protection Modification.**

Over current protection of circuits and conductors shall not be modified beyond that permitted by applicable portions of electrical codes and standards dealing with overcurrent protection.

**19.1.6 Achieving an Electrically Safe Work Condition.**

An electrically safe work condition shall be achieved when LOTO has been performed and verified by the following process:

Use an adequately rated voltage detector to test each phase conductor or circuit part to verify they are de-energized. Test each phase conductor or circuit part both phase-to-phase and phase-to-ground. Before and after each test, determine that the voltage detector is operating satisfactorily.

Where the possibility of induced voltages or stored electrical energy exists, ground the phase conductors or circuit parts before touching them. Where it could be reasonably anticipated that the conductors or circuit parts being de-energized could contact other exposed energized conductors or circuit parts, apply ground connecting devices rated for the available fault duty.

**19.1.7 Justification for Work.**

**General.**

Energized electrical conductors and circuit parts to which an employee might be exposed shall be put into an electrically safe work condition before an employee works within the Limited Approach Boundary of those conductors or parts, except:

Greater Hazard. Energized work shall be permitted where the employer can demonstrate that de-energizing introduces additional or increased hazards.

Infeasibility. Energized work shall be permitted where the employer can demonstrate that the task to be performed is infeasible in a de-energized state due to equipment design or operational limitations.

Less Than 50 Volts. Energized electrical conductors and circuit parts that operate at less than 50 volts to ground shall not be required to be de-energized where the capacity of the source and any over-current protection between the energy source and the worker are considered and it is determined that there will be no increased exposure to electrical burns or to explosion due to electric arcs.

**Energized Electrical Work Permit.**
When working on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition, work to be performed shall be considered energized electrical work and shall be performed by written permit only.

Elements of Work Permit. The energized electrical work permit shall include, but not be limited to, the following items:

- A description of the circuit and equipment to be worked on and their location
- Justification for why the work must be performed in an energized condition
- A description of the safe work practices to be employed
- Results of the shock hazard analysis
- Determination of shock protection boundaries
- Results of the arc flash hazard analysis
- The arc flash protection boundary
- The necessary personal protective equipment to safely perform the assigned task
- Means employed to restrict the access of unqualified persons from the work area
- Evidence of completion of a job briefing, including a discussion of any job-specific hazards
- Energized work approval signature: authorizing or responsible management, safety officer, or owner, etc.

Exemptions to Work Permit.

Work performed within the Limited Approach Boundary of energized electrical conductors or circuit parts by qualified persons related to tasks such as testing, troubleshooting, voltage measuring, etc., shall be permitted to be performed without an energized electrical work permit, provided appropriate safe work practices and personal protective equipment are provided and used.

If the purpose of crossing the Limited Approach Boundary is only for visual inspection and the Restricted Approach Boundary will not be crossed, then an energized electrical work permit shall not be required.

19.1.8 Personal and Other Protective Equipment.

General.

Employees working in areas where electrical hazards are present shall be provided with, and shall use, protective equipment that is designed and constructed for the specific part of the body to be protected and for the work to be performed.

The PPE requirements are intended to protect a person from arc flash and shock hazards.

Burns to the skin, even with the protection selected, should be reduced and survivable.

Due to the explosive effect of some arc events, physical trauma injuries could occur.

When incident energy exceeds 40 Cal/cm², greater emphasis may be necessary with respect to de-energizing before working within the Limited Approach Boundary.
Care of Equipment.

Protective equipment shall be maintained in a safe, reliable condition.

The protective equipment shall be visually inspected before each use.

Protective equipment shall be stored in a manner to prevent damage from physically damaging conditions and from moisture, dust, or other deteriorating agents.

Maintenance and Use.

Electrical and personal protective equipment (such as the following) shall be maintained in a safe and reliable working condition:

- Grounding equipment
- Hot sticks
- Rubber gloves, sleeves, and leather protectors
- Voltage test indicators
- Blanket and similar insulating equipment
- Insulating mats and similar insulating equipment
- Protective barriers
- External circuit breaker rack-out devices
- Portable lighting units
- Safety grounding equipment
- Dielectric footwear
- Protective clothing
- Bypass jumpers
- Insulated and insulating hand tools

Inspections and Testing

Insulating equipment shall be inspected for damage before each day’s use and immediately following any incident that can reasonably be suspected of having caused damage.

Insulating gloves shall be given an air test, along with the inspection.

Electrical protective equipment shall be subjected to periodic electrical tests. Test voltages and maximum intervals between tests shall be in accordance with Table 4.

Inspection and Testing of Protective Equipment and Protective Tools.
Visual

Safety and protective equipment and protective tools shall be visually inspected for damage and defects before initial use and at intervals thereafter, as service conditions require, but in no case shall the interval exceed 1 year.

Testing.

The insulation of protective equipment and protective tools shall be verified by the appropriate test and visual inspection to ascertain that insulating capability has been retained before initial use, and at intervals thereafter, as service conditions and applicable standards and instructions require.

**Personal Protective Equipment, PPE.**

General.

When an employee is working within the Arc Flash Protection Boundary he or she shall wear protective clothing and other personal protective equipment.

All parts of the body inside the Arc Flash Protection Boundary shall be protected.

Selection of Personal Protective Equipment When Required for Various Tasks.

Where selected in lieu of the incident energy analysis Table 3 shall be used to determine the hazard/risk category and requirements for use of rubber insulating gloves and insulated and insulating hand tools for a task.

The assumed short-circuit current maximum capacities and maximum fault clearing times for various tasks are listed in the notes to Table 3.

For tasks not listed, or for power systems with greater than the assumed maximum short circuit current capacity or with longer than the assumed maximum fault clearing times, an arc flash hazard analysis shall be required.

Movement and Visibility.

When flame-resistant (FR) clothing is worn to protect an employee, it shall cover all ignitable clothing and shall allow for movement and visibility.

Head, Face, Neck, and Chin (Head Area) Protection.

Employees shall wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with energized electrical conductors or circuit parts or from flying objects resulting from electrical explosion.

Employees shall wear nonconductive protective equipment for the face, neck, and chin whenever there is a danger of injury from exposure to electric arcs or flashes or from flying objects resulting from electrical explosion.

If employees use hairnets and/or beard nets, these items must be non-melting and flame resistant.

Eye Protection.

Employees shall wear protective equipment for the eyes whenever there is danger of injury from electric arcs, flashes, or from flying objects resulting from electrical explosion.
Body Protection.

Employees shall wear FR clothing wherever there is possible exposure to an electric arc flash above the threshold incident-energy level for a second degree burn (1.2 Cal/cm²).

Such clothing can be provided as an arc flash suit jacket and arc flash suit pants, shirts and pants, or as coveralls, or as a combination of jacket and pants, or, for increased protection, as coveralls with jacket and pants.

Various weight fabrics are available. Generally, the higher degree of protection is provided by heavier weight fabrics and/or by layering combinations of one or more layers of FR clothing.

Hand and Arm Protection.

Hand and arm protection shall be provided in accordance with below.

Shock Protection.

Employees shall wear rubber insulating gloves with leather protectors where there is a danger of hand injury from electric shock due to contact with energized electrical conductors or circuit parts.

Employees shall wear rubber insulating gloves with leather protectors and rubber insulating sleeves where there is a danger of hand and arm injury from electric shock due to contact with energized electrical conductors or circuit parts.

Rubber insulating gloves shall be rated for the voltage for which the gloves will be exposed.

Exception: Where it is necessary to use rubber insulating gloves without leather protectors, the requirements of ASTM F 496, Standard Specification for In-Service Care of Insulating Gloves and Sleeves, shall be met.

Arc Flash Protection.

Hand and arm protection shall be worn where there is possible exposure to arc flash burn.

Leather or FR gloves shall be required for protection of hands from burns.

Foot Protection.

Where insulated footwear is used as protection against step and touch potential, dielectric overshoes shall be required.

Insulated soles shall not be used as primary electrical protection.

Factors in Selection of Protective Clothing.

Protective clothing includes shirts, pants, coveralls, jackets, and parkas worn routinely by workers who, under normal working conditions, are exposed to momentary electric arc and related thermal hazards. Flame-resistant rainwear worn in inclement weather is included in this category of clothing.

Clothing and equipment that provide worker protection from shock and arc flash hazards shall be utilized.

Clothing and equipment required for the degree of exposure shall be permitted to be worn alone or integrated with flammable, non-melting apparel. If FR clothing is required, it shall cover associated parts of the body as well as all flammable apparel while allowing movement and visibility.
All personal protective equipment shall be maintained in a sanitary and functionally effective condition.

Personal protective equipment items will normally be used in conjunction with one another as a system to provide the appropriate level of protection.

Layering.

Non-melting, flammable fiber garments shall be permitted to be used as under-layers in conjunction with FR garments in a layered system for added protection.

If non-melting, flammable fiber garments are used as under-layers, the system arc rating shall be sufficient to prevent break-open of the innermost FR layer at the expected arc exposure incident energy level to prevent ignition of flammable under-layers.

A typical layering system might include cotton underwear, a cotton shirt and trouser, and a FR coverall. Specific tasks might call for additional FR layers to achieve the required protection level.

Outer Layers.

Garments worn as outer layers over FR clothing, such as jackets or rainwear, shall also be made from FR material.

Under-layers.

Fibers such as acetate, nylon, polyester, polypropylene, and spandex which melt shall not be permitted in fabric under-layers (underwear) next to the skin. Exception: An incidental amount of elastic used on non-melting fabric underwear or socks shall be permitted.

FR garments (e.g., shirts, trousers, and coveralls) worn as under-layers that neither ignite nor melt and drip in the course of an exposure to electric arc and related thermal hazards generally provide a higher system arc rating than non-melting, flammable fiber under-layers.

FR underwear or undergarments used as under-layers generally provide a higher system arc rating than non-melting, flammable fiber underwear or undergarments used as under-layers.

Coverage.

Clothing shall cover potentially exposed areas as completely as possible. Shirt sleeves shall be fastened at the wrists, and shirts and jackets shall be closed at the neck.

Fit.

Tight-fitting clothing shall be avoided. Loose-fitting clothing provides additional thermal insulation because of air spaces. FR apparel shall fit properly such that it does not interfere with the work task.

Interference.

The garment selected shall result in the least interference with the task but still provide the necessary protection. The work method, location, and task could influence the protective equipment selected.

**Arc Flash Protective Equipment.**

Arc Flash Suits.

Arc flash suit design shall permit easy and rapid removal by the wearer. The entire arc flash suit, including the hood’s face shield, shall have an arc rating that is suitable for the arc flash exposure.
When exterior air is supplied into the hood, the air hoses and pump housing shall be either covered by FR materials or constructed of non-melting and nonflammable materials.

Face Protection.

Face shields shall have an arc rating suitable for the arc flash exposure.

Face shields without an arc rating shall not be used.

Eye protection (safety glasses or goggles) shall always be worn under face shields or hoods.

Face shields made with energy-absorbing formulations that can provide higher levels of protection from the radiant energy of an arc flash are available, but these shields are tinted and can reduce visual acuity and color perception. Additional illumination of the task area might be necessary when these types of arc-protective face shields are used.

Hand Protection.

Leather or FR gloves shall be worn where required for arc flash protection.

Where insulating rubber gloves are used for shock protection, leather protectors shall be worn over the rubber gloves.

Insulating rubber gloves and gloves made from layers of flame-resistant material provide hand protection against the arc flash hazard.

Heavy-duty leather (e.g., greater than 12 oz./yd2) gloves provide protection suitable up to Hazard/Risk Category 2.

The leather protectors worn over insulating rubber gloves provide additional arc flash protection for the hands. During high arc flash exposures leather can shrink and cause a decrease in protection.

Foot Protection.

Heavy-duty leather work shoes provide some arc flash protection to the feet and shall be used in all tasks in Hazard/Risk Category 2.

Clothing Material Characteristics.

Clothing made from flammable synthetic materials that melt at temperatures below 600°F, such as acetate, acrylic, nylon, polyester, polyethylene, polypropylene, and spandex, either alone or in blends, shall not be used.

Clothing and other apparel (such as hard hat liners and hair nets) made from materials that do not meet the melting or flammability requirements shall not be permitted to be worn.

Some flame-resistant fabrics, such nondurable flame-retardant treatments of cotton, are not recommended for industrial electrical or utility applications.

Other Protective Equipment.

Insulated Tools and Equipment.

Employees shall use insulated tools and/or handling equipment when working inside the Limited Approach Boundary of exposed energized electrical conductors or circuit parts where tools or handling equipment might make accidental contact.
Table 3 provides further information for tasks that require insulated and insulating hand tools.

Insulated tools shall be protected from damage to the insulating material.

Requirements for Insulated Tools.

The following requirements shall apply to insulated tools:

Insulated tools shall be rated for the voltages on which they are used.

Insulated tools shall be designed and constructed for the environment to which they are exposed and the manner in which they are used.

Insulated tools and equipment shall be inspected prior to each use.

The inspection shall look for damage to the insulation or damage that may limit the tool from performing its intended function or could increase the potential for an incident (e.g., damaged tip on a screwdriver).

Fuse or Fuse Holding Equipment.

Fuse or fuse holder handling equipment, insulated for the circuit voltage, shall be used to remove or install a fuse if the fuse terminals are energized.

Ropes and Hand lines.

Ropes and hand lines used within the Limited Approach Boundary of exposed energized electrical conductors or circuit parts operating at 50 volts or more, or used where an electrical hazard exists, shall be nonconductive.

Fiberglass-Reinforced Plastic Rods.

Fiberglass reinforced plastic rod and tube used for live line tools shall meet the requirements of applicable portions of electrical codes and standards dealing with electrical installation requirements.

Portable Ladders.

Portable ladders shall have nonconductive side rails if they are used where the employee or ladder could contact exposed energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists. Nonconductive ladders shall meet the requirements of ANSI standards for ladders listed in Table 5.

Protective Shields.

Protective shields, protective barriers, or insulating materials shall be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working within the Limited Approach Boundary of energized conductors or circuit parts that might be accidentally contacted or where dangerous electric heating or arcing might occur.

When normally enclosed energized conductors or circuit parts are exposed for maintenance or repair, they shall be guarded to protect unqualified persons from contact with the energized conductors or circuit parts.

Rubber Insulating Equipment.

Rubber insulating equipment used for protection from accidental contact with energized conductors or circuit parts shall meet the requirements of the ASTM standards listed in Table 5.
Voltage-Rated Plastic Guard Equipment.

Plastic guard equipment for protection of employees from accidental contact with energized conductors or circuit parts, or for protection of employees or energized equipment or material from contact with ground, shall meet the requirements of the ASTM standards listed in Table 5.

Physical or Mechanical Barriers.

Physical or mechanical (field-fabricated) barriers shall be installed no closer than the Restricted Approach Boundary distance given in Table 6.

While the barrier is being installed, the Restricted Approach Boundary distance specified in Table 6 shall be maintained, or the energized conductors or circuit parts

19.1.9 Alerting Techniques.

Safety Signs and Tags.

Safety signs, safety symbols, or accident prevention tags shall be used where necessary to warn employees about electrical hazards that might endanger them.

Barricades.

Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas containing energized conductors or circuit parts.

Conductive barricades shall not be used where it might cause an electrical hazard.

Barricades shall be placed no closer than the Limited Approach Boundary given in Table 6.

Attendants.

If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant shall be stationed to warn and protect employees.

The primary duty and responsibility of an attendant providing manual signaling and alerting shall be to keep unqualified employees outside a work area where the unqualified employee might be exposed to electrical hazards.

An attendant shall remain in the area as long as there is a potential for employees to be exposed to the electrical hazards.

Look-Alike Equipment.

Where work performed on equipment that is de-energized and placed in an electrically safe condition exists in a work area with other energized equipment that is similar in size, shape, and construction, identification shall be provided to prevent the worker from entering look-a-like equipment.

The use of Table 19-2 is a simplified approach to provide minimum PPE for electrical workers within facilities with large and diverse electrical systems. The clothing listed in Table 19-2 fulfills the minimum arc-rated clothing requirements of Tables 19-11, 19-12, and 19-13 and Table 19-5.

The clothing systems listed in this table should be used with the other PPE appropriate for the arc flash PPE category, see Table 19-5.

The notes to Tables 19-11, 19-12, and 19-13, must apply as shown in those tables.
Table 19 - 2 Simplified Two-Category, Arc-Rated Clothing System

<table>
<thead>
<tr>
<th>Clothinga</th>
<th>Applicable Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyday Work Clothing</td>
<td>All arc flash PPE category 1 and arc flash PPE category 2 tasks listed in Tables 19-11, 19-12, &amp; 19-13</td>
</tr>
<tr>
<td>Arc-rated long-sleeve shirt with arc-rated pants (minimum arc rating of 8) or Arc-rated coveralls (minimum arc rating of 8)</td>
<td></td>
</tr>
<tr>
<td>Arc Flash Suit</td>
<td>All arc flash PPE category 3 and arc flash PPE category 4 tasks listed in Tables 19-11, 19-12, &amp; 19-13</td>
</tr>
<tr>
<td>A total clothing system consisting of arc-rated shirt and pants and/or arc-rated coveralls and/or arc flash coat and pants (clothing system minimum arc rating of 40)</td>
<td></td>
</tr>
</tbody>
</table>

a Note that other PPE listed in Table 19-5 which include arc-rated face shields or arc flash suit hoods, arc-rated hard hat liners, safety glasses or safety goggles, hard hats, hearing protection, heavy-duty leather gloves, rubber insulating gloves, and leather protectors, could be required. The arc rating for a garment is expressed in Cal/cm².

b The estimated available short-circuit current capacities and fault clearing times or arcing durations are listed in the text of Table 19-12 and Table 19-13.

Various tasks are listed in Table 19-11
For tasks not listed or for power systems with greater than the estimated available short-circuit capacity or with longer than the assumed fault clearing times or arcing durations, an arc flash risk assessment is required.

NFPA 70E -2015 Annex H Table H.2

Table 19-3 provides a summary of specific sections within the NFPA 70E standard describing PPE for electrical hazards which may be referred to for additional information as needed.

Table 19 - 3 Summary of Specific Sections Describing PPE for Electrical Hazards Where Additional Information can be Found in NFPA 70E - 2015

<table>
<thead>
<tr>
<th>Shock Hazard PPE</th>
<th>Applicable NFPA 70E (2015) Section(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubber insulating gloves and leather protectors (unless the requirements of ASTM F 496 are met)</td>
<td>130.7(C)(7)(a)</td>
</tr>
<tr>
<td>Rubber insulating sleeves (as needed)</td>
<td>130.7(C)(7)(a)</td>
</tr>
<tr>
<td>Class G or E hard hat (as needed)</td>
<td>130.7(C)(3)</td>
</tr>
<tr>
<td>Safety glasses or goggles (as needed)</td>
<td>130.7(C)(4)</td>
</tr>
<tr>
<td>Dielectric overshoes (as needed)</td>
<td>130.7(C)(8)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arc Flash Hazard PPE</th>
<th>Applicable NFPA 70E (2015) Section(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing: non-melting or untreated natural fiber long-sleeve shirt and long pants or coverall</td>
<td>130.7(C)(1); 130.7(C)(9)(d)</td>
</tr>
<tr>
<td>Gloves: heavy-duty leather</td>
<td>130.7(C)(7)(b); 130.7(C)(10)(d)</td>
</tr>
<tr>
<td>Hard hat: class G or E</td>
<td>130.7(C)(3)</td>
</tr>
<tr>
<td>Face shield: covers the face, neck, and chin (as needed)</td>
<td>130.7(C)(3)</td>
</tr>
<tr>
<td>Safety glasses or goggles</td>
<td>130.7(C)(4); 130.7(C)(10)(c)</td>
</tr>
<tr>
<td>Hearing protection</td>
<td>130.7(C)(5)</td>
</tr>
<tr>
<td>Footwear: heavy-duty leather (as needed)</td>
<td>130.7(C)(10)(e)</td>
</tr>
</tbody>
</table>

**Incident energy exposures up to 1.2 Cal/cm²**

| Clothing: arc-rated clothing system with an arc rating appropriate to the anticipated incident energy exposure | 130.7(C)(1); 130.7(C)(2); 130.7(C)(6); 130.7(C)(9)(d)                      |
| Clothing underlayers (when used): arc-rated or non-melting untreated natural fiber | 130.7(C)(9)(c); 130.7(C)(11); 130.7(C)(12)                                  |
| Gloves: Exposures ≥ 1.2 Cal/cm² and ≤ 8 Cal/cm²: heavy-duty leather gloves        | 130.7(C)(7)(b); 130.7(C)(10)(d)                                             |
## Table 19 - 3 Summary of Specific Sections Describing PPE for Electrical Hazards Where Additional Information can Be Found in NFPA 70E - 2015

| Exposures > 8 Cal/cm²: rubber insulating gloves with their leather protectors; or arc-rated gloves | 130.7(C)(1); 130.7(C)(3); 130.7(C)(10)(a); 130.7(C)(10)(b); 130.7(C)(10)(c) |
| Hard hat: class G or E | 130.7(C)(1); 130.7(C)(3) |
| Face shield: Exposures >1.2 Cal/cm² and 12 Cal/cm²: arc-rated face shield that covers the face, neck, and chin and an arc-rated balaclava or an arc-rated arc flash suit hood; Exposures >12 Cal/cm²: arc-rated arc flash suit hood | 130.7(C)(4); 130.7(C)(10)(c) |
| Safety glasses or goggles | 130.7(C)(5) |
| Hearing protection | 130.7(C)(10)(e) |
| Footwear: Exposures <4 Cal/cm²: heavy-duty leather footwear (as needed) Exposures > 4 Cal/cm²: heavy-duty leather footwear | Notes: • NFPA 70E – 2015: Table H.3(a) |

Table 19-4 provides guidance on the selection of arc-rated and other PPE for users who determine the incident energy exposure in Cal/cm², or when there is an arc flash label provided with the incident energy listed.

Arc flash labels shall only list the incident energy and NOT incident energy and PPE Category. They should also list the minimum required PPE for the specific site.

## Table 19 - 4 Guidance on Selection of Arc-Rated Clothing and Other PPE for Use When Incident Energy Exposure Is Determined

<table>
<thead>
<tr>
<th>Incident Energy Exposure</th>
<th>Protective Clothing and PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1.2 Cal/cm²</td>
<td>Protective clothing, nonmelting (in accordance with ASTM F 1506) or untreated natural fiber</td>
</tr>
<tr>
<td></td>
<td>Shirt (long sleeve) and pants (long) or coverall</td>
</tr>
<tr>
<td></td>
<td>• Face shield for projectile protection (AN)</td>
</tr>
<tr>
<td></td>
<td>• Safety glasses or safety goggles (SR)</td>
</tr>
<tr>
<td></td>
<td>• Hearing protection</td>
</tr>
<tr>
<td></td>
<td>• Heavy-duty leather gloves or rubber insulating gloves with leather protectors (AN)</td>
</tr>
<tr>
<td>1.2 to 12 Cal/cm²</td>
<td>Arc-rated clothing and equipment with an arc rating equal to or greater than the determined incident energy (See Note 3.)</td>
</tr>
<tr>
<td></td>
<td>Arc-rated long-sleeve shirt and arc-rated pants or arc-rated coverall or arc flash suit (SR) (See Note 3.)</td>
</tr>
<tr>
<td></td>
<td>Arc-rated face shield and arc-rated balaclava or arc flash suit hood (SR) (See Note 1.)</td>
</tr>
<tr>
<td></td>
<td>Arc-rated jacket, parka, or rainwear (AN)</td>
</tr>
<tr>
<td></td>
<td>Other PPE</td>
</tr>
<tr>
<td></td>
<td>Hard hat</td>
</tr>
<tr>
<td></td>
<td>Arc-rated hard hat liner (AN)</td>
</tr>
<tr>
<td></td>
<td>Safety glasses or safety goggles (SR)</td>
</tr>
<tr>
<td></td>
<td>Hearing protection</td>
</tr>
<tr>
<td></td>
<td>Heavy-duty leather gloves or rubber insulating gloves with leather protectors (SR) (See Note 4.)</td>
</tr>
<tr>
<td></td>
<td>Leather footwear</td>
</tr>
<tr>
<td>&gt; 12 Cal/cm²</td>
<td></td>
</tr>
</tbody>
</table>
### Table 19 - 4 Guidance on Selection of Arc-Rated Clothing and Other PPE for Use When Incident Energy Exposure Is Determined

<table>
<thead>
<tr>
<th>Incident Energy Exposure</th>
<th>Protective Clothing and PPE</th>
</tr>
</thead>
</table>
| Arc-rated clothing and equipment with an arc rating equal to or greater than the determined incident energy (See Note 3.) | Arc-rated long-sleeve shirt and arc-rated pants or arc-rated coverall and/or arc flash suit (SR)  
Arc-rated arc flash suit hood 
Arc-rated gloves 
Arc-rated jacket, parka, or rainwear (AN) |
| Other PPE                                                                                | Hard hat 
 Arc-rated hard hat liner (AN) 
Safety glasses or safety goggles (SR) 
Hearing protection 
Arc-rated gloves or rubber insulating gloves with leather protectors (SR) (See Note 4.)  
Leather footwear |

**AN:** As needed [in addition to the protective clothing and PPE required above]  
**SR:** Selection of one in group is required

**Notes:**

1. Face shields with a wrap-around guarding to protect the face, chin, forehead, ears, and neck area are required, for full head and neck protection, use a balaclava or an arc flash hood.
2. All items not designated “AN” are required
3. Arc ratings can be for a single layer, such as an arc-rated shirt and pants or a coverall, or for an arc flash suit or a multi-layer system consisting of a combination of arc-rated shirt and pants, coverall, and arc flash suit.
4. Rubber insulating gloves with leather protectors provide arc flash protection in addition to shock protection. Higher class rubber insulating gloves with leather protectors, due to their increased material thickness, provide increased arc flash protection.
5. NFPA 70E – 2015; Table H.3(b)

### Table 19 - 5 Personal Protective Equipment (PPE)

<table>
<thead>
<tr>
<th>PPE Category</th>
<th>PPE</th>
</tr>
</thead>
</table>
| 1            | **Arc-Rated Clothing, Minimum Arc Rating of 4 Cal/cm²** (see Note 1)  
Arc-rated long-sleeve shirt and pants or arc-rated coverall 
Arc-rated face shield (see Note 2) or arc flash suit hood 
Arc-rated jacket, parka, rainwear, or hard hat liner (AN) 
**Protective Equipment** 
Hard hat 
Safety glasses or safety goggles (SR) 
Hearing protection (ear canal inserts) 
Heavy duty leather gloves (see Note 3) 
Leather footwear (AN) |
| 2            | **Arc-Rated Clothing, Minimum Arc Rating of 8 Cal/cm²** (see Note 1)  
Arc-rated long-sleeve shirt and pants or arc-rated coverall 
Arc-rated flash suit hood or arc-rated face shield (see Note 2) and arc-rated balaclava 
Arc-rated jacket, parka, rainwear, or hard hat liner (AN) 
**Protective Equipment** 
Hard hat 
Safety glasses or safety goggles (SR) 
Hearing protection (ear canal inserts) 
Heavy duty leather gloves (see Note 3) 
Leather footwear |
| 3            | **Arc-Rated Clothing Selected so That the System Arc Rating Meets the Required Minimum Arc Rating of 25 Cal/cm²** (see Note 1)  
Arc-rated long-sleeve shirt (AR) 
Arc-rated pants (AR) 
Arc-rated coverall (AR) |
### Table 19 - 5 Personal Protective Equipment (PPE)

<table>
<thead>
<tr>
<th>PPE Category</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arc-rate</td>
<td>Arc-rated arc flash suit jacket (AR)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated arc flash suit pants (AR)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated arc flash suit hood</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated gloves (see Note 1)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated jacket, parka, rainwear, or hard hat liner (AN)</td>
</tr>
<tr>
<td>Protective</td>
<td>Hard hat</td>
</tr>
<tr>
<td>Equipment</td>
<td>Safety glasses or safety goggles (SR)</td>
</tr>
<tr>
<td></td>
<td>Hearing protection (ear canal inserts)</td>
</tr>
<tr>
<td></td>
<td>Leather footwear</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated long-sleeve shirt (AR)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated pants (AR)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated coverall (AR)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated arc flash suit jacket (AR)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated arc flash suit pants (AR)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated arc flash suit hood</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated gloves (see Note 1)</td>
</tr>
<tr>
<td>Arc-rate</td>
<td>Arc-rated jacket, parka, rainwear, or hard hat liner (AN)</td>
</tr>
<tr>
<td>Protective</td>
<td>Hard hat</td>
</tr>
<tr>
<td>Equipment</td>
<td>Safety glasses or safety goggles (SR)</td>
</tr>
<tr>
<td></td>
<td>Hearing protection (ear canal inserts)</td>
</tr>
<tr>
<td></td>
<td>Leather footwear</td>
</tr>
</tbody>
</table>

**AN:** as needed (optional).
**AR:** as required.
**SR:** selection required.

**Notes:**
1. Arc rating is defined in Article 100.
2. Face shields are to have wrap-around guarding to protect not only the face but also the forehead, ears, and neck, or, alternatively, an arc-rated arc flash suit hood is required to be worn.
3. If rubber insulating gloves with leather protectors are used, additional leather or arc-rated gloves are not required. The combination of rubber insulating gloves with leather protectors satisfies the arc flash protection requirement.
4. NFPA 70E – 2015, Table 130.7(C)(16)

### Table 19 - 6 Protective Clothing Characteristics

<table>
<thead>
<tr>
<th>PPE Category</th>
<th>Clothing Description</th>
<th>Required Minimum Arc Rating of PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Non-melting materials (i.e., untreated cotton, wool, rayon, or silk, or blends of these materials with a fabric weight at least 4.5 oz./yd²)</td>
<td>N/A J/cm²</td>
</tr>
<tr>
<td>1</td>
<td>Arc-rated FR shirt and FR pants or FR coverall</td>
<td>16.74 J/cm²</td>
</tr>
<tr>
<td>2</td>
<td>Arc-rated FR shirt and FR pants or FR coverall</td>
<td>33.47 J/cm²</td>
</tr>
<tr>
<td>3</td>
<td>Arc-rated FR shirt and pants or FR coverall, and arc flash suit selected so that the system arc rating meets the required minimum</td>
<td>104.6 J/cm²</td>
</tr>
<tr>
<td>4</td>
<td>Arc-rated FR shirt and pants or FR coverall, and arc flash suit selected so that the system arc rating meets the required minimum</td>
<td>167.36 J/cm²</td>
</tr>
</tbody>
</table>

**Note:** Arc rating can be either ATPV or EBT.

**ATPV** is defined in ASTM F 1959, Standard Test Method for Determining the Arc Thermal Performance Value of Materials for Clothing, as the incident energy on a material or a multilayer system of materials that results in a 50% probability that sufficient heat transfer through the tested specimen is predicted to cause the onset of a second-degree skin burn injury based on the Stoll curve, Cal/cm².
Table 19 - 6 Protective Clothing Characteristics

<table>
<thead>
<tr>
<th>PPE Category</th>
<th>Clothing Description</th>
<th>Required Minimum Arc Rating of PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>J/cm²</td>
</tr>
</tbody>
</table>

EBT is defined in ASTM F 1959 as the incident energy on a material or material system that results in a 50% probability of break-open. Arc rating is reported as either ATPV or EBT, whichever is the lower value.

Table 19 - 7 Standards on Protective Equipment

<table>
<thead>
<tr>
<th>Subject</th>
<th>Document Title</th>
<th>Document #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard Guide for Industrial Laundering of Flame, Thermal, and Arc Resistant Clothing</td>
<td>ASTM F1449</td>
</tr>
<tr>
<td></td>
<td>Standard Guide for Home Laundering Care and Maintenance of Flame, Thermal and Arc Resistant Clothing</td>
<td>ASTM F2757</td>
</tr>
<tr>
<td>Aprons-Insulating</td>
<td>Standard Specification for Electrically Insulating Aprons</td>
<td>ASTM F2677</td>
</tr>
<tr>
<td>Blankets</td>
<td>Standard Specification for Rubber Insulating Blankets, 2005</td>
<td>ASTM D 1048,</td>
</tr>
<tr>
<td></td>
<td>Standard Specification for In-Service Care of Insulating Blankets, 2006</td>
<td>ASTM F 479,</td>
</tr>
<tr>
<td>Eye and Face Protection-General</td>
<td>Practice for Occupational and Educational Eye and Face Protection</td>
<td>ANSI Z87.1</td>
</tr>
<tr>
<td>Face-Arc Rated</td>
<td>Standard Test Method for Determining the Arc Rating and Standard Specification for Eye or Face Protective Products</td>
<td>ASTM F2178</td>
</tr>
<tr>
<td>Fall Protection</td>
<td>Standard Specification for Personal Climbing Equipment</td>
<td>ASTM F887</td>
</tr>
<tr>
<td>Footwear-Standard Performance Specification</td>
<td>Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear</td>
<td>ASTM F2413</td>
</tr>
<tr>
<td>Gloves-Rubber Insulating</td>
<td>Standard Specification for Rubber Insulating Gloves</td>
<td>ASTM D120</td>
</tr>
<tr>
<td>Gloves and Sleeves –In-Service Care</td>
<td>Standard Specification for In-Service Care of Insulating Gloves and Sleeves</td>
<td>ASTM F496</td>
</tr>
<tr>
<td>Head Protection-Hard Hats</td>
<td>Requirements for Protective Headwear for Industrial Workers</td>
<td>ANSI Z89.1</td>
</tr>
<tr>
<td>Ladders</td>
<td>Safety Requirements for Portable Wood Ladders, 2000</td>
<td>ANSI A14.1</td>
</tr>
<tr>
<td></td>
<td>Safety Requirements for Fixed Ladders, 2002</td>
<td>ANSI A14.3</td>
</tr>
<tr>
<td></td>
<td>Safety Requirements for Job-Made Ladders, 2002</td>
<td>ANSI A14.4</td>
</tr>
<tr>
<td></td>
<td>Standard Specification for In-Service Care of Insulating Line Hose and Covers, 1999 (R 2007)</td>
<td>ASTM F 478</td>
</tr>
<tr>
<td>Rainwear-Arc Rated</td>
<td>Standard Specification for Arc and Flame Resistant Rainwear</td>
<td>ASTM F1891</td>
</tr>
</tbody>
</table>
| Safety signs and tags | Series of Standards for Safety Signs and Tags, 2006 | ANSI Z535,
### Table 19 - 7 Standards on Protective Equipment

<table>
<thead>
<tr>
<th>Subject</th>
<th>Document Title</th>
<th>Document #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeves-Insulating</td>
<td>Standard Specification for Rubber Insulating Sleeves</td>
<td>ASTM D1051</td>
</tr>
</tbody>
</table>

**Notes:**
- NFPA 70E – 2015: Table 130.7(C)(14)

### Table 19 - 8 Rubber Insulating Equipment, Maximum Test Intervals

<table>
<thead>
<tr>
<th>Rubber Insulating Equipment</th>
<th>When to Test</th>
<th>Governing Standard* for Test Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blankets</td>
<td>Before first issue; every 12 months thereafter†</td>
<td>ASTM F 479</td>
</tr>
<tr>
<td>Covers</td>
<td>If insulating value is suspect</td>
<td>ASTM F 478</td>
</tr>
<tr>
<td>Gloves</td>
<td>Before first issue; every 6 months thereafter†</td>
<td>ASTM F 496</td>
</tr>
<tr>
<td>Line hose</td>
<td>If insulating value is suspect</td>
<td>ASTM F 478</td>
</tr>
<tr>
<td>Sleeves</td>
<td>Before first issue; every 12 months thereafter</td>
<td>ASTM F 496</td>
</tr>
</tbody>
</table>

*specific Notes (as referenced in the table):
- ASTM F 478, Standard Specification for In-Service Care of Insulating Line Hose and Covers; ASTM F 479, Standard Specification for In-Service Care of Insulating Blankets; ASTM F 496, Standard Specification

†If the insulating equipment has been electrically tested but not issued for service, it may not be placed into service unless it has been electrically tested within the previous 12 months.

### Table 19 - 9 Approach Boundaries to Energized Electrical Conductors/Circuit Parts for Shock Protection for Alternating-Current Systems

(All dimensions are distance from exposed energized electrical conductor or circuit part to employee.)

<table>
<thead>
<tr>
<th>Nominal System Voltage Range, Phase to Phase*</th>
<th>Limited Approach Boundaryb</th>
<th>Restricted Approach Boundaryb; Includes Inadvertent Movement Adder</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50 V</td>
<td>Not specified</td>
<td>Not specified</td>
</tr>
<tr>
<td>50 V–150 V</td>
<td>3.0 m (10 ft 0 in.)</td>
<td>1.0 m (3 ft 6 in.)</td>
</tr>
<tr>
<td>151 V–750 V</td>
<td>3.0 m (10 ft 0 in.)</td>
<td>1.0 m (3 ft 6 in.)</td>
</tr>
<tr>
<td>751 V–15 kV</td>
<td>3.0 m (10 ft 0 in.)</td>
<td>1.5 m (5 ft 0 in.)</td>
</tr>
<tr>
<td>15.1 kV–36 kV</td>
<td>3.0 m (10 ft 0 in.)</td>
<td>1.8 m (6 ft 0 in.)</td>
</tr>
<tr>
<td>36.1 kV–46 kV</td>
<td>3.0 m (10 ft 0 in.)</td>
<td>2.5 m (8 ft 0 in.)</td>
</tr>
<tr>
<td>46.1 kV–72.5 kV</td>
<td>3.0 m (10 ft 0 in.)</td>
<td>2.5 m (8 ft 0 in.)</td>
</tr>
<tr>
<td>72.6 kV–121 kV</td>
<td>3.3 m (10 ft 8 in.)</td>
<td>2.5 m (8 ft 0 in.)</td>
</tr>
<tr>
<td>138 kV–145 kV</td>
<td>3.4 m (11 ft 0 in.)</td>
<td>3.0 m (10 ft 0 in.)</td>
</tr>
<tr>
<td>161 kV–169 kV</td>
<td>3.6 m (11 ft 8 in.)</td>
<td>3.6 m (11 ft 8 in.)</td>
</tr>
<tr>
<td>230 kV–242 kV</td>
<td>4.0 m (13 ft 0 in.)</td>
<td>4.0 m (13 ft 0 in.)</td>
</tr>
<tr>
<td>345 kV–362 kV</td>
<td>4.7 m (15 ft 4 in.)</td>
<td>4.7 m (15 ft 4 in.)</td>
</tr>
<tr>
<td>500 kV–550 kV</td>
<td>5.8 m (19 ft 0 in.)</td>
<td>5.8 m (19 ft 0 in.)</td>
</tr>
<tr>
<td>765 kV–800 kV</td>
<td>7.2 m (23 ft 9 in.)</td>
<td>7.2 m (23 ft 9 in.)</td>
</tr>
</tbody>
</table>

**Notes:**
- All dimensions are distance from exposed energized electrical conductors or circuit part to employee.
- For Arc Flash Protection Boundary - When an arc flash hazard exists, an approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur.
  1. Voltage Levels Between 50 Volts and 600 Volts. In those cases, where detailed arc flash hazard analysis calculations are not performed for systems that are between 50 volts and 600 volts, the Arc Flash Protection Boundary shall be 4.0 ft., based on the product of clearing time of 2 cycles (0.033 sec) and the available bolted fault current of 50 kA or any combination not exceeding 100 kA cycles (1667 ampere seconds). When the product of clearing times and bolted fault current exceeds 100 kA cycles, the Arc Flash Protection Boundary shall be calculated.
Table 19 - 9 Approach Boundaries to Energized Electrical Conductors/Circuit Parts for Shock Protection for Alternating-Current Systems

<table>
<thead>
<tr>
<th>Nominal System Voltage Range, Phase to Phase</th>
<th>Limited Approach Boundary</th>
<th>Restricted Approach Boundary; Includes Inadvertent Movement Adder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposed Movable Conductor</td>
<td>Exposed Fixed Circuit Part</td>
<td></td>
</tr>
<tr>
<td>500 V</td>
<td>Not specified</td>
<td>Not specified</td>
</tr>
<tr>
<td>250 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>150 V</td>
<td>0.2 m (0 ft 8 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>75 V</td>
<td>0.2 m (0 ft 8 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>15 kV</td>
<td>0.2 m (0 ft 8 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>5 kV</td>
<td>0.2 m (0 ft 8 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>1 kV</td>
<td>0.2 m (0 ft 8 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>0.3 kV</td>
<td>0.2 m (0 ft 8 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>0.1 kV</td>
<td>0.2 m (0 ft 8 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
</tbody>
</table>

(a) Voltage Levels Above 600 Volts. At voltage levels above 600 volts, the Arc Flash Protection Boundary shall be the distance at which the incident energy equals 1.2 Cal/cm². For situations where fault-clearing time is equal to or less than 0.1 sec, the Arc Flash Protection Boundary shall be the distance at which the incident energy equals 1.5 Cal/cm².

(b) NFPA 70E - 2015; Table 130.4(D)(a)

Table 19 - 10 Approach Boundaries to Energized Electrical Conductors or Circuit Parts for Shock Protection, Direct-Current Voltage Systems

<table>
<thead>
<tr>
<th>Nominal System Voltage Range, Phase to Phase</th>
<th>Limited Approach Boundary</th>
<th>Restricted Approach Boundary; Includes Inadvertent Movement Adder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposed Movable Conductor</td>
<td>Exposed Fixed Circuit Part</td>
<td></td>
</tr>
<tr>
<td>100 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>300 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>500 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>1000 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>1500 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>2000 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>2500 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>3000 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
<tr>
<td>3500 V</td>
<td>0.0 m (0 ft 0 in.)</td>
<td>0.0 m (0 ft 0 in.)</td>
</tr>
</tbody>
</table>

Notes:
- All dimensions are distance from exposed energized electrical conductors or circuit parts to worker.
- Improper or inadequate maintenance can result in increased opening time of the overcurrent protective device, thus increasing the incident energy. Where equipment is not properly installed or maintained, PPE selection based on incident energy analysis or the PPE category method may not provide adequate protection from arc flash hazards.
- Both larger and smaller available short-circuit currents could result in higher available arc flash energies. If the available short-circuit current increases without a decrease in the opening time of the overcurrent protective device, the arc flash energy will increase. If the available short-circuit current decreases, resulting in a longer opening time for the overcurrent protective device, arc flash energies could also increase.
- The occurrence of an arcing fault inside an enclosure produces a variety of physical phenomena very different from a bolted fault. For example, the arc energy resulting from an arc developed in the air will cause a sudden pressure increase and localized overheating. Equipment and design practices are available to minimize the energy levels and the number of procedures that could expose an employee to high levels of incident energy. Proven designs such as arc-resistant switchgear, remote racking (insertion or removal), remote opening and closing of switching devices, high-resistance grounding of low-voltage and 5000 volts (nominal) systems, current limitation, and specification of covered
### Table 19 - 10 Approach Boundaries to Energized Electrical Conductors or Circuit Parts for Shock Protection, Direct-Current Voltage Systems

<table>
<thead>
<tr>
<th>Nominal System Voltage Range, Phase to Phase&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Limited Approach Boundary&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Restricted Approach Boundary&lt;sup&gt;b&lt;/sup&gt;; Includes Inadvertent Movement Adder</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exposed Movable Conductor&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Exposed Fixed Circuit Part</td>
</tr>
<tr>
<td>bus or covered conductors within equipment are available to reduce the risk associated with an arc flash incident. See NFPA 70E 2015 - Informative Annex O for Safety-Related Design Requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For additional direction for performing maintenance on overcurrent protective devices, see Chapter 2, Safety-Related Maintenance Requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>See IEEE 1584, Guide for Performing Arc Flash Calculations, for more information regarding arc flash hazards for three-phase systems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFPA 70E – 2015; Table 130.4(D)(b)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 19 - 11 Arc Flash Hazard Identification for Alternating Current (ac) and Direct Current (dc) Systems

<table>
<thead>
<tr>
<th>Code</th>
<th>Task</th>
<th>Equipment Condition</th>
<th>Arc Flash PPE Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Reading a panel meter while operating a meter switch</td>
<td>Any</td>
<td>No</td>
</tr>
<tr>
<td>E,C</td>
<td>Normal operation of a circuit breaker (CB), switch, contactor, or starter</td>
<td>All of the following: The equipment is properly installed The equipment is properly maintained All equipment doors are closed and secured All equipment covers are in place and secured There is no evidence of impending failure 1 or more of the following: The equipment is not properly installed The equipment is not properly maintained Equipment doors are open or not secured Equipment covers are off or not secured There is evidence of impending failure</td>
<td>No</td>
</tr>
<tr>
<td>E,C</td>
<td>For ac systems: Work on energized electrical conductors and circuit parts, including voltage testing</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>E,C</td>
<td>For dc systems: Work on energized electrical conductors and circuit parts of series-connected battery cells, including voltage testing</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>E,C</td>
<td>Voltage testing on individual battery cells or individual multi-cell units</td>
<td>All of the following: The equipment is properly installed The equipment is properly maintained Covers for all other equipment are in place and secured There is no evidence of impending failure 1 or more of the following: The equipment is not properly installed The equipment is not properly maintained Equipment doors are open or not secured Equipment covers are off or not secured There is evidence of impending failure</td>
<td>No</td>
</tr>
<tr>
<td>C</td>
<td>Removal or installation of CBs or switches</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>E,C</td>
<td>Removal or installation of covers for equipment such as wireways, junction boxes, and cable trays that does not expose bare energized electrical conductors and circuit parts</td>
<td>All of the following: The equipment is properly installed The equipment is properly maintained There is no evidence of impending failure Any of the following:</td>
<td>No</td>
</tr>
</tbody>
</table>
# Table 19 - 11 Arc Flash Hazard Identification for Alternating Current (ac) and Direct Current (dc) Systems

<table>
<thead>
<tr>
<th>Code</th>
<th>Task</th>
<th>Equipment Condition</th>
<th>Arc Flash PPE Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Removal of bolted covers (to expose bare energized electrical conductors and circuit parts). For dc systems, this includes bolted covers, such as battery terminal covers.</td>
<td>Any The equipment is not properly installed&lt;br&gt;The equipment is not properly maintained&lt;br&gt;There is evidence of impending failure</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Removal of battery intercell connector covers</td>
<td>All of the following:&lt;br&gt;The equipment is properly installed.&lt;br&gt;The equipment is properly maintained.&lt;br&gt;Covers for all other equipment are in place and secured.&lt;br&gt;There is no evidence of impending failure&lt;br&gt;1 or more of the following:&lt;br&gt;The equipment is not properly installed.&lt;br&gt;The equipment is not properly maintained.&lt;br&gt;Equipment doors are open or not secured.&lt;br&gt;Equipment covers are off or not secured.&lt;br&gt;There is evidence of impending failure</td>
<td>No</td>
</tr>
<tr>
<td>E,C</td>
<td>Opening hinged door(s) or cover(s) (to expose bare energized electrical conductors and circuit parts)</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>E,C</td>
<td>Perform infrared thermography and other noncontact inspections outside the restricted approach boundary. This activity does not include opening of doors or covers.</td>
<td>Any</td>
<td>No</td>
</tr>
<tr>
<td>C</td>
<td>Application of temporary protective grounding equipment after voltage test</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>E,C</td>
<td>Work on control circuits with exposed energized electrical conductors and circuit parts, 120 volts or below without any other exposed energized equipment over 120 V including opening of hinged covers to gain access</td>
<td>Any</td>
<td>No</td>
</tr>
<tr>
<td>E,C</td>
<td>Work on control circuits with exposed energized electrical conductors and circuit parts, greater than 120 V</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Insertion or removal of individual starter buckets from motor control center (MCC)</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Insertion or removal (racking) of CBs or starters from cubicles, doors open or closed</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Insertion or removal of plug-in devices into or from busways</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>E,C</td>
<td>Insulated cable examination with no manipulation of cable</td>
<td>Any</td>
<td>No</td>
</tr>
<tr>
<td>E,C</td>
<td>Insulated cable examination with manipulation of cable</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>E,C</td>
<td>Work on exposed energized electrical conductors and circuit parts of equipment directly supplied by a panelboard or motor control center</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Insertion and removal of revenue meters (kW-hour, at primary voltage and current)</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>For dc systems, insertion or removal of individual cells or multi-cell units of a battery system in an enclosure</td>
<td>Any</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Table 19 - 11 Arc Flash Hazard Identification for Alternating Current (ac) and Direct Current (dc) Systems

<table>
<thead>
<tr>
<th>Code</th>
<th>Task</th>
<th>Equipment Condition</th>
<th>Arc Flash PPE Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>For dc systems, insertion or removal of individual cells or multi-cell units of a battery system in an open rack</td>
<td>Any</td>
<td>No</td>
</tr>
<tr>
<td>C</td>
<td>For dc systems, maintenance on a single cell of a battery system or multi-cell units in an open rack</td>
<td>Any</td>
<td>No</td>
</tr>
<tr>
<td>E,C</td>
<td>For dc systems, work on exposed energized electrical conductors and circuit parts of utilization equipment directly supplied by a dc source</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Arc-resistant switchgear Type 1 or 2 (for clearing times of &lt;0.5 sec with a prospective fault current not to exceed the arc-resistant rating of the equipment) and metal enclosed interrupter switchgear, fused or unfused of arc resistant type construction, tested in accordance with IEEE C37.20.7: Insertion or removal (racking) of CBs from cubicles, Insertion or removal (racking) of ground and test device, Insertion or removal (racking) of voltage transformers on or off the bus</td>
<td>All of the following: The equipment is properly installed, The equipment is properly maintained, All equipment doors are closed and secured, All equipment covers are in place and secured, There is no evidence of impending failure</td>
<td>No</td>
</tr>
<tr>
<td>E,C</td>
<td>Opening voltage transformer or control power transformer compartments</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Outdoor disconnect switch operation (hookstick operated) at 1 kV through 15 kV</td>
<td>Any</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Outdoor disconnect switch operation (gang-operated, from grade) at 1 kV through 15 kV</td>
<td>Any</td>
<td>Yes</td>
</tr>
</tbody>
</table>

BMcd Qualified Person CODE: N/A-Not Applicable; E- Engineering; C-Commissioning

Notes:
- Hazard identification is one component of risk assessment. Risk assessment involves a determination of the likelihood of occurrence of an incident, resulting from a hazard that could cause injury or damage to health. The assessment of the likelihood of occurrence contained in this table does not cover every possible condition or situation. Where this table indicates that arc flash PPE is not required, an arc flash is not likely to occur.
- *The phrase properly installed, as used in this table, means that the equipment is installed in accordance with applicable industry codes and standards and the manufacturer’s recommendations. The phrase properly maintained, as used in this table, means that the equipment has been maintained in accordance with the manufacturer’s recommendations and applicable industry codes and standards. The phrase evidence of impending failure, as used in this table, means that there is evidence of arcing, overheating, loose or bound equipment parts, visible damage, deterioration, or other damage.
- NFPA 70E – 2015: Table 130.7(C)(15)(A)(a)
### Table 19 - 12 Arc-Flash Hazard PPE Categories for Alternating Current (ac) Systems

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Arc Flash PPE Category</th>
<th>Arc-Flash Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panelboards or other equipment rated 240 V and below</td>
<td>1</td>
<td>485 mm 19 in.</td>
</tr>
<tr>
<td>Parameters: Maximum of 25 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of 0.03 sec (2 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panelboards or other equipment rated &gt;240 V and up to 600 V</td>
<td>2</td>
<td>900 mm 3 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 25 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of 0.03 sec (2 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>600-V class motor control centers (MCCs)</td>
<td>2</td>
<td>1.5 m 5 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 65 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of 0.03 sec (2 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>600-V class motor control centers (MCCs)</td>
<td>4</td>
<td>4.3 m 14 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 42 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of 0.33 sec (20 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>600-V class switchgear (with power circuit breakers or fused switches)</td>
<td>4</td>
<td>6 m 20 ft.</td>
</tr>
<tr>
<td>and 600 V class switchboards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameters: Maximum of 35 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of up to 0.5 sec (30 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other 600-V class (277 V through 600 V, nominal) equipment</td>
<td>2</td>
<td>1.5 m 5 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 65 kA short circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of 0.03 sec (2 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEMA E2 (fused contactor) motor starters, 2.3 kV through 7.2 kV</td>
<td>4</td>
<td>12 m 40 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 35 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of up to 0.24 sec (15 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>910 mm (36 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metal-clad switchgear, 1 kV through 15 kV</td>
<td>4</td>
<td>12 m 40 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 35 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of up to 0.24 sec (15 cycles) fault clearing time; working distance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>910 mm (36 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arc-resistant switchgear Type 1 or 2 [for clearing times of &lt; 0.5 sec</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>(30 cycles) with a perspective fault current not to exceed the arc-</td>
<td>(doors closed)</td>
<td>(doors closed)</td>
</tr>
<tr>
<td>resistant rating of the equipment], and metal-enclosed interrupter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>switchgear, fused or unfused of arc-resistant-type construction, tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in accordance with IEEE C37.20.7, 1 kV through 15 kV</td>
<td>4</td>
<td>12 m 40 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 35 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of up to 0.24 sec (15 cycles) fault clearing time; working</td>
<td></td>
<td></td>
</tr>
<tr>
<td>distance 910 mm (36 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other equipment 1 kV through 15 kV</td>
<td>4</td>
<td>12 m 40 ft.</td>
</tr>
<tr>
<td>Parameters: Maximum of 35 kA short-circuit current available;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximum of up to 0.24 sec (15 cycles) fault clearing time; working</td>
<td></td>
<td></td>
</tr>
<tr>
<td>distance 910 mm (36 in.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note:
- For equipment rated 600 volts and below, and protected by upstream current-limiting fuses or current-limiting circuit breakers sized at 200 amperes or less, the arc flash PPE category can be reduced by one number but not below arc flash PPE category 1.
- NFPA 70E – 2015; Table 130.7(C)(15)(A)(b)

### Table 19 - 13 Arc-Flash Hazard PPE Categories for Direct Current (dc) Systems

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Arc Flash PPE Category</th>
<th>Arc-Flash Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage batteries, dc switchboards, and other dc supply sources 100 V &gt; Voltage &lt; 250 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameters: Voltage: 250 V; Maximum arc duration and working distance: 2 sec @ 455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-circuit current &lt; 4 kA</td>
<td>1</td>
<td>900 mm (3 ft)</td>
</tr>
<tr>
<td>4 kA ≤ short-circuit current &lt; 7 kA</td>
<td>2</td>
<td>1.2 m (4 ft)</td>
</tr>
<tr>
<td>7 kA ≤ short-circuit current &lt; 15 kA</td>
<td>3</td>
<td>1.8 m (6 ft)</td>
</tr>
<tr>
<td>Storage batteries, dc switchboards, and other dc supply sources 250 V ≤ Voltage ≤ 600 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameters: Voltage: 600 V; Maximum arc duration and working distance: 2 sec @ 455 mm (18 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-circuit current 1.5 kA</td>
<td>1</td>
<td>900 mm (3 ft)</td>
</tr>
<tr>
<td>1.5 kA ≤ short-circuit current &lt; 3 kA</td>
<td>2</td>
<td>1.2 m (4 ft)</td>
</tr>
<tr>
<td>3 kA ≤ short-circuit current &lt; 7 kA</td>
<td>3</td>
<td>1.8 m (6 ft)</td>
</tr>
<tr>
<td>7 kA ≤ short-circuit current &lt; 10 kA</td>
<td>4</td>
<td>2.5 m (8 ft)</td>
</tr>
</tbody>
</table>

Note:
- Apparel that can be expected to be exposed to electrolyte must meet both following conditions:
  - Be evaluated for electrolyte protection in accordance with ASTM F1296, Standard Guide for Evaluating Chemical Protective Clothing
  - Be arc-rated in accordance with ASTM F1891, Standard Specification for Arc Rated and Flame Resistant Rainwear, or equivalent
- NFPA 70E – 2015; Table 130.7(C)(15)(B)
# Chapter 20 - Demolition

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- Wall Openings
- Floor Openings, Dropped Debris
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Chapter 20 - Demolition

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20.1 Preparatory Operations

20.1.1 General

Before and demolition occurs elements (a) through (k) shall be evaluated by a competent person. Documentation of this shall be submitted via Burns & McDonnell “Demolition Preparatory Checklist” Safety Form T-1.

Demolition - Prior to starting demolition operations, a competent person shall determine the possibility of unplanned collapse of any portion of the structure or adjacent structures.

Damaged Structure - When workers are required within a structure which has been damaged, the walls or floor shall be shored or braced.

Utilities - All utilities shall be shut off outside the building line and utility companies shall be notified before demolition work is started.

Temporarily Relocated Utilities - If it is necessary to maintain any utilities during demolition, utilities shall be temporarily relocated, and protected.

Hazardous Chemicals - If the presence of hazardous chemicals is determined the hazard shall be eliminated before demolition is started.

Fragmentation of Glass - Where a hazard exists from fragmentation of glass, such hazards shall be removed.

Wall openings shall be protected with appropriate fall protection.

Floor Openings & Dropped Debris - If debris is dropped through holes in the floor without chutes, the drop area shall be barricaded. Warning signs shall be posted at each level, and removal shall not be permitted in this lower area until debris handling ceases above.

Floor Openings which are not Used As Material Drops - All floor openings, not used as material drops, shall be covered with material that can support the weight of any load which may be imposed and properly secured to prevent its accidental movement.

Begin Structure Demolition - Demolition shall begin at the top of the structure and proceed downward.

Worker entrances shall be protected from falling materials.

20.1.2 Hazardous Materials

Prior to starting demolition, a building asbestos survey must be completed and a demolition notification, identifying locations and types of asbestos, must be provided to the state. Other hazardous building materials, such as lead paint, also needs to be identified in a pre-demolition survey. Locations of hazardous materials, as identified in a building survey report, need to be provided to any contractors working in the vicinity of existing hazardous materials and if hazardous materials are to be disturbed, work plans need to be developed that comply with OSHA requirements and describe protective measures and controls to be taken.
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  - Multiple Lift Rigging Procedure

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- Metal Decking

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**Open Web Steel Joists**
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- Ends Of All Steel Joists or Cold-Formed Joists
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- Protection from Falling Objects Other Than Materials Being Hoisted

Training

- Training Personnel
- Fall Hazard Training
- Special Training Programs
Chapter 21 – Steel Erection

21.1 Site Layout, Site Specific Erection Plan and Construction Sequence

21.1.1 Approval to Begin Steel Erection

Approval to Begin Steel Erection - Before authorizing the commencement of steel erection, the controlling contractor shall ensure that the steel erector has been notified by Burns & McDonnell Safety Form U-1 “Concrete and Anchor Bolt Release” that:

Any repairs, replacements and modifications to the anchor bolts were conducted with the approval of the project structural engineer of record Burns & McDonnell “Discrepancy Report” QF-005.

21.1.2 Commencement of Steel Erection

Commencement of Steel Erection - A steel erection contractor shall not erect steel unless it has received written notification by Burns & McDonnell “Approval to Begin Steel Erection” Safety Form U-3.

21.1.3 Site-Specific Erection Plan

Burns & McDonnell Safety Form U-2 “Site-Specific Steel Erection Plan” shall be developed by a qualified person and submitted to Burns & McDonnell.

21.2 Hoisting and Rigging

21.2.1 Multiple Lift

Multiple Lift Rigging Procedure or “Christmas treeing” – may only be performed by permission of the Burns & McDonnell Director of Corporate Health & Safety, and then a multiple lift shall only be performed if the following criteria are met:

- A multiple lift rigging assembly is used;
- A maximum of five members are hoisted per lift;
- Only beams and similar structural members are lifted; and
- All workers engaged in the multiple lift have been trained in these procedures.

No crane is permitted to be used for a multiple lift where such use is contrary to the manufacturer’s specifications and limitations.

Components of the multiple lift rigging assembly shall be assembled with a maximum capacity for total assembly and each individual attachment point.

The total load shall not exceed:

- The rated capacity of the hoisting equipment specified in the hoisting equipment load charts;
- The rigging capacity specified in the rigging rating chart.

The multiple lift rigging assembly shall be rigged with members:

- Attached at their center of gravity and maintained reasonably level;
- Rigged from top down; and
Rigged at least 7 feet apart.

The members on the multiple lift rigging assembly shall be set from the bottom up.

Controlled load lowering shall be used whenever the load is over the connectors.

21.3 Structural Steel Assembly

21.3.1 Metal Decking

Covering roof and floor openings

All covers shall be marked with Burns & McDonnell “Hole Cover” Safety Form D-6.
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Warning Line Systems
Controlled Access Zones
Safety Monitoring Systems
Covers
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Each worker on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest system.

22.2 Personal Fall Arrest Systems

Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two. Documentation of the design, installation and approval process shall be transmitted to Burns & McDonnell refer to Burns & McDonnell Health & Safety Form C-20 “Safety Submittals”

Inspections of the Horizontal Lifeline shall be documented using the Burns & McDonnell Safety Form V-2 “Fall Protection Equipment Inspection”.

22.3 Controlled Access Zones

On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work shall be removed.
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23.1 Appendix A Pre-Cast Concrete

No worker shall be permitted under pre-cast concrete members.

23.2 Appendix B Lift-Slab Operations

No worker, except those essential to the jacking operation, shall be permitted in the building/structure while any jacking operation is taking place.

Under no circumstances, shall any worker who is not essential to the jacking operation be permitted immediately beneath a slab while it is being lifted.
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  Reserved
  Hygiene Facilities and Practices
  Medical Surveillance
  Worker Information and Training
  Recordkeeping
  Benzene Appendix 2004

Cadmium
Chapter 26 – Hazard Communication Program

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Exposure Assessment and Monitoring
Regulated Areas
Engineering Controls and Work Practices
Respirator Protection
Emergency Situations
Protective Clothing
Hygiene Areas and Practices
Housekeeping
Medical Surveillance
Communication of Hazards
Recordkeeping
Observation of Monitoring

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26.1 Hazard Communication Program

26.1.1 Hazard Communication Program

The purpose of the Hazard Communication Program (HAZCOM) is to safeguard the health of workers by providing a guide for safe compliance, and information concerning health and physical hazards of the chemical materials in use at the work place.

Burns & McDonnell is committed to performing work in the safest manner possible while providing the safest possible working conditions for all employees. It is the policy of Burns & McDonnell that employees receive training on their company's Hazard Communication Program and agree to abide by all its requirements.

26.1.2 Introduction

Chemicals are often used during project work and some of these chemicals may pose a hazard to health and can cause physical harm if used improperly or carelessly. These chemicals can be used safely with proper knowledge and recognition of the hazards.

While risks of exposure to chemical hazards exist, they can be minimized and controlled. Each potentially exposed employee should have chemical hazard training, and access to HAZCOM information and the material's Safety Data Sheets (SDS).

Burns & McDonnell employee owners should comply with the Burns & McDonnell Hazard Communication Program contained in the Corporate Policy Manual, Chapter 8. All Burns & McDonnell employee owner questions or inquiries regarding the program or chemicals used by company personnel should be directed to the Corporate Health & Safety Department.

The project manager will inform independent contractors who are retained by Burns & McDonnell of the presence of hazardous chemicals known to be in the areas where the contractor will be working. This information will be provided before they begin work.

On projects where multiple employers are contracted by Burns & McDonnell, a master SDS compilation along with a chemical inventory list (see Burns and McDonnell Chemical Inventory List Safety Form Z-1) for the project shall be kept. The list identifies each chemical or mixture and the conditions in which the chemical or mixture is stored or used. The list is updated as hazardous chemicals or mixtures are removed from or introduced to the project.

At the time of the pre-construction meeting, Subcontractors to Burns & McDonnell are informed that all chemicals and products brought onto the project by the Subcontractor shall have a copy of the SDS submitted to Burns & McDonnell at the time of arrival for that chemical. This responsibility shall be to the Subcontractor to notify Burns & McDonnell. A SDS compilation of all chemicals or products submitted to Burns & McDonnell shall be kept along with a title sheet listing these chemicals. All workers on site shall be made aware of this requirement, the location of the SDS compilation and all workers shall be granted free access to the SDS compilation.

26.1.3 Safety Data Sheets (SDS)

Project management will keep on file a Safety Data Sheet (SDS for each hazardous chemical brought onto the project site.

If workers cannot read English, a special effort will be undertaken to explain the necessary information verbally to them in their language. Bilingual supervision and instructors could be utilized if it is needed.

SDSs will be accessible during normal work hours in the project management trailer/office. Applicable SDSs are also to be maintained and available at each subcontractor’s project site office.
26.1.4 Labeling

All containers of hazardous chemicals brought onto the project site are to be labeled. The labels should identify the hazardous chemicals with the appropriate hazard warnings associated with its exposure. The labels shall be in English, legible and prominently displayed on the container. Employees should be careful not to deface or remove warning labels from containers of hazardous chemicals. The labels must remain on the containers and remain legible at all times. Employees who deface hazardous warning labels are subject to disciplinary action.

Burns & McDonnell uses the Hazardous Material Identification System (HMIS) on containers used for storing transferred hazardous chemicals. Burns & McDonnell also uses the HMIS to identify specific hazards in buildings and on projects sites.

In addition, any employee owner transferring a hazardous chemical from a labeled container to an unlabeled container (e.g., a can, bucket or bottle) must affix the appropriate label on the new container. The chemical should never be left unattended in an unlabeled container. Those found will be disposed of properly to avoid potential exposure to an unknown chemical. Chemicals found in unlabeled containers should Not Be Used.

26.1.5 Training

All employees who may be potentially exposed to hazardous chemicals under normal operating conditions, while performing non-routine tasks, or under foreseeable emergencies, will receive training on how to safely use any hazardous chemicals present in their work areas.

All new and transferred employees will receive training before performing duties in work areas or on projects where hazardous chemicals are present, whenever a new chemical hazard is introduced into their work area, or when a changed process alters the threat of chemical exposure.

26.1.6 Emergencies

If a chemical emergency occurs, the Emergency Action Plan (refer to Burns & McDonnell Safety Form E1 – EAP and Fire Prevention Plan) will go into effect. Burns & McDonnell will notify all appropriate personnel and contractors, and provide support during the notification of local authorities, evacuation, spill response, clean up and return to operations. The designated person indicated in the Emergency Action Plan is responsible for directing and coordinating all relief efforts.

If an employee comes in contact with a hazardous chemical and needs medical treatment, a copy of the chemical's SDS should be forwarded to the hospital immediately upon request.

26.1.7 Hazardous Material Identification System (HMIS)

The HMIS (Hazardous Material Identification System) helps satisfy the hazard communication standard (HCS) requirements by providing a format for hazard determinations, offering a basic written hazard communication program, and simplifying the worker training and information process. The HMIS provides clear, recognizable information to workers by standardizing the presentation of chemical information. This is accomplished by the use of color bar system and color codes corresponding to the hazards of a product, assigned numeric ratings indicating the degree of hazard, and alphabetical codes designating appropriate personal protective equipment (PPE) workers should wear while handling the material.
Table 26-1 HMIS Protective Equipment Examples

<table>
<thead>
<tr>
<th>Protective Equipment Examples</th>
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</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
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<tr>
<td>D</td>
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<td>E</td>
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<tr>
<td>F</td>
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<td>G</td>
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<tr>
<td>H</td>
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<tr>
<td>I</td>
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<tr>
<td>J</td>
</tr>
<tr>
<td>K</td>
</tr>
</tbody>
</table>

L-Z Custom PPE Specified by Employer

<table>
<thead>
<tr>
<th>Protective Equipment Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>O</td>
</tr>
<tr>
<td>P</td>
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<tr>
<td>Q</td>
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<td>R</td>
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<tr>
<td>U</td>
</tr>
<tr>
<td>W</td>
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<tr>
<td>Y</td>
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<tr>
<td>Z</td>
</tr>
</tbody>
</table>

Notes:
- This lettering system indicates the level of PPE to be worn to work safely with a material.
- Each of the individual PPE icons has been designated with a corresponding letter of the alphabet ranging from 'm' through 'z'.
- An employer can list appropriate letters to customize the PPE required for handling a specific material.
- HMIS allows an "*" to designate a material as a carcinogen or for materials known to have an adverse effect given chronic exposure. This designation would appear next to the numerical ranking within the blue health bar.

26.1.8 NFPA 704 Labeling System

The "NFPA 704: Standard System for the Identification of the Hazards of Materials for Emergency Response" is a standard maintained and revised by the National Fire Protection Association. It defines the "fire diamond" used by emergency personnel to quickly and easily identify the risks posed by hazardous materials. This helps determine what, if any, special equipment should be used, procedures followed, or precautions taken during the initial stages of an emergency response.

The four divisions are typically color-coded, with blue indicating level of health hazard, red indicating flammability, yellow (chemical) reactivity, and white containing special codes for unique hazards. Each of health, flammability and reactivity is rated on a scale from 0 (no hazard; normal substance) to 4 (severe risk). See the latest version of NFPA 704 for the specifications of each classification.
26.1.9 OSHA Required Labeling for GHS

The following figure is a sample of the new GHS style labeling using Sulfuric Acid as the material. There are six required information areas meeting the requirements previously mentioned:

**Product Identifier** - One of the new label categories is Product Identifier. This represents the name or number used for a hazardous chemical on a label or in the Safety Data Sheet. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label, and the Safety Data Sheet.

**Pictograms** - One of the new label categories is Pictograms. A pictogram means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color intended to convey specific information about the hazards of a chemical.

There are Nine (9) pictograms designated under the Hazard Communication Standard for application to a hazard category.

As of June 1, 2015, the Hazard Communication Standard will require pictograms on labels to alert users of chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard. The pictogram on the label is determined by the chemical hazard classification.

**Signal word** - The signal word means a word used to indicate the relative severity of the hazard and it is used on the label to alert the reader to a potential hazard. The signal words used in this category are "Danger" and "Warning." "Danger" is used for more severe hazards, while "Warning" is used for less severe hazards.

**Hazard Statements** - The Hazard Statement means a statement assigned to a hazard class and category describing the nature of the hazard of a chemical, including - where appropriate - the degree of hazard.
Precautionary Statements - Precautionary Statements mean a phrase describing the recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

Supplier Information - Supplier Information is another new label. The chemical manufacturer, importer, or distributor shall ensure information provided is in accordance with the Hazard Communication Standard - Appendix C. For each hazard class and associated hazard category for the hazardous chemical, the information must be prominently displayed and in English (other languages may also be included if appropriate).

Signal words, hazard statements, and pictograms have all been harmonized, and assigned to each hazard class and category in the Globally Harmonized System.

Once a chemical has been classified, the relevant harmonized information can be found in HAZCOM 2012, Appendix C.

Figure 26 - 2 Required Label Information

The Globally Harmonized System of Classification provides standardized criteria for Hazard Classification using the categories of Physical, Health, and Environment. OSHA has added the category for Hazards not Elsewhere Classified. The system also requires hazard communication for employees using standardized labels, pictograms, and Safety Data Sheets.
26.2 Silica Dust in Construction

26.2.1 General

This section addresses the control of employee exposures to respirable dust containing crystalline silica, which is known to cause silicosis, a serious lung disease, as well as increase the risk of lung cancer and other systemic diseases.

Quartz is the most common form of crystalline silica. In fact, it is the second most common surface material accounting for almost 12% by volume of the earth’s crust. Quartz is present in many materials in the construction industry, such as brick and mortar, concrete, slate, dimensional stone (granite, sandstone), stone aggregate, tile, and sand used for blasting. Other construction materials that contain crystalline silica are asphalt filler, roofing granules, plastic composites, soils, and to a lesser extent, some wallboard joint compounds, paint, plaster, caulking and putty.

Construction sites often involve many operations occurring simultaneously that can generate respirable silica dust. Therefore, it is important and necessary to utilize effective controls (such as wet methods and/or
vacuum dust collection) in order to minimize total exposures to silica-exposed tool operators or potential exposures to other employees.

The types of materials where Silica can be found.

- Asphalt
- Brick
- Cement
- Concrete
- Concrete Block
- Drywall
- Asphalt
- Gunite/Shotcrete
- Mortar
- Paints containing silica
- Plaster
- Refractory - Mortar
- Refractory - Castable Materials
- Fiber Cement Products
- Grout
- Reinforcing bar
- Roof Tile - Concrete
- Roof Tile – Ceramic/Brick/Clay
- Sand
- Soil - Fill
- Soil – Top
- Stone ***

***including: granite, limestone, quartzite, sandstone, shale, slate, cultured, etc.

Types of operations where Silica dust is generated.

- Abrasive blasting
- Bush hammering
- Cutting/sawing
- Demolishing/disturbing
- Drilling/coring
- Earthmoving
- Grinding
- Jackhammering
- Milling
- Mixing/pouring
- Polishing
- Sanding
- Scabbling
- Scarifying
- Scraping
- Sweeping/cleaning up
- Sacking/patching
- Stucco/EIF
- Rock
- Terrazzo

The OSHA permissible exposure limit (PEL) limits worker exposures to 50 micrograms of respirable crystalline silica per cubic meter of air (µg/m³), averaged over an eight-hour day. The OSHA Action Level for silica is set at 25 µg/m³, averaged over an 8-hour day.

26.2.2 Silica Exposure Control Plan (SECP)

Subcontractors shall develop a documented Silica Exposure Control Plan (SECP) for their scope of work. The objective of the SECP is to prevent, avoid or eliminate any risk of exposure to silica for employees. In order to achieve this, an effective program must be established. The SECP will include the following:

(1) Objectives of the SECP.
(2) Coordination of work activities, including a description of tasks in the workplace that involve exposure to respirable crystalline silica.
(3) Appointing an SECP administrator, and a Competent Person for silica hazard control.
(4) Risk identification, assessment, workplace walk through survey of exposed areas, and non-exposed areas.
(5) Education and training.
(6) Work procedures, including a description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task; description of housekeeping measures to limit employee exposure to respirable crystalline silica; and, a description of the procedures used to restrict access to work areas to minimize the number of employees exposed.
(7) Hygiene Facilities and Decontamination Procedures.
(8) Health Monitoring.
(9) Documentation.
(10) SECP annual review.
The written exposure control plan must be available for examination and copying by each employee. Copies may be available electronically or physically, depending on location needs and requirements.

The written exposure control plan must be evaluated at least once per year and as necessary. Situations where reevaluation may be necessary include regulatory updates, changes in equipment, and exposure incidents.

26.2.3 ECP Training

A training program shall be provided for all employees who are exposed to action level respirable crystalline silica. The training shall ensure that employees covered by the written exposure control plan can demonstrate knowledge and understanding of the health hazards associated with respirable crystalline silica, the specific tasks in the workplace that could result in exposure to respirable crystalline silica, the specific measures taken to protect employees from exposure to crystalline silica, the contents of the respirable crystalline silica rule, and the purpose of the medical surveillance program.

26.2.4 Silica Exposure Controls

Following the hierarchy of controls Employers must first use engineering controls, then work practices as the primary way keep exposures at or below the PEL and use PPE / Respirators as the last line of defense.

1. Engineering controls include:
   (i) wetting down work operations or
   (ii) using local exhaust ventilation (such as vacuums) to keep silica-containing dust out of the air and out of workers’ lungs.
   (iii) enclosing an operation (“process isolation”).

2. Work practices to control silica exposures include:
   (i) wetting down dust before sweeping it up or
   (ii) using the water flow rate recommended by the manufacturer for a tool with water controls.

3. Respirators are only allowed when engineering and work practice controls cannot maintain exposures at or below the PEL.
   (i) When required to maintain respirable Silica dust exposure levels at or below the PEL, respirators will be provided to those employees that are exposed to the respirable crystalline silica.

For construction Table 26-2 includes a list of common construction tasks along with exposure control methods and work practices that work well for those tasks and can be used to comply with the requirements of the standard.

26.2.5 Silica Dust Control Measures

Visible and Respirable Dust

Visible dust contains large particles that are easy to see. The tiny, respirable-sized particles (those that can get into the deep lung) containing silica pose the greatest hazard and are not visible. Most dust-generating construction activities produce a mixture of visible and respirable particles.

Do use visible dust as a general guide for improving dust suppression efforts. If you see visible dust being generated, emissions of respirable silica are probably too high. Measures that control tool-generated dust at the source usually reduce all types of particle emissions, including respirable particles.

Do not rely only on visible dust to assess the extent of the silica hazard. There may be airborne respirable dust present that is not visible to the naked eye.
Wet Cutting

Most stationary saws come equipped with a water basin that typically holds several gallons of water and a pump for recycling water for wet cutting. If a saw’s water supply system is not currently operating, the manufacturer may be able to supply the necessary accessories to reactivate wet cutting capability. Most suppliers stock these accessories since water cooling prolongs the life of the saw blade and tool. Wet cutting is the most effective method for controlling silica dust generated during sawing because it controls the exposure at its source. Dust that is wet is less able to become or remain airborne.

Maintenance. To minimize dust emissions from saws equipped for wet cutting, keep pumps, hoses and nozzles in excellent operating condition. Regular saw maintenance reduces silica exposures and ensures optimal operation of the equipment. Saws and dust control devices should be on a routine maintenance schedule.

Electrical Safety. Use ground-fault circuit interrupters (GFCIs) and watertight, sealable electrical connectors for electric tools and equipment on construction sites.

Vacuum Dust Collection Systems

When wet methods cannot be implemented, one alternative is the use of vacuum dust collection (VDC) systems. Stationary masonry saws with VDC systems are commercially available and have the ability to capture a substantial amount of dust. With these systems, a vacuum pulls dust from the cutting point through special fittings connected directly to the saw (fixed-blade saws) or, alternatively, through a dust collection device connected to the back of the saw (plunge-cut saws) (Croteau, 2000). A dust collector (exterior hood) mounted to the back of a saw requires a high exhaust airflow to ensure good dust capture between the saw blade and dust collector.

With any type of vacuum system, employee protection from respirable dust is only as good as the filter in the vacuum. The less efficient the filter, the more respirable dust will pass through with the vacuum exhaust air. Locating the vacuums far from employees as possible is one way to help limit exposure. For optimal dust collection, the following measures are recommended:

1. Keep the vacuum hose clear and free of debris, kinks and tight bends. Maintain the vacuum at peak performance to ensure adequate airflow through the dust collector and vacuum hoses.

2. On vacuums with manual back-pulse filter cleaning systems, activate the system frequently (several times per day). Empty collection bags and vacuums as frequently as necessary. Dispose of collected dust in a way that prevents it from becoming re-suspended in the air.

3. For best results, set up a regular schedule for filter cleaning and maintenance. For example, institute a rule to clean the filter or change the bag at each break. This will prevent pressure loss and ensure that exhaust airflow stays constant on the VDC system.

4. Remember, the absence of visible dust does not necessarily mean that employees are adequately protected from silica exposure.

Adjustments in work methods and equipment.

Adjustments in work methods and equipment, when possible, can lower exposure levels. For example, the use of jigs to increase the distance between the employee and the point of work can reduce exposure levels. Modifications in construction work methods for pouring, casting, finishing and installing concrete can reduce the amount of grinding required, which, in turn, can lower exposures.

Employee Positioning
Where possible, exposures can be reduced if employees work at a greater distance from the grinding point.

**Grinding Wheel Size**

Whenever possible, use a smaller rather than a larger wheel, and use the least aggressive tool that will do the job.

**Construction Work Methods**

Where practical, employers can reduce employees’ silica exposures by utilizing construction methods and techniques that minimize the amount of grinding required. Examples include:

1. taking steps to minimize pouring/casting flaws and defects by ensuring tighter fitting forms,
2. improved finishing, grinding on pre-cast panels outdoors before installation inside,
3. using factory installed chase and grooves on pre-cast structural concrete
4. grinding is done while the concrete is still “green”
5. use a hammer and chisel or power chipping equipment to remove most of the mass before using a grinder to smooth the surface.

The use of compressed air to clean surfaces or clothing is strongly discouraged. Using compressed air to clean work surfaces or clothing can significantly increase employee exposure, especially in enclosed and semi-enclosed spaces. Cleaning should be performed with a HEPA-filtered vacuum or by wet methods.

**26.2.6 Construction – Specified Exposure Control Methods**

Table 26-2 is a flexible compliance option that effectively protects workers from silica exposures. It identifies 18 common construction tasks that generate high exposures to respirable crystalline silica and for each task, specifies engineering controls, work practices, and respiratory protection that effectively protect workers. Employers who fully and properly implement the engineering controls, work practices, and respiratory protection specified for a task on Table 26-2 are not required to measure respirable crystalline silica exposures to verify that levels are at or below the PEL for workers engaged in the Table 26-2 task(s).

(1) Table 26-2 in the construction standard matches 18 tasks with effective dust control methods and, in some cases, respirator requirements.

(2) Employers that fully and properly implement controls on Table 26-2 do not have to:
   (i) Comply with the PEL
   (ii) Conduct exposure assessments for employees engaged in those tasks

<table>
<thead>
<tr>
<th>Equipment / Task</th>
<th>Engineering and Work Practice Control Methods</th>
<th>Required Respiratory Protection and Minimum APF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary masonry saws</td>
<td>Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>
## Table 26-2 Exposure Control Tasks and Protection

<table>
<thead>
<tr>
<th>Equipment / Task</th>
<th>Engineering and Work Practice Control Methods</th>
<th>Required Respiratory Protection and Minimum APF</th>
<th>≤ 4 hour/shift</th>
<th>&gt; 4 hour/shift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handheld power saws (any blade diameter)</td>
<td>Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturers’ instruction to minimize dust.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When used outdoors</td>
<td>None</td>
<td>APF 10</td>
<td>APF 10</td>
</tr>
<tr>
<td></td>
<td>• When used indoors or in an enclosed area</td>
<td>APF 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handheld power saws for fiber cement board</td>
<td>For tasks performed outdoors only:</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• Use saw equipped with commercially available dust collection system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</td>
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<tr>
<td></td>
<td>• Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When used outdoors</td>
<td>None</td>
<td>APF 10</td>
<td>APF 10</td>
</tr>
<tr>
<td></td>
<td>• When used indoors or in an enclosed area</td>
<td>APF 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk-behind saws</td>
<td>Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When used outdoors</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>• When used indoors or in an enclosed area</td>
<td>APF 10</td>
<td></td>
<td>APF 10</td>
</tr>
<tr>
<td>Drivable saws</td>
<td>For tasks performed outdoors only:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Use a HEPA-filtered vacuum when cleaning holes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When used outdoors</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>• When used indoors or in an enclosed area</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rig-mounted core saws or drills</td>
<td>Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use a HEPA-filtered vacuum when cleaning holes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When used outdoors</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>• When used indoors or in an enclosed area</td>
<td>None</td>
<td></td>
<td></td>
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</tbody>
</table>

For tasks performed outdoors only:
## Table 26-2 Exposure Control Tasks and Protection

<table>
<thead>
<tr>
<th>Equipment / Task</th>
<th>Engineering and Work Practice Control Methods</th>
<th>Required Respiratory Protection and Minimum APF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>≤ 4 hour/shift</td>
</tr>
</tbody>
</table>
| Dowel drilling rigs for concrete         | • Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism.  
• Use a HEPA-filtered vacuum when cleaning holes. | APF 10          | APF 10          |
| Vehicle-mounted drilling rigs for rock and concrete | Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.  
Operate from within an enclosed cab and use water for dust suppression on drill bit. | None            | None            |
| Jackhammers and handheld powered chipping tools | Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.  
• When used outdoors. | None            | None            |
|                                          | • When used indoors or in an enclosed area | APF 10          | APF 10          |
| Jackhammers and handheld powered chipping tools | Use tool equipped with commercially available shroud and dust collection system.  
Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.  
Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.  
• When used outdoors. | None            | None            |
|                                          | • When used indoors or in an enclosed area | APF 10          | APF 10          |
| Handheld grinders for mortar removal (i.e., tuck pointing) | Use grinder equipped with commercially available shroud and dust collection system.  
Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.  
Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.  
When used | APF 10          | APF 10          |
| Handheld grinders for other than mortar removal | For tasks performed outdoors only:  
• Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface.  
Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.  
When using water | None            | None            |
### Table 26-2 Exposure Control Tasks and Protection

<table>
<thead>
<tr>
<th>Equipment / Task</th>
<th>Engineering and Work Practice Control Methods</th>
<th>Required Respiratory Protection and Minimum APF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</td>
<td>≤ 4 hour/shift</td>
</tr>
<tr>
<td></td>
<td>• When used outdoors.</td>
<td>&gt; 4 hour/shift</td>
</tr>
<tr>
<td></td>
<td>• When used indoors or in an enclosed area.</td>
<td></td>
</tr>
<tr>
<td>Walk-behind milling machines and floor grinders</td>
<td>Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When using water</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Use machine equipped with dust collection system recommended by the manufacturer.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>When using vacuum</td>
<td>None</td>
</tr>
<tr>
<td>Small drivable milling machines (less than half-lane)</td>
<td>Use a machine equipped with supplemental water sprays designed to suppress dust.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water must be combined with a surfactant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operate and maintain machine to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Large drivable milling machines (half-lane and larger)</td>
<td>For cuts of any depth on asphalt only:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Operate and maintain machine to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• For cuts of four inches in depth or less on any substrate:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operate and maintain machine to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Use a machine equipped with supplemental water spray designed to suppress dust.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water must be combined with a surfactant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operate and maintain machine to minimize dust emissions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Crushing machines</td>
<td>Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers).</td>
<td></td>
</tr>
</tbody>
</table>
Table 26-2 Exposure Control Tasks and Protection

<table>
<thead>
<tr>
<th>Equipment / Task</th>
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<tbody>
<tr>
<td><strong>≤ 4 hour/shift</strong></td>
<td><strong>&gt; 4 hour/shift</strong></td>
<td></td>
</tr>
<tr>
<td>conveyers, sieves/sizing or vibrating components, and discharge points.</td>
<td>Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.</td>
<td></td>
</tr>
<tr>
<td><strong>Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials</strong></td>
<td>Operate equipment from within an enclosed cab.</td>
<td>None</td>
</tr>
<tr>
<td>When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: demolishing, abrading, or fracturing silica-containing materials</strong></td>
<td>Apply water and/or dust suppressants as necessary to minimize dust emissions.</td>
<td>None</td>
</tr>
<tr>
<td>When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

**NOTE 1:** When implementing the control measures specified in Table 1, each employer shall:

(i) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

(ii) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

(iii) For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

(A) Is maintained as free as practicable from settled dust;

(B) Has door seals and closing mechanisms that work properly;

(C) Has gaskets and seals that are in good condition and working properly;

(D) Is under positive pressure maintained through continuous delivery of fresh air;

(E) Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 μm range (e.g., MERV-16 or better); and

(F) Has heating and cooling capabilities.

**NOTE 2:** Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks...
Table 26-2 Exposure Control Tasks and Protection

<table>
<thead>
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</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 4 hour/shift</td>
</tr>
</tbody>
</table>

*On Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.*

Fully and Properly Implementing Controls Specified on Table 26-2. The presence of controls is not sufficient.

1. Employers are required to ensure that:
   i. Controls are present and maintained
   ii. Employees understand the proper use of those controls and use them accordingly

2. Employees Engaged in Table 26-2 Tasks
   i. Employees are “engaged in the task” when operating the listed equipment, assisting with the task, or have some responsibility for the completion of the task
   ii. Employees are not “engaged in the task” if they are only in the vicinity of a task

Respiratory Protection Requirements on Table 26-2

1. Respirators required where exposures above the PEL are likely to persist despite full and proper implementation of the specified engineering and work practice controls

2. Where respirators required, they must be used by all employees engaged in the task for the entire duration of the task

3. Provisions specify how to determine when respirators are required for an employee engaged in more than one task

Alternative Exposure Control Methods – Methods of Compliance - (Hierarchy of Controls)

Alternative exposure control methods. For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 26-2:

1. Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50 μg/m3, calculated as an 8-hour TWA.

2. Exposure assessment—
   i. General. The employer shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level in accordance with either the performance option in paragraph (d)(2)(ii) or the scheduled monitoring option in paragraph (d)(2)(iii) below of this section.

   ii. Performance option. The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

   iii. Scheduled monitoring option. (A) The employer shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.
(a) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(b) Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

(c) Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

(d) Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in paragraph (d)(2)(iv) of this section.

(3) Reassessment of exposures.
   (i) The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposures at or above the action level have occurred.

Abrasive Blasting

Adequate ventilation shall be provided

Medical Surveillance

For general industry, a medical surveillance program must be established for employees who are exposed to the action level of 8-hour TWA of 25μg/m³ of respirable crystalline silica.

A baseline medical assessment must be available to exposed employees within 30 days of initial assignment unless they have previously received a suitable medical examination in the past three years.

For construction, a medical surveillance program must be established for employees who would be required to wear a respirator more than 30 days per year due to the silica standard. A suitable prescreen that meets the same requirements is also acceptable.

Recordkeeping

Accurate records of all air monitoring data, objective data, and medical surveillance shall be maintained as required by the regulation.

Respiratory Protection

Refer to Chapter 9
## Appendix A – Safety Forms

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<th>Form Name</th>
</tr>
</thead>
<tbody>
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<td>B-01</td>
<td>Violation Notice</td>
</tr>
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<td>B-02</td>
<td>Daily Field Safety &amp; Health Report</td>
</tr>
<tr>
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<td>Subcontractor Verification Form</td>
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<td>Classification of Injury</td>
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<td>BMcD Incident Investigation for Burns &amp; McDonnell Employees</td>
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<td>Near Miss / Report Only Form</td>
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<td>Subcontractor Incident Investigation</td>
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<td>Weekly and Monthly Workhour Report</td>
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<td>Confined Space Hazard Assessment</td>
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</table>
## 27 - Appendix A - Safety Forms

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<tbody>
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<td><img src="image" alt="C 7 Work Permit.docx" /></td>
<td>C-07</td>
<td>Safe Work Permit</td>
</tr>
<tr>
<td><img src="image" alt="C 8 Orientation.docx" /></td>
<td>C-08</td>
<td>Project Orientation Training Record</td>
</tr>
<tr>
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<td>Certification of Training</td>
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<tr>
<td><img src="image" alt="C10 PreTask Analysis (PTA).doc" /></td>
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<td>Pre-Task Hazard Analysis</td>
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<td><img src="image" alt="C10 AE PTA.docx" /></td>
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<td>Pre-Task Hazard Analysis for Architects &amp; Engineers</td>
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<td>Pre-Task Hazard Analysis for Environmental Studies and Permitting - GP</td>
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<td>Pre-Task Hazard Analysis for Oil, Gas &amp; Chemical - GP</td>
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<td><img src="image" alt="C11A Weekly Work Area Action Items.doc" /></td>
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<td>Visitor Sign In Sheet</td>
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<td>Concrete and Anchor Bolt Release</td>
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<td>Approval to begin Steel Erection</td>
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<td>Silica Dust Exposure Control Plan</td>
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Exhibit E – Lien Waiver Forms
FLORIDA WAIVER AND RELEASE OF LIEN UPON PROGRESS PAYMENT

WAIVER NO. _______  JOB NO. ________

Project: _____________________________________________________________________________

Property Location: ___________________________________________________________

CONTRACTOR: Burns & McDonnell Engineering Company, Inc.

Subcontract No. ____________ Invoice/Pay Application No. _____________

Payment Amount: $_________________ Payment Period: _____________________________

STATE OF ____________________)    SUBCONTRACTOR: _________________________________
   ) SS
COUNTY OF __________________ )    SCOPE/TRADE:_____________________________________

I, _______________________________
(Name of Officer)

, after being duly sworn upon my oath, state that
I am the _______________________
(Title of Officer) of the above-named SUBCONTRACTOR and I am
personally familiar with all the facts stated herein related to the Property and know them to be true:

1. The undersigned lienor, in consideration of the final payment in the amount of $______________,
   hereby waives and releases its lien and right to claim a lien for labor, services, or materials
   furnished to Burns & McDonnell Engineering Company, Inc. on the job of
   ____________________________ (insert the name of the owner) to the
   following described property:
   (description of property)

2. The undersigned further represents that Page 2 of this Waiver is a true and accurate listing of the
   undersigned's laborers, subcontractors, materialmen, and suppliers for all labor, services, or
   materials that are the subject of this waiver and release, and who will be paid pursuant to the
   preceding paragraph.

3. This waiver and release does not cover any retention or labor, services, or materials furnished
   after the date specified.

Dated: ______________________

SUBCONTRACTOR: (Company Name)

________________________________________
By: _____________________________________

Printed Name: ____________________________

Its (Title): _______________________________  Sworn to me and subscribed in my presence this

_____ day of ____________, 20___.

Signature of Notary for State of ______________:

________________________________________
My Commission Expires: ____________________
<table>
<thead>
<tr>
<th>Subcontractor/Supplier</th>
<th>Contact</th>
<th>Phone No.</th>
<th>P.O. Subcontract No.</th>
<th>Total Invoices To Date</th>
<th>Total P.O. To Date</th>
<th>Balance Due</th>
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**SUBCONTRACTOR** ________________________________  **Signature of Officer** ____________________  **Title** ____________________  **Date** ________________
FLORIDA WAIVER AND RELEASE OF LIEN UPON FINAL PAYMENT

WAIVER NO. ______  JOB NO. ______

Project: ________________________________________________________________________________

CONTRACTOR:  Burns & McDonnell Engineering Company, Inc.

Subcontract No. ____________  Invoice/Pay Application No. _____________

Payment Amount: $_________________  Payment Period: _____________________________

STATE OF ____________________)    SUBCONTRACTOR: _________________________________
COUNTY OF ____________________)    SCOPE/TRADE: _________________________________

I, _______________________________ (Name of Officer), after being duly sworn upon my oath, state that
I am the ______________________ (Title of Officer) of the above-named SUBCONTRACTOR and I am
personally familiar with all the facts stated herein related to the Property and know them to be true:

1. The undersigned lienor, in consideration of the final payment in the amount of $______________,
hereby waives and releases its lien and right to claim a lien for labor, services, or materials
furnished to Burns & McDonnell Engineering Company, Inc. on the job of ____________________
(insert the name of the owner) to the
following described property:
(description of property)

2. The undersigned further represents that Page 2 of this Waiver is a true and accurate listing of the
undersigned’s laborers, subcontractors, materialmen, and suppliers for all work, materials,
equipment, or combination of work, materials, and equipment that are the subject of this waiver
and release, and who will be paid pursuant to the preceding paragraph.

Dated: _______________________

SUBCONTRACTOR: (Company Name)  Sworn to and subscribed before me this _______ day
________________________________________  of ________________________, 20____.

By: ___________________________________
(Signature)

Printed Name: __________________________

Its (Title):

By: ___________________________________
(Signature)

Notary Public

My Commission Expires: ____________________
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<tr>
<th>Subcontractor/Supplier</th>
<th>Contact</th>
<th>Phone No.</th>
<th>P.O. Subcontract No.</th>
<th>Total Invoices To Date</th>
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SUBCONTRACTOR ______________________________ Signature of Officer ______________________ Title ___________ Date ___________
FLORIDA CONTRACTOR’S FINAL PAYMENT AFFIDAVIT

STATE OF FLORIDA
) SS
COUNTY OF ________________

Before me, the undersigned authority, personally appeared _______________________ (name of affiant), who, after being first duly sworn, deposes and says of his or her personal knowledge the following:

1. He or she is the __________ (title of affiant), of Burns & McDonnell Engineering Company, Inc. (name of contractor's business), which does business in the State of Florida, hereinafter referred to as the “Contractor.”

2. Contractor, pursuant to a contract with ___________________________(name of owner), hereinafter referred to as the “Owner,” has furnished or caused to be furnished labor, materials, and services for the construction of certain improvements to real property as more particularly set forth in said contract.

3. This affidavit is executed by the Contractor in accordance with section 713.06 of the Florida Statutes for the purposes of obtaining final payment from the Owner in the amount of $_________.

4. All work to be performed under the contract has been fully completed, and all lienors under the direct contract have been paid in full, except the following listed lienors:

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<tr>
<th>NAME OF LIENOR</th>
<th>AMOUNT DUE</th>
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Signed, sealed, and delivered this ____ day of ________, 20__.  

Contractor: Burns & McDonnell Engineering Company, Inc.

By: _________________________________

_________________________________
(name of affiant)

_________________________________
(title of affiant)

Sworn to and subscribed before me this ____ day of ________, 20__ by _________________________ (name of affiant), who is personally known to me or produced___________ as identification, and did take an oath.

_______________________________
Notary
(name of notary public)

My Commission Expires: _____________
(date of expiration of commission)
MEMORANDUM

TO: Mayor and City Council

FROM: Michael Staffopoulos, City Manager

SUBJECT: Resolution Number 2048-2020, Establishing and Adopting a Code of Ethics for Public Officials

DATE: January 22, 2020

ACTION REQUESTED

Adopt Resolution Number 2048-2020, establishing and adopting a Code of Ethics for Public Officials for the City of Jacksonville Beach. This resolution has no financial impact to the City of Jacksonville Beach.

BACKGROUND

In 2019, City Council indicated they would like a Code of Ethics to provide guidance on behavior for each elected official, board appointee, and appointed official within the City. In September 2019, a discussion of a draft document was held at a Council briefing. Council was content with the document, with discussion ensuing on authority for interpretations of the Code. Council direction to staff was to edit the document such that the City Attorney’s written findings on individual issues would be binding on the Council.

Since that direction, the City has hired a full-time, in-house City Attorney. Upon review of the document, and considering direction from Council from the September briefing, additional modifications to specific sections have been made to the Code by the City Attorney and City Manager, including:

- E. Public Meetings - add arriving late to scheduled meetings and briefings
- G. Communication – address quasi-judicial proceedings
- S. Notice from Council – add to the document
- T. City Attorney to Render Opinion – modified based on City Attorney review; binding nature of the City Attorney’s findings reduced to opinion
- U. Florida Statutes – modified based on City Attorney review; incorporation of Florida Commission on Ethics and ancillary documents
Memorandum
Resolution Number 2048-2020
January 22, 2020

Adoption of this Resolution would result in the City of Jacksonville Beach having a new Code of Ethics that affects public officials (elected officials, board appointees, and appointed positions). Upon adoption, staff will distribute the document to all affected parties, and forward to the City Clerk for incorporation into the Legislative Policies Manual (currently under development).

This item was deferred at the January 21, 2020 Council Meeting. The purpose of deferral was for staff to incorporate changes clarifying that all public officials referenced in this Code have the ability to bring potential conflicts to which they become materially aware forward for evaluation, investigation, and possible action. As such, staff has modified Sections R. and S. of the Code of Ethics accordingly.

RECOMMENDATION

Adopt Resolution Number 2048-2020, establishing and adopting a Code of Ethics for Public Officials for the City of Jacksonville Beach.
RESOLUTION NO. 2048-2020

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, ESTABLISHING AND ADOPTING A CODE OF ETHICS FOR PUBLIC OFFICIALS; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES, RESOLUTIONS AND OFFICIAL DECISIONS, AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City of Jacksonville Beach is committed to accountable and responsible governance, personal integrity, and the highest standards of ethical conduct from its public officials in performance of their official public duties; and

WHEREAS, Federal and Florida laws and the Florida Commission on Ethics provide mandatory laws, regulations and guidance for public officials in carrying out their public responsibilities and to maintain public trust and integrity in local government; and

WHEREAS, the Code of Ethics for Public Officers and Employees, Part III of Chapter 112, Florida Statutes, contains standards of ethical conduct and disclosures applicable to public officers and employees, among others, in local government; and

WHEREAS, it is the intention of the City Council for the City of Jacksonville Beach that all public officials, including elected officials, appointed officials and members of boards, commissions, and committees perform their duties in compliance with all requirements of Florida laws, the City Charter and a City Code of Ethics for Public Officials; and

WHEREAS, the City Council expects all City public officials to comply with all ethics laws, and it recognizes the value and importance of adopting a City Code of Ethics to provide additional guidelines, expectations and requirements for all public officials serving the City that will benefit public trust, City staff and City residents, taxpayers, and businesses.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF JACKSONVILLE BEACH, FLORIDA:

SECTION 1. The foregoing recitals are hereby fully incorporated herein by this reference and are deemed a material part of this Resolution.

SECTION 2. That the City of Jacksonville Beach hereby adopts and immediately implements its City Code of Ethics for Public Officials as it is presented in Attachment A to this Resolution and as it may be revised and amended by the City Council from time to time in the future.
SECTION 3. All ordinances, resolutions, official determinations or parts thereof previously adopted or entered by the City or any of its officials and in conflict with this Resolution are repealed to the extent of conflict or inconsistency herewith.

SECTION 4. This Resolution and the Code of Ethics for Public Officials shall take effect immediately upon its adoption.

AUTHENTICATED this ________ day of ______________________, 2020.

__________________________________________
William C. Latham, Mayor

__________________________________________
Laurie Scott, City Clerk
CODE OF ETHICS for PUBLIC OFFICIALS
(City Council, Appointed Officials, Boards, Commissions, Committees)

DECLARATION OF POLICY

It is the policy of the City of Jacksonville Beach to uphold, promote, and demand ethical conduct from its elected and appointed public officials. The citizens and businesses of the City of Jacksonville Beach are entitled to have fair, ethical, and accountable local government. As members of the City Council, we recognize the importance of codifying and making known to the general public the ethical principles and law that guide the work of public officials. Public officials are to maintain the highest standards of personal integrity, truthfulness, and fairness in carrying out their public duties.

In order to fulfill this mission, the City of Jacksonville Beach hereby adopts a Code of Ethics for public officials to assure public confidence in the integrity of local government and its effective and fair operation. The Code of Ethics expresses standards of ethical conduct expected for all public officials, including elected officials (City Council), appointed officials (City Manager and City Attorney), and members of boards, commissions, and committees. Public officials themselves have the primary responsibility to assure that ethical standards are understood and met, and that the public can continue to have full confidence in the integrity of government.

APPLICABLE LAWS AND POLICIES

A. Responsibility of Public Office
   Stewardship of the public interest shall be the public official’s primary concern, working for the common good of the citizens of the City of Jacksonville Beach, and avoiding actions that are inconsistent with the best interests of the City. All persons, claims, and transactions coming before the City Council or any City board, commission, or committee, shall be assured of fair and equal treatment.

B. Compliance with Law
   Public officials are agents of public purpose and hold office for the benefit of the public. They are bound to uphold the laws of the nation, state, county, and municipality, and to carry out impartially these laws in the performance of their public duties to foster respect for all government. These laws include, but are not limited to, the United States and Florida Constitutions, Florida statutes and City ordinances.

C. Conduct of Officials
   The professional and personal conduct of public officials shall be above reproach and avoid even the appearance of impropriety. Public officials shall refrain from abusive conduct, personal charges or verbal attacks upon the character or motives of other members of Council, boards, commissions, committees, City staff, or the public.

D. Performance of Duties
   1. Public officials shall perform their duties in accordance with the processes and rules of order established by the City Council, boards, commissions, and committees, governing the deliberation of public policy issues, meaningful
involvement of the public, and implementation of policy decisions of the City Council by City staff.

2. Public officials shall be loyal to the political objectives expressed by the electorate and the programs developed to attain those objectives.

3. Public officials shall not undertake actions or communications that subvert an action formally taken by City Council.

E. Public Meetings
Public officials shall prepare themselves for all meetings, both public and shade. Officials shall listen courteously and attentively to all public discussion before the body, and focus on the business at hand. Officials shall refrain from:

- interrupting other speakers
- making personal comments not germane to the business of the body
- taking or making phone calls
- reading or sending texts
- participating in any other actions that would interfere with the orderly conduct of meetings
- using inappropriate language
- arriving late to scheduled meetings and briefings

F. Decisions Based on Merit and Evidence
Public officials shall base their decisions on the merits and substance of the matter at hand, and on competent and substantial evidence when performing in a quasi-judicial capacity.

G. Communication
Public officials shall publicly share with the body substantive information that is relevant to a matter under consideration by the Council or boards, commissions, and committees, which they may have received from sources outside the public decision-making process. In the context of quasi-judicial proceedings, before final action or vote are taken on the matter, the public official must disclose any ex-parte communication he or she received, identifying the party and the substance of the subject matter that was communicated. Any written form of ex-parte communication must be made a part of the record before final action or vote is taken.

H. Conflict of Interest
1. In order to assure independence and impartiality on behalf of the common good, public officials shall not use their official positions to influence government decisions in which they have a material financial interest or personal relationship, which may give the appearance of a conflict of interest. In accordance with law, officials shall disclose investments, interests in real property, sources of income
and gifts, and shall abstain from participating in deliberations and decision-making where conflicts may exist.

2. Public officials shall not engage in or accept private employment or render service for private interests when such employment or service:
   a. is incompatible with the proper discharge of his/her official duties;
   b. impairs independence of judgment or action in the performance of official duties;
   c. is contrary to the interests of the City.

3. Public officials should avoid action or speech, whether or not specifically prohibited, which might result in or create the appearance of:
   a. using public office for private gain;
   b. offering preferential treatment to any person;
   c. impeding City efficiency or economy;
   d. being contrary to the interests of the City;
   e. losing complete independence or impartiality;
   f. making a City decision outside of official channels;
   g. degrading public confidence in the integrity of the City.

I. Gifts, Gratuities, and Favors
   Public officials shall comply with the requirements of Section 112.3148, Florida Statutes, relating to the acceptance and reporting of gifts, gratuities, and favors.

J. Confidentiality of Information
   Public officials shall not disclose or furnish to anyone any information concerning City property, personnel, litigation, or proceedings of the City, other than public information or with legal authorization that was obtained as a result of their positions with the City. This shall not be construed to limit, hinder, or prevent the divulgence or use of information in the performance of official duties, but shall prohibit the use of or providing information that would place the official or the recipient in a vantage position over the general public and thereby constitute a violation of public trust. Confidential information shall include, but not be limited to, any written information which is not subject to disclosure pursuant to Chapter 119, Florida Statutes, or any other statutory exemption regarding public records or any oral information which was not discussed at a public meeting.

K. Use of Public Resources
   1. Unless specifically permitted by City policy, the use of City facilities, equipment, vehicles, supplies, on-duty personnel, or other goods or services is limited to City business. Public resources may not be used for private gain or personal purposes except on the same basis that they are otherwise normally available to the public. Normal rental or usage fees may not be waived except in accordance with City policy.
   2. A public official may use the City's name, letterhead, logo, or seal only when it would be perceived as representing the City of Jacksonville Beach or the body as a whole and only with the prior consent of Council. However, this provision will not prohibit individual councilmembers from using City letterhead and resources to write personal congratulatory letters. Letters of recommendations, references,
endorsements, and such, may be written by councilmembers on City letterhead, with a copy being provided to each councilmember.

3. A public official shall not utilize the City's name, letterhead, logo, or seal for the purpose of endorsing any political candidate, business, commercial product, or service.

L. Representative of Private Interests
As stewards of the public interest, members of the City Council shall not appear on behalf of the private interests of third parties before the Council or any board, commission, committee, or proceeding of the City. Public officials of boards, commissions, and committees shall not appear before their own bodies or before the City Council on behalf of the private interest of third parties on matters related to the areas of service of their bodies.

M. Advocacy
Public officials shall represent the official policies or positions of the City Council, board, commission, or committee to the best of their abilities when designated as delegates for this purpose. When presenting their individual opinions and positions, officials shall explicitly state that they do not represent their body or the City of Jacksonville Beach, nor give the inference that they do.

N. Policy Role of Members
Public officials shall respect and adhere to the Council-Manager form of government as outlined in the City Charter and Council’s Policies and Procedures with respect to the City Manager’s relationship with the City Council. In this structure, the City Council determines the policies of the City with advice, information, and analysis provided by the public, boards, commissions, committees, and City staff. Except as provided by City Charter or ordinance, councilmembers shall not interfere with the administrative functions of the City or the professional duties of City staff, or impair the ability of staff to implement Council policy decisions.

O. Independence of Boards, Commissions, and Committees
The value of independent advice and recommendations of boards, commissions, and committees to the public decision-making process is of such significance, that members of Council shall refrain from using their position to influence unduly the deliberations or outcome of board, commission, and committee proceedings.

P. Harassment
The City strongly disapproves of and does not tolerate harassment of any kind. Public officials shall avoid offensive or inappropriate harassing behavior. Complaints of harassment will be promptly and carefully investigated in accordance with the City’s applicable Workplace Violence and Sexual Harassment policies.

Q. Positive Work Place Environment
Public officials shall support the maintenance of a positive and constructive work place environment for City employees and for citizens and businesses dealing with the City.
Officials shall recognize their roles in dealings with City employees (as established by Charter) and refrain from creating the perception of inappropriate direction to staff.

1. Officials, acting as a resident of the City and requiring contact with City employees, shall do so in a positive, professional and courteous manner in accordance with this code.

2. Officials, acting on behalf of their employment and requiring contact with City employees, shall first contact the City Manager to determine acceptability and/or conditions of such contact. In the event contact will be frequent or routine, appropriate guidelines may be established by the City Manager so as not to hinder the Official's performance of their employment.

3. Officials, acting as a member or representative for a non-profit civic organization or group and requesting contact with City employees, shall first contact the City Manager to determine acceptability and/or conditions of such contact.

4. Officials seeking to volunteer within the City organization shall recognize that this is a privilege, and first seek authorization from the City Manager. If acceptable, the City Manager may approve a request, identifying department, division and frequency for volunteer activities. Communication with staff while volunteering shall adhere to the context and intent of this code and City Charter. The City Manager, in his/her sole discretion, reserves the right to cancel an Official's volunteer privilege at any time.

R. Notice to Council
Should any public official become aware of potential conflicts with this Code, the public official shall notify either elected or appointed officials. In the event elected officials are notified, procedures in Section S. shall govern. In the event appointed officials are notified (City Attorney and/or City Manager), a written document shall be prepared by either or both detailing the facts of the potential conflict, and shall publish such document for the consideration of the City Council. Upon direction from the City Council, the City Attorney and City Manager shall fully investigate the potential conflict, and the City Attorney shall produce a written report of the investigation with any additional information. The written report shall then be provided to the City Council for consideration at a public hearing.

S. Notice from Council
Should any City Council member become aware of potential conflict with this Code, the Council member shall prepare a written document detailing the facts of the potential conflict, and provide such document for the consideration of the City Council. Upon direction from the City Council, the City Attorney and City Manager shall fully investigate the potential conflict, and the City Attorney shall produce a written report of the investigation with any additional information. The written report shall then be provided to the City Council for consideration at a public hearing.

T. City Attorney to Render Opinion
Whenever any public official, subject to this policy, is in doubt as to the proper interpretation or application of this Code of Ethics policy prior to a potential conflict occurring, that official may submit to the City Attorney a full written statement of the facts and questions. The City Attorney shall then render a written opinion that addresses the potential conflict to all officials without use of the name of the official advised. If material
facts relating to the potential conflict change then the public official must promptly notify the City Attorney of any changes.

U. FLORIDA STATUTES (CHAPTER 112, PART III)
   1. Chapter 112, Part III, Florida Statutes, Code of Ethics for Public Officers and Employees, prescribes appropriate standards of ethical conduct for employees and elected and appointed officials, as well as reporting and investigative procedures in response to prohibited actions. The City of Jacksonville Beach Code of Ethics is to be used as a supplement to the statutes. Should any conflicts exist between the codes, the more stringent language of the two shall prevail. Public officials are encouraged to read the most recent version of the Florida Commission on Ethics Guide to the Sunshine Amendment and Code of Ethics for Public Officers and Employees.
   2. Public officials required to file an annual financial disclosure form, submitted in accordance with Section 112, Florida Statutes, shall file a copy with the Office of the City Clerk, using the forms prescribed by the Commission on Ethics.

V. IMPLEMENTATION
   1. The Code of Ethics for the public officials of the City of Jacksonville Beach is intended to be self-enforcing. Interpretation and enforcement of this Code lies solely with the City Council. It therefore becomes most effective when officials are thoroughly familiar with it and embraces its provisions. For this reason, ethical standards shall be included in the regular orientation for candidates for the City Council, newly elected officials, and appointed members of boards, commissions, and committees, as held.
   2. Officials entering office will receive a statement certifying they have read and understand the City of Jacksonville Beach Code of Ethics. Signing the statement is optional. All public officials are subject to the provisions of the Code of Ethics whether or not the statement is signed.
   3. The Code of Ethics shall be reviewed annually by the City Council, boards, commissions, and committees. Recommendations received from the review shall
be considered by the City Council. The Code of Ethics shall be updated, as necessary, in November of even-numbered years.

W. PENALTIES
1. Code violations by Boards, Commissions, and Committees may result in the following penalties:
   a. verbal reprimand, issued orally in open session;
   b. written reprimand;
   c. suspension in the form of a temporary cessation of duties;
   d. forfeiture of appointment or position.
2. Code violations by Appointed Officials and Council members may result in the following penalties:
   a. verbal reprimand, issued orally in open session;
   b. written reprimand;
   c. suspension or removal from any appointed boards or committees
3. The authority and process for removal of an Appointed Official shall be reserved for the City Charter and/or employment agreement.
4. The authority and process for removal of a seated Council member shall be reserved for the City Charter.

Adopted: February 3, 2020
Revised: NA
MEMORANDUM

TO:       Mike Staffopoulos, City Manager
FROM:     Heather Ireland, Senior Planner

SUBJECT:  2nd Reading, Ordinance No. 2020-8131, to amend Sections 34-41 and 34-392 of the Jacksonville Beach Land Development Code related to permitting hens as household pets.

DATE:     January 27, 2020

ACTION REQUESTED

Adopt Ordinance No. 2020-8131, to amend Section 34-41 and 34-392 of the Jacksonville Beach Land Development Code (LDC) related to permitting hens as household pets.

BACKGROUND

Following a complaint to both the City’s animal control and code enforcement officers regarding the keeping of chickens and other animals on a residential lot, the property owner approached Planning and Development Department staff to inquire about identified conflicts in the City’s codes and to discuss a possible resolution. Currently, the LDC exists partly in conflict with Chapter 5 of the City Code of Ordinances that addresses “Animals and Fowl”.

Residential zoning districts permit doghouses and similar structures for housing household pets. Under Article IV. Definitions in the LDC, household pets include dogs, cats, hamsters, and birds, but specifically excludes poultry. So while the “Animals and Fowl” section of Chapter 5 of the City Code may not prohibit certain livestock animals, the LDC prohibits residents from providing the required housing or pens for them based on the LDC definition of what is currently considered a household pet.

The proposed LDC text amendments were originally presented to the Planning Commission on May 28, 2019. Following several discussions between the applicant, staff and the City’s attorney, the application was deferred and considered at the September 23, 2019 Planning Commission meeting.
Memorandum
Ordinance No. 2020-8131, 2nd Reading
January 27, 2020

After additional review and discussion, it was determined that while, at minimum, the definition of household pets in the LDC should be amended to permit hens, the bulk of the code changes proposed would be more appropriately placed under Code of Ordinances, Chapter 5 — “Animals and Fowl”. Since Chapter 5 is not part of the LDC, it cannot be changed through the Planning Commission. The proposed regulations for permitting hens and changes to Chapter 5 are provided separately under Ordinance No. 2020-8132 and submitted for first reading on the Council’s January 21, 2020 agenda.

The final proposed changes to amend Sections 34-41 and 34-392 of the LDC in Ordinance No. 2020-8131 include the following:

1. Amend the definition of household pets to include hens.

2. Limit the number of hens per household to five (5).

The Planning Commission met and conducted a public hearing on Monday, September 23, 2019 and voted to recommend denial of the proposed LDC text amendments by the City Council based on some concerns about the potential for diseases and decreased property values.

The City Council subsequently met on Tuesday January 21, 2020 to consider the proposed amendments. Following an advertised Public Hearing on Ordinance No. 2020-8131, the City Council voted to approve the ordinance on its first reading and voted to approve the companion Ordinance No. 2020-8132.

RECOMMENDATION

Adopt Ordinance No. 2020-8131, to amend Sections 34-41 and 34-392 of the Jacksonville Beach Land Development Code related to permitting hens as household pets.
ORDINANCE NO. 2020-8131

AN ORDINANCE AMENDING CHAPTER 34, ARTICLE IV, SECTION 34-41 AND ARTICLE VIII, DIVISION 2, SECTION 34-392 OF THE LAND DEVELOPMENT CODE OF ORDINANCES OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, AMENDING THE DEFINITION OF HOUSEHOLD PETS TO INCLUDE FEMALE CHICKENS, AND AMENDING THE SITE DEVELOPMENT STANDARDS ACCESSORY USES AND STRUCTURES TO PERMIT FEMALE CHICKENS IN RESIDENTIAL ZONING DISTRICTS, ADDING CATS, DOGS, HAMSTERS AND BIRDS AS EXAMPLE HOUSEHOLD PETS; PROVIDING FOR THE REPEAL OF ALL ORDINANCES AND OFFICIAL ACTS IN CONFLICT WITH THIS ORDINANCE; PROVIDING FOR SEVERABILITY; PROVIDING FOR CODIFICATION; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City of Jacksonville Beach has the authority to adopt this Ordinance pursuant to Article VIII of the Constitution of the State of Florida; and Chapters 163 & 166, Florida Statutes; and

WHEREAS, many communities in Florida and throughout the United States have implemented regulations regarding the permitting and keeping of backyard female chickens (hens) in urban settings; and

WHEREAS, residents of the City of Jacksonville Beach living in residentially zoned areas that are not currently permitted to keep hens have indicated a desire to do so; and

WHEREAS, the City Council has considered the application, all relevant support materials, the staff report, the recommendation of the Planning Commission, and public testimony given at the public hearings concerning the keeping of hens as household pets where permitted upon lands in the City.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY OF JACKSONVILLE BEACH, FLORIDA:

SECTION 1. RECITALS. The above recitals are ratified and confirmed as being true and correct and are made a part of this Ordinance and adopted as legislative findings.

SECTION 2. AMENDMENT TO THE CITY LDC1. That Article IV. Section 34-41. Definitions of the Land Development Code is hereby amended as follows:

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1 (strikethrough text indicates deletions, underline text indicates additions).

Ordinance No. 2020-8131
Pets, household means any domestic animal such as cats, dogs, hamsters, and birds, and hens other than poultry that are customarily kept for personal use including collection of eggs and/or enjoyment within the home or residential lot. Other poultry, hoofed animals of any type, predatory animals, or any animal which is normally raised to provide feed for slaughter or commercial sale for people shall not be considered as household pets.

SECTION 3. AMENDMENT TO THE CITY LDC. That Article VIII. Site Development Standards. Division 2. Supplemental Standards. Section 34-392. Accessory uses and structures of the Land Development Code is hereby amended as follows:

(2) Household pets. Household pets, like cats, dogs, hamsters, or birds, along with related doghouses and pens, are a permitted accessory use to residential uses in all zoning districts, provided the number of such pets over six (6) months in age shall not exceed three (3), and the keeping of four (4) or more dogs, six (6) months of age or older, shall be considered a kennel. Hens as household pets are limited to five (5) where permitted upon lands in the City.

SECTION 4. SEVERABILITY. That if any section, subsection, clause or provision of this ordinance is held invalid, the remainder shall not be affected by such invalidity.

SECTION 5. CONFLICTING ORDINANCES AND ACTS. All ordinances, resolutions, official determinations or parts thereof previously adopted or entered into by the City or any of its officials and that are in conflict with this ordinance are repealed to the extent inconsistent herewith.

SECTION 6. EFFECTIVE DATE. That this ordinance shall take effect upon its adoption by the City Council.


______________________________
William C. Latham, Mayor

______________________________
Laurie Scott, City Clerk

Ordinance No. 2020-8131
MEMORANDUM

TO: Mike Staffopoulos, City Manager

FROM: Heather Ireland, Senior Planner

SUBJECT: 2nd Reading, Ordinance No. 2020-8132, to amend Chapter 5. Animals and Fowl of the City Code of Ordinances related to regulating the keeping of hens as household pets on residential property.

DATE: January 27, 2020

ACTION REQUESTED

Adopt Ordinance No. 2020-8132, to amend Chapter 5. Animals and Fowl of the City Code of Ordinances creating a new subsection related to regulating the keeping of hens as household pets on residential property.

BACKGROUND

As it relates to Ordinance Number 2020-8131 to amend the Land Development Code (LDC) to add hens to the definition of a household pet, specific regulations for keeping hens are being proposed as an addition to Chapter 5. Animals and Fowl. While the Animals and Fowl section of Chapter 5 of the City Code of Ordinances does not specifically prohibit hens, it currently does not provide detailed regulations for keeping them on properties within the city.

The proposed additions to Chapter 5. Animals and Fowl have been drafted to be similar in substance to the regulations of Neptune and Atlantic Beach that have both recently permitted hens on residential properties with an issued permit.

The proposed additions to Chapter 5. Animals and Fowl include the following:

1. Definitions of "coop", "enclosed pen" and "hen";

2. Requirements related to the keeping of hens;

3. Regulations on enclosed pen and coop sizes and construction;
Memorandum
Ordinance No. 2020-8132, 2nd Reading
January 27, 2020

4. Permit details and cost, including a requirement to complete the Duval County Backyard Poultry Seminar;

5. Details on where hens will be permitted; and


If approved, city staff will develop an application for residential hen permits beginning on an effective date provided by city council.

The City Council subsequently met on Tuesday January 21, 2020 to consider the proposed amendments. Following an advertised Public Hearing on Ordinance No. 2020-8132, the City Council voted to approve the ordinance on its first reading and voted to approve the companion Ordinance No. 2020-8131.

RECOMMENDATION

Adopt Ordinance No. 2020-8132, to amend Chapter 5. Animals and Fowl of the City Code of Ordinances creating a new subsection related to regulating the keeping of hens as household pets on residential property.
ORDINANCE NO. 2020-8132

AN ORDINANCE OF THE CITY OF JACKSONVILLE BEACH, FLORIDA AMENDING CHAPTER 5, ANIMALS AND FOWL, ADDING ARTICLE IV. BACKYARD HENS, PROVIDING PURPOSE AND INTENT; PROVIDING DEFINITIONS; PROVIDING FOR GENERAL REQUIREMENTS; REQUIRING PERMITS; PROVIDING FOR PERMITTED ZONING LOCATIONS; PROVIDING FOR ENFORCEMENT; PROVIDING FOR SEVERABILITY; PROVIDING FOR REPEAL OF CONFLICTING ORDINANCES; AND PROVIDING FOR AN EFFECTIVE DATE:

WHEREAS, Article VIII, Section 2 of the Florida Constitution provides that municipalities shall have governmental, corporate and proprietary powers to enable municipalities to conduct municipal government, perform municipal functions and render municipal services; and

WHEREAS, pursuant to the referenced provision of the Florida Constitution, the City of Jacksonville Beach may exercise any power for municipal purposes except as otherwise provided by law; and

WHEREAS, the importance of sustainability and local food sourcing has inspired an interest in backyard and community food production within the City limits; and

WHEREAS, many communities in Florida and throughout the United States have been exploring and implementing programs to integrate the keeping of backyard hens into urban and suburban residential settings; and

WHEREAS, chickens are social animals and can make good pets but should be limited for proper integration and reduction of potential nuisance to surrounding residential homes; and

WHEREAS, data indicates that five (5) hens are sufficient to meet the needs of the average family’s egg consumption; and

WHEREAS, residents of the City residing in residential zones have indicated a desire to provide for the raising and keeping of backyard hens and seeking proper regulation thereof; and

WHEREAS, the City Council of the City of Jacksonville Beach finds the proposed ordinance will serve to protect the health and safety of residents, adjacent residential uses, and the general neighborhood.
NOW, THEREFORE, BE IT ORDAINED BY THE CITY OF JACKSONVILLE BEACH, FLORIDA:

SECTION 1. Recitals. The above recitals are ratified and confirmed as being true and correct and are made a part of this Ordinance and adopted as legislative findings.

SECTION 2. Amendment of City Code. That Chapter 5, Article IV is hereby created to read as follows:

Section 5-80. Purpose and intent.

(a) The purpose of this Article is to authorize and regulate the keeping of backyard hens in specified residential zones under specified criteria within the City of Jacksonville Beach. To establish the criteria and limitations so as to avoid adverse impacts on neighboring properties and residents and to provide for the safety and health of hens. Nothing herein shall supersede any effective, recorded deed restriction prohibiting backyard hens on property located within the City.

Section 5-81. Definitions.

(a) Coop shall mean a structure with nesting boxes where hens can lay eggs and perches where hens can sleep, with a roof.

(b) Enclosed pen shall mean a fenced or wire enclosure used to contain female hens.

(c) Hen shall mean a female chicken of the species gallus domesticus.

Section 5-82. General requirements, improvements, and prohibitions.

(a) The maximum number of hens permitted on any property shall be five (5).

(b) All food for hens shall be stored in rodent and predator proof containers.

(c) Hens shall not be permitted to trespass on neighboring properties, be released or set free and shall be kept within an enclosed pen according to the requirements of this Article at all times.

(d) Hens shall not be kept on any property without a properly issued permit authorizing such use.

_____________________

1 (strike-through text indicates deletions, underline text indicates additions).

Ordinance No. 2020-8132
(e) Coops and enclosed pens shall be kept clean and sanitary at all times so that they do not become a nuisance due to odor, noise, pests or other nuisance condition.

(f) Hens shall be kept for personal use only. The selling of hens, eggs or manure, as well as breeding of chickens for commercial purposes is prohibited.

(g) Hens shall not be slaughtered within the City.

(h) Hens that are no longer wanted by their owners shall not be abandoned, released into the wild, or taken to the City’s Animal Control.

(i) If a public health emergency is declared by the Duval County Health Department related to hens, the permit holder shall comply with any requirements including, but not limited to, the removal of hens from the property.

(j) Under no circumstances shall ducks, geese, turkeys, peafowl, pheasants, quail, peacocks, male chickens or any other poultry or fowl other than hens be kept on any property.

(k) The following improvements are required at the time of application and permit issuance and throughout the duration of an active permit to keep hens on a property:

1. An enclosed pen that is:
   a. At least ten (10) square feet per hen; and
   b. Well drained so that there is no moisture accumulation.

2. A coop that is:
   a. At least three (3) square feet per hen;
   b. Covered and ventilated to allow for a wholesome exchange of air; and
   c. Attached to or within an enclosed pen that allows for free movement between the coop and enclosed pen.

3. Coops and enclosed pens shall:
   a. Not exceed six (6) feet in height;
   b. Not exceed one hundred (100) square feet in total area;
c. Be fully enclosed and secured from predators; and

d. Be anchored in a manner acceptable to the City to prevent them from becoming airborne during a wind event.

(4) Opaque fencing or comparable landscaping that screens coops and enclosed pens from view by adjoining neighbors shall be installed.

Section 5-83. Permit required.

(a) Any person seeking to keep a hen on their property must first obtain a permit from the City authorizing such use.

(b) Prior to issuance of a permit authorizing hens on a property, an applicant shall submit to the City the following:

(1) A permit application containing the following information:

   a. The name of the applicant;

   b. The address of the property where hens are to be kept;

   c. The maximum number of hens to be kept on the property at any given time;

   d. The property owner’s authorization if the applicant is not the property owner of record; and

   e. An oath that no deed restrictions apply to the subject property or proof that deed restrictions, if any, do not prohibit the keeping of hens on the property.

(2) A Certificate of Completion demonstrating that the applicant has completed the Backyard Poultry Seminar offered by the Duval County Agricultural Extension Office; and

(3) Application fee of twenty-five ($25.00) dollars

(c) Permits shall only be valid for the address provided.

(d) Permits shall only be valid for the maximum number of hens approved.

(e) As a condition of the issuance of the permit, the applicant and property owner (if different) shall consent to the inspection of the subject property by the City
upon receiving a complaint related to hens to ensure compliance with the requirements of this Article.

Section 5-84. Permitted zoning locations.

(a) Hen(s) shall only be permitted on parcels developed with a single family dwelling located within the following zoning districts which have a minimum lot size of five thousand (5,000) square feet:

(1) RS-1, Residential, single-family

(2) RS-2, Residential, single-family

(3) RS-3, Residential, single-family

(b) Under no circumstances shall hens be kept on property developed with multiple-family, two-family (duplex), or townhouse dwellings as defined in the City of Jacksonville Beach Land Development Code. Nor may any hens be kept on any non-residential property or development.

(c) Coops and enclosed pens shall be located within the rear yard of a property only and shall be at least five (5) feet from side and rear property lines. No coop or enclosed pen shall be located in front or side yards.

Section 5-85. Effects on other parts of this Chapter.

(a) Under no circumstances shall any dog, cat, or other authorized animal pursuant to this Chapter that maims or kills a hen, for that reason alone, be considered a dangerous animal.

Section 5-86. Enforcement.

(a) Violations of this article shall be referred to the Special Magistrate of the City of Jacksonville Beach for disposition in accordance with F.S. § 162 and City Code Chapter 2, Article VI.

(b) A finding by the Special Magistrate of illegal slaughter or neglect of hen(s) will result in revocation of the permit issued pursuant to this article.

(c) Additionally, the City may take any other action or remedy authorized by law or in equity, including but not limited to, instituting an action in court to enjoin violations, in which case the violator and property owner shall be jointly and severally liable to the City for reimbursement of the City's attorneys' fees and accosts incurred in such action through any appellate action, if taken.
SECTION 3. SEVERABILITY. It is hereby declared to be the intention of the City Council for the City of Jacksonville Beach that the sections, paragraphs, sentences, clauses, and phrases of this Code are severable. If any phrase, clause, sentence, paragraph or section of this Code shall be declared to be unconstitutional by the valid judgment or decree of a court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Code.

SECTION 4. CONFLICTING ORDINANCES. All ordinances, resolutions, official determinations or parts thereof previously adopted or entered by the City or any of its officials and in conflict with this ordinance are repealed to the extent of conflict or inconsistency herewith.

SECTION 5. EFFECTIVE DATE. This ordinance shall take effect upon its adoption by the City Council.

AUTHENTICATED THIS ____ DAY OF _______________, A.D., 2020

__________________________________________
William C. Latham, Mayor

__________________________________________
Laurie Scott, City Clerk
MEMORANDUM

To: Mike Staffopoulos, City Manager

From: Bill Mann, Planning and Development Director

Subject: Ordinance No. 2019-8117, amending the text of the Land Development Code Division 4. Sign Standards to provide standards for off-site signage for emergency services only, such as police stations, fire stations, paramedic facilities, and hospitals, (Applicant – Baptist Medical Center of the Beaches)

Date: January 24, 2020

ACTION REQUESTED

1st Reading/Public Hearing of Ordinance No. 2019-8117 amending the text of the Land Development Code Division 4. Sign Standards to provide standards for off-site signage for emergency services only, such as police stations, fire stations, paramedic facilities, and hospitals.

BACKGROUND

Baptist Medical Center of the Beaches, Inc. (the Hospital) submitted the attached Land Development Code (LDC) Text Amendment application in February, 2019 to amend the City's LDC's sign regulations to provide standards for off-site signage for emergency services only, to include police, fire, paramedic and hospital facilities.

It was originally scheduled to be heard by City Council on May 6, 2019. However, at the request of the City Attorney at that meeting, and then subsequently by the applicant prior to a subsequently scheduled City Council meeting, the application has been carried over several times, ultimately to the November 4, 2019, City Council meeting. In between these meetings the City Manager and staff have been exploring other options that might be available to the Hospital regarding offsite directional signage and have met several times with Hospital representatives and their attorney to discuss same.
Memorandum
Ordinance No. 2019-8117
January 24, 2020

It was agreed to by the City Manager, Planning Director, and Hospital representatives at our last meeting that staff would appear at the November 4, 2019, City Council meeting and request that the amendment be deferred to the February 3, 2020, City Council meeting in order that additional research may be performed and perhaps one or more meetings with staff could be held in order to arrive at a mutually agreed upon solution to the Hospital's offsite sign needs/desires.

The City Attorney has prepared a detailed memorandum of the sign standards amendment proposed in Ordinance No. 2019-8117, and in that memo has also given his recommendation as to the City Council's decision on the ordinance. That memorandum, dated January 16, 2020, is attached for your consideration. Also attached are Ordinance No. 2019-8117, the original memorandum from staff (Heather Ireland) dated April 25, 2019, on the ordinance, and a copy of the Hospital's LDC Text Amendment application.

RECOMMENDATION

Deny Ordinance No. 2019-8117, based on the legal analysis of the proposed Land Development Code text amendment contained in the City Attorney's memorandum to the City Manager dated January 16, 2020.
MEMORANDUM

TO: Mike Staffopoulos, City Manager
CC: Bill Mann, Planning Development Director
FROM: Chris Ambrosio, City Attorney
SUBJECT: Legal analysis memorandum on Baptist Hospital’s application for proposed Land Development Code (LDC) text amendment and proposed Ordinance No. 2019-8117 for a new sign code Sec. 34-458, Emergency Services Wayfinding Signage.
DATE: January 16, 2020

Mike, this consists of my legal analysis memorandum on Baptist Hospital’s application for a proposed LDC text amendment and proposed Ordinance No. 2019-8117 proposing a new sign code Sec. 34-458, Emergency Services Wayfinding Signage. It can be made a part of the Planning and Development department’s memorandum to the City Council at the February 3, 2020 agenda. The Department’s memorandum can provide the brief timeline of when the application was scheduled and the results before the Planning Commission and City Council.

Introduction

On February 5, 2019, Baptist applied for a LDC text amendment and submitted the attached proposed Ordinance No. 2019-8117. The application, and its proposed Ordinance, intends to:

(1) change portions of the LDC text, notably Section 34-444(5) in order to exempt a Baptist created term “Emergency Services Wayfinding Signage” from the City’s decade’s long standing, Constitutionally lawful prohibition of billboards and off-site commercial signs,

(2) create a proposed new Section 34-458 - Emergency Services Wayfinding Signage, that would create and define terms “Emergency Services” and “Wayfinding Signage” that are inconsistent and irreconcilable with the City’s Code and Florida Statute definitions,

(3) allow for construction and installation of illuminated off-site content-based wayfinding/directional pole signs and monument signs that advertise Baptist and its services, and

(4) add and allow this new content-based illuminated Emergency Services Wayfinding Signage in all zoning districts Residential, Multi-family Residential, Commercial and Central Business and Industrial, and Planned Unit Development, except Redevelopment Zoning District.

Legislative History

Section 166.0425, Florida Statutes provides that municipalities have the right and power to establish sign ordinances, however, such ordinances shall not conflict with any applicable state or federal laws. Signage regulation by local governments was mandated by the Local Government Comprehensive Planning and Land Development Act (Act) and continues today. For many decades the City has had local laws in place that prohibit off-premises commercial signs and billboards in all zoning districts. An off-premises sign advertises or promotes a business and or the
business’s services and it is not located on the same site as that occupied by the business being advertised on the sign. In the 1980s, off-premises signs were prohibited in the City pursuant to Section 27-6 F. (Section 27-6 A. for Billboards.) In the 1980s, the City adopted its LDC in order to implement its Comprehensive Plan and included regulation of signage and future land use as the City is required to do by the Act. In the 1990s, revisions to the Code were made and off-premises signs (and Billboards) continued to be prohibited signs in the City pursuant to Section 8-4 C.6. (Section 8-4 C.1. for Billboards). At that time, off-site directional signs that were allowed in the City were defined and consisted of any religious, charitable, fraternal nonprofit or civic organization having a meeting place, clubhouse or other site within the City may be installed for the purpose of indicating where such clubhouse, meeting place, or site is located within the City and with the following limitations (1) the sign shall not be located in the public ROW and (2) shall not exceed 3 ft. by 4 ft. width and not exceed more than 10 ft. in height. Section 8-4 E. 3. b.

The City has demonstrated over many years a definite long term commitment to maintaining and improving the City’s attractive and visual environment, defining and protecting the City’s aesthetic qualities and enhancing the communities and zoning districts by eliminating off-premises signs and billboards. The City’s prohibition of off-site signs is consistent with its Comprehensive Plan and exists for valid and substantial compelling reasons, including the prevention of degradation of the community character, maintaining aesthetics and scenic qualities, promotion of general welfare, a distinct sense of character and ambiance, avoidance and prevention of visual clutter, curtailing the growing number of signs, lessening the proliferation of signs, and reducing driver distractions and visual impairments along the City’s roads and in the community.

**Post Reed v. Town of Gilbert Legal Discussion and Code Analysis**

In 2015, the Supreme Court issued its recent formulation of the content-based/content-neutral distinctions in *Reed v. Town of Gilbert*, 135 S.Ct. 2218 (2015)(Sign ordinance imposing differing restrictions on temporary directional signs to religious events was content-based regulation of speech that did not survive strict scrutiny). In *Reed*, the Court applied strict scrutiny to strike down a municipal sign code that expressly singled out ideological, political and temporary directional signs for different time and size restrictions. In response to *Reed*, the City, like many local governments, spent a great amount of time and resources to revise its sign code. The City hired outside attorney and sign law expert Bill Brinton to prepare and implement extensive revisions to the City sign code. The City removed or redefined terms/definitions and references to directional signs and defined certain commercial, off-premises and billboard signs, and directional and government signs. **Under Reed, a law that regulates speech is content based, regardless of the government’s purpose, if it cannot be justified without reference to the content of the regulated speech.** The 2015 Amendments were contained in Ordinances 2015-8065 and 2015-8064. With guidance from special counsel and the Reed opinion, these ordinances contained many legislative findings, including in pertinent part:

(1) A content based sign regulation is presumptively unconstitutional and requires a compelling government interest.
(2) A regulatory category for directional signs that convey an event or service are content-based and event-based regulations that are not content neutral.

(3) Reed included a non-exclusive or exhaustive list of local rules or regulations that would not be content-based regulations, one of which included rules distinguishing between on-premises and off-premises signs.

(4) The City determined that the regulation of signage for purposes of aesthetics has long been recognized as advancing the public welfare and is a valid basis for zoning and prohibition of certain types of signs can be based upon aesthetic grounds alone as promoting general welfare.

(5) The regulation of signage for purposes of aesthetics is a substantial governmental interest and directly serves the policy articulated in Article II, Section 7 of the Florida Constitution by conserving and protecting its scenic beauty.

(6) The regulations in the ordinances are intended to curtail the size and number of signs and sign messages to the minimum reasonably necessary to identify a residential or business location and the nature of any such business.

(7) That local governments may separately classify off-site and on-site advertising signs in taking steps to minimize visual pollution.

(8) That a prohibition on the erection of off-site outdoor advertising signs will reduce the number of driver distractions and the number of aesthetic eyesores along the roadways of the City.

(9) Federal Courts have decided that a local government may make Constitutionally permissible distinctions in its regulations between on-site signs and off-site signs when it comes to the government’s substantial interest in prohibiting off-site signs.

(10) The distinction between the location of off-premises signs and on-premises signs is a time, place and manner regulation.

(11) The City may Constitutionally ban off-site signs for regulatory purposes.

(12) The business of outdoor advertising of off-site signs should be a prohibited use in all of the City’s zoning districts.

In the 2015 amendments, the City defined proper signs and continued to prohibit off-premises signs and billboards. The following are examples of the current relevant portions and terms of the sign code with deletions shown with strikethrough and additions shown with underline:

Prohibited Signs are defined in Section 34-444 Prohibited Signs. The signs and sign types listed below are prohibited within the city limits and shall not be erected, operated or placed on any property. Any lawfully existing permanent sign structure or sign type that is among the prohibited signs and sign types listed below shall be deemed a nonconforming sign subject to the provisions of Section 34-450 Nonconforming signs, (5) Billboards: off-site commercial signs.

The LDC sign regulations prohibit permits for new or additional nonconforming signs. (Ref. Section 34-450(3) a. New or additional signs for a nonconforming use shall not be permitted.)
The prior term and definition of Directional sign was deleted and a new temporary directional sign definition was provided: Directional sign, on-site means an on-premises sign that provides directions necessary or convenient for visitors and clients coming onto the premises, including signs marking entrances/exports, parking areas, loading zones, circulation directions.

Section 34-458 Placement of temporary signs (1) Directional sign, non-commercial-off-site means a directional sign erected on private property adjacent to a designated principal or minor arterial roadway by a religious, charitable, fraternal nonprofit or civic organization having a meeting place, clubhouse or other site within the City may be installed for the purpose of indicting where such clubhouse, meeting place, or site is located. Directional signs. For the convenience of the traveling public, off-site directional signs for any religious, charitable, fraternal, non-profit, civic, or similar organization operating within the city, having a meeting place, clubhouse, or other site within the city may install not more than two (2) directional signs for the purpose of indicating where such clubhouse, meeting place, or site is located within the city, in accordance with the following requirements:

a. Directional signs for a religious, charitable, fraternal, non-profit, or civic organization operating within the city, having a meeting place, clubhouse, or other site within the city shall be located on private property adjacent to a principal or minor arterial roadway as designated in the Transportation Element of the Jacksonville Beach Comprehensive Plan.

b. The directional sign shall not exceed three (3) feet by four (4) feet in size, or be more than ten (10) feet in height. c. The directional sign may be internally illuminated.

The following relevant definitions exist in or were added to the LDC relative to signage:

Billboard means an advertising sign or other commercial sign which directs attention to a business, commodity, service, entertainment, or attraction sold, offered or existing elsewhere than upon the same lot where such sign is displayed.

Government sign shall mean any temporary or permanent sign erected by or on the order of a public official or quasi-public entity at the federal, state or local government level in the performance of any duty including, but not limited to, noncommercial signs identifying a government building or service, traffic control signs, street name signs, street address signs, warning signs, safety signs, informational signs, traffic or other directional signs, public notices of events, public notice of government actions, proposed changes of land use, any proposed rezoning, or any other government speech.

Off-site commercial advertising means a nonaccessory billboard or sign which directs attention to a business, commodity, service, entertainment, or attraction that is sold, offered or existing elsewhere than upon the same lot where such sign is displayed.

Off-site commercial sign means a nonaccessory billboard or sign that displays offsite commercial advertising.

On-site sign means any commercial sign which directs attention to a commercial or industrial occupancy, establishment, commodity, good, product, service or other commercial or industrial
activity conducted, sold or offered upon the site where the sign is maintained. The on-site/off-site distinction applies only to commercial message signs. For purposes of Article VIII, Division 4, Sign Standards of this chapter, all signs with noncommercial speech messages shall be deemed to be “on-site,” regardless of location.

Wayfinding sign means a non-commercial government sign that shows route designations, destinations, directions, distances, services, points of interest, or other geographical, recreational, or cultural information for the aid of the traveling public, for facilitating a safe and orderly traffic flow and preventing sudden stops.

**Constitutional analysis of on-premises/off-premises distinction and regulations**

Laws regulating signs and billboards must comply with the First Amendment, as applied to the States through the Fourteenth Amendment, which prohibits the enactment of laws abridging the freedom of speech. The Supreme Court has established two levels of review for evaluating challenges to such laws based on whether they are content based or content neutral. Laws that are deemed “content based” are evaluated under strict scrutiny, and will be upheld only if they are “the least restrictive means of achieving a compelling state interest.” Laws that are deemed “content neutral,” in contrast, are evaluated under a less intermediate scrutiny, a standard under which laws are upheld provided they are “narrowly tailored to serve a significant governmental interest.” In Reed, the Supreme Court applied strict scrutiny to strike down a municipal sign code that expressly singled out Ideological Signs, Political Signs, and Temporary Directional Signs for different time and size restrictions. Reed held that a law “is content based if [it] applies to particular speech because of the topic discussed or the idea or message expressed.” This “clear and firm rule governing content neutrality,” could significantly broaden the sweep of laws vulnerable to invalidation under strict scrutiny. Reed does not have dire implications for local government regulations making use of the long-standing on-premises/off-premises distinction. Under Reed’s own terms, such regulations are content neutral. The great majority of signs covered by such regulations are commercial speech, which is categorically afforded less protection than non-commercial expression. Signs displaying the name or logo of a restaurant, gas station, retail store, or any other business are “expression related solely to the economic interests of the speaker and its audience,” unlike the signs advertising a religious service that were at issue in Reed. Because speech proposing a commercial transaction “occurs in an area traditionally subject to government regulation,” restrictions on commercial speech are generally subject to nothing beyond a form of intermediate scrutiny rather than strict scrutiny. Reed made no reference to commercial speech and there is no reason to think that Reed silently revolutionized commercial speech doctrine by requiring strict scrutiny rather than intermediate scrutiny of place-based distinctions in the regulation of advertising. The on-premises/off-premises distinction is content neutral under the Reed framework. “A speech regulation targeted at a specific subject matter is content based even if it does not discriminate among viewpoints within that subject matter,” but “a speech regulation is content based” only “if the law applies to particular speech because of the topic discussed or the idea or message expressed.” Reed, 135 S. Ct. at 2230. By contrast, the on-premises/off-premises distinction does not “single out specific subject matter for differential treatment.” Reed, 135 S. Ct. at 2223. Such a distinction “is fundamentally concerned with the location of the sign

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relative to the location of the product which it advertises.” Id. The very same sign will be permissible in one location but not in another. A regulation that singles out off-premises signs does not apply to a particular topic, idea, or viewpoint. It regulates the locations of commercial signs generally, without imposing special burdens on any particular speaker or class of speakers. The fact that a regulation distinguishes between off-premises and on-premises signs does not render it content-based and thereby subject it to strict scrutiny. Such laws are content-neutral regulations of speech and will be reviewed under intermediate scrutiny. The distinction between on-site and off-site advertising is content neutral and is thus presumptively constitutional. The on-/off-premises distinction is location based, not content based. Given this stronger interest in on-site advertisement, a city can reasonably decide to sacrifice its aesthetic and safety interests in one physical location but not the other. Regulations distinguishing between on-premise and off-premise signs are content neutral under the framework developed by Justice Thomas (“I will not attempt to provide anything like a comprehensive list, but here are some rules that would not be content-based ... [rules distinguishing between on-premises and off-premises signs.”). *Professor Laurence Tribe 9/11/15 Memorandum to Outdoor Advertising Association of America.

*Reed* provided a list of non-content-based rules. That list included laws regulating the size, location, physical characteristics, and frequency of signs, and it added that “government entities may also erect their own signs consistent with the principles that allow governmental speech,” including signs “to promote safety, as well as directional signs and signs pointing out historic sites and scenic spots.”

**Sign regulation in general**

Regulations that are content neutral must meet intermediate scrutiny standards. When assessing the narrow tailoring element of intermediate scrutiny, ask:

What is the goal of the regulations? To prohibit billboards and off-site signs in a content neutral manner for the many legitimate reasons set forth above and in the enacted ordinance preambles and legislation.

Do the regulations actually achieve that goal? Yes. Without being content based.

Do the regulations do more than what is necessary to achieve the goal? They achieve the goal. It avoids vague wording that leaves room for selective enforcement. Speakers have ample options that allow the same advertising messages to be delivered by other methods. To satisfy the requirement that a content-neutral regulation of speech leave open ample alternative communicative channels, the available alternatives need not be the speaker’s first or best choice, but there must be available avenues for the more general dissemination of a message.

A restriction is content neutral if it is focused only on the manner or method a speaker uses, rather than the speaker’s message or viewpoint.
Problems with Baptist’s proposed LDC text amendment and Ordinance.

Below contains a list of some problems with Baptist’s proposed LDC text amendment and Ordinance No. 2019-8117:

(1) Proposes a prohibited off-site content-based commercial sign that advertises Baptist Hospital and its commercial services. The Ordinance actually uses the term “Content” to describe the signage allowed and that commercial advertising of services content is allowed to be identified on the off-site sign. Proposed Sec. 34-458 (3)d. It is therefore constitutionally invalid in the context of a content based off-site sign regulation that is subject to strict scrutiny. The ordinance would contradict and invalidate the City’s constitutionally valid off-site sign regulation from a permissible content-neutral time, place and manner regulation, which makes no reference to content, business, service or event, to create a content-based off-site commercial sign that is thereby subject to strict scrutiny and presumptively unconstitutional. Laws that are deemed “content based” are evaluated under strict scrutiny, and will be upheld only if they are “the least restrictive means of achieving a compelling state interest.” While the City’s off-site sign prohibition is a proper place-based content-neutral regulation subject to intermediate scrutiny. The City’s regulation will be upheld as it is narrowly tailored to serve a significant governmental interest. Baptist’s proposed content based off-site sign changes will likely be constitutionally invalid under strict scrutiny analysis. They also do not appear to serve a valid least restrictive means of achieving a compelling City interest. A commercial hospital’s services cannot be considered a compelling government interest. For example, the services are provided by a private company, private doctors or contract doctors, on private property and none of the commercial medical services would expose the City to potential liability for malpractice and negligence in performance of those services. Baptist services are not City funded.

(2) Proposes an unsuitable definition of Wayfinding sign that is inconsistent with the City’s definition. Proposed Sec. 34-458 (2). The key distinctions are non-commercial government routing or traffic directional signs v. off-site commercial sign that provides direction to the commercial hospital services.

City’s LDC definition: Wayfinding sign means a non-commercial government sign that shows route designations, destinations, directions, distances, services, points of interest, or other geographical, recreational, or cultural information for the aid of the traveling public, for facilitating a safe and orderly traffic flow and preventing sudden stops.

Baptist’s definition: Wayfinding signage shall mean signage which contains directions, distances and general guidance to a particular point of interest which qualifies as an “Emergency Service.”

The City may erect Wayfinding signs but these do not have commercial or advertising content such as business names and logos. These would be a content expression related solely to the economic interests of the speaker and its audience for commercial purposes.
(3) Proposes its own term and definition of "Emergency service" that is incongruous and irreconcilable with and incorporates Florida Statutes 395.002. Proposed Sec. 34-458 (1). The statutory definition of "Emergency services and care" means medical screening, examination, and evaluation by a physician, or, to the extent permitted by applicable law, by other appropriate personnel under the supervision of a physician, to determine if an emergency medical condition exists and, if it does, the care, treatment, or surgery by a physician necessary to relieve or eliminate the emergency medical condition, within the service capability of the facility. §395.002(9), Fla. Stat.

Baptist's proposed definition is "Emergency services shall mean police stations, fire stations, paramedic facilities as well as, hospitals which feature an on-site emergency facility licensed by the State of Florida which provides emergency services and care as said terms are defined per Sec. 395.002 Florida Statutes. Proposed Sec. 34-458 (1). Baptist's definition groups private hospital services and "paramedic facilities" with traditional government services of firefighting and police law enforcement in order to justify and categorize its use of wayfinding signs for a collective group of Baptist's concept of "government services." Hospital emergency room and paramedic services offered by Baptist are a commercial service. Paramedic service is not contained in the statutory definition of emergency services and care. The Baptist definition provides for advertisement of Baptist's commercial services which would constitute a prohibited off-premises commercial sign or billboard. Baptist's definition goes beyond hospital emergency rooms and it improperly groups traditional firefighting and law enforcement government services in with commercial emergency medical care services and commercial paramedic services. Implicit in the Baptist definition of emergency services are other commercial emergency services providers that would include other physicians' offices, urgent care centers, emergency medical services, veterinarians that offer medical care and emergency services, and dental medical practices that offer emergency services. If the proposed text amendment and ordinance are adopted it could cause the City constitutional challenges to the sign code, the definitions, the content-based regulation, and the off-site commercial sign prohibition. The proposed regulation would single out off-premises signs for a particular commercial service, topic, idea, or viewpoint—emergency services and care as Baptist terms it. While all other off-site commercial signs would presumably remain prohibited throughout the City as it has for decades. The distinction between the off-site content based advertising for Baptist's medical services is presumptively unconstitutional and is not a constitutional content-neutral time, place manner prohibition based on location that serves a significant governmental interest. As the City's current off-site sign prohibition is. The City could also anticipate off-site sign permit applications from other medical offices/emergency care clinics, etc. that could be categorized in the emergency services and care definition. For example, the dental practice that advertises on the existing illegal billboard in the City is already advertising emergency services. Baptist's emergency room services are not a government purpose. Baptist's proposed off-site signs are not government directional signs directing to a government facility or government service.
(4) Proposes a Prohibited Pole Sign. Proposed Sec. 34-458 (3)a. Pole signs are prohibited Sec. 34-444 (10). Prohibited signs. (10) Freestanding or ground signs, including any ground mounted monument signs, which are higher than sixteen (16) feet. Pole Sign is a ground sign that is supported by one or more poles and otherwise separated from the ground by air. A pole sign is not a monument sign, another type of ground sign. Sec. 34-41.

(5) Proposes a Prohibited Monument Sign. Proposed Sec. 34-458 (3)b. In the City’s LDC, there exists no permissible category of monument off-site commercial or wayfinding sign. The LDC doesn’t allow a commercial advertisement monument sign for a single use (hospital, in this instance) with a maximum height of 16 ft. not including architectural embellishment provided the embellishment does not exceed 36 inches at the base of the sign and 18 inches at the top of the sign. 16 ft. height is the tallest monument sign that the City permits for multiple occupant or tenant developments.

(6) Proposed Sign Locations located within 50 ft. of roadways that serve as collector, arterial or highway or feature more than 10,000 daily trips has never been defined, identified, verified, quantified or studied. Proposed Sec. 34-458 (3)e.

(7) Proposed Approval of Sign Location provides no standards, processes, guidance or direction for the PW and P and D Departments to review and approve the proposed location, dimension, surroundings and zoning of the wayfinding/off-site signs. Proposed Sec. 34-458 (3)f. Baptist doesn’t address the proposed frequency of off-site signs.

(8) At the April 8, 2019, Planning Commission meeting Baptist’s representative Paul Harden said that advertising could be a correct description of the signs that Baptist proposes. The City prohibits off-site commercial signs. Harden commented that he would provide details and calculations pertaining to traffic counts. The City has been provided no data relating to hypothetical impacts caused by an alleged lack of directional signage to the hospital.

(9) The City desired a revised and amended sign code that is constitutionally acceptable and compatible with our history and compliant with Federal law. It was intended to curtail the growing number of signs and lessen proliferation of signs as well as serve the significant governmental interests described above. Baptist’s proposal undoes those achievements.

(10) The Planning Development department was obligated to forward the application for text amendment to the Planning Commission. The Planning Commission and Planning Director didn’t have the benefit of legal analysis and contextual analysis, code and legal comparisons, or data relating to the proposed ordinance, text amendments and City ordinances when they initially recommended the City Council’s approval of the application. Therefore, they made an uninformed decision.

(11) Pre-existing Blue H and Red “Emergency Room” off-site directional signs are located in multiple locations that direct traffic to Baptist hospital. Additionally, there are the two
Baptist pre-existing off-site monument signs that are being repaired following storm damage. As a reminder, until recently Baptist was advertising on the illegal Billboard sign on State Road A-1-A, across from City Hall as an impermissible billboard and off-site commercial sign. (The billboard Code violation appeal is in litigation.)

**Conclusion**

Consequently, the recommendation is Council should deny the LDC text amendment application and reject the proposed Ordinance No. 2019-8117. In Sec. 34-444 of the Code of Ordinances, the City has enacted a constitutionally valid sign code that is a legally proper content-neutral, place and location regulation prohibiting off-site commercial signs and billboards in all zoning districts in the City.
LAND DEVELOPMENT CODE TEXT AMENDMENT APPLICATION

This form is intended for use by persons applying for a change in the text of the comprehensive plan. A change to the text of the comprehensive plan is not intended to relieve a particular hardship, nor to confer special privileges or rights on any person, but to make necessary adjustments. No text amendment to the comprehensive plan may be approved except in conformance with the Jacksonville Beach 2030 Comprehensive Plan Elements. An application for a text amendment to the comprehensive plan shall include the information and attachments listed below, unless the requirement for any particular item is waived by the Planning and Development Director.

**APPLICANT INFORMATION**

| Land Owner's Name: Baptist Medical Center of the Beaches, Inc. Baptist Health Properties, Inc. Baptist Beaches Medical Condominium Association Inc. | Telephone: 904-627-2900 |
| Mailing Address: 3563 Philips Highway Building F Suite 608, Jacksonville, Florida 32207 | Fax: |
| Applicant Name: Baptist Medical Center of the Beaches, Inc. | E-Mail: |
| Mailing Address: 3563 Philips Highway Building F Suite 608, Jacksonville, Florida 32207 | |

**NOTE:** Written authorization from the land owner is required if the applicant is not the owner.

| Agent Name: Paul M. Harden, Esq. | Telephone: 904-396-5731 |
| Mailing Address: 501 Riverside Avenue, Suite 901 Jacksonville, Florida 32202 | Fax: 904-399-5461 |
| | E-Mail: paul_harden@bellsouth.net zach_miller@bellsouth.net |

**TEXT AMENDMENT DATA**

Current Goal/Objective/Policy Number: Section 34, Division 4, Sign Standards

<table>
<thead>
<tr>
<th><strong>REQUESTED INFORMATION</strong></th>
<th>Attached?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> A copy of the relevant Duval County Property Assessment Map, showing the exact location of the land affected by the text amendment, with the boundaries clearly marked;</td>
<td>X</td>
</tr>
<tr>
<td><strong>2.</strong> An 8½” x 11” vicinity map identifying the property affected by the text amendment;</td>
<td>X</td>
</tr>
<tr>
<td><strong>3.</strong> An aerial photograph, less than twelve (12) months old, of the land affected by text amendment, with the boundaries clearly marked;</td>
<td>X</td>
</tr>
<tr>
<td><strong>4.</strong> For a text amendment, include a narrative and explanation of the proposed amendment</td>
<td></td>
</tr>
<tr>
<td><strong>5.</strong> For a text amendment, include the current text of the LDC section proposed to be changed and the full text of the proposed amendment. The proposed text amendment submittal must include a cover letter containing a narrative statement explaining the amendment, why it is needed and how it will comply with the goals, objectives, and policies in the Jacksonville Beach 2030 Comprehensive Plan Elements.</td>
<td>X</td>
</tr>
</tbody>
</table>

Applicant Signature: [Signature]

Date: 2/5/19

RECEIVED

FEB - 5 2019

PLANNING & DEVELOPMENT

PLANNING AND DEVELOPMENT DEPARTMENT 11 NORTH 3RD STREET PHONE (904) 247-6231 FAX (904) 247-6107
Narrative

Attached is a proposed text amendment to the Jacksonville Beach Land Development Code.

The purpose of the proposed amendment is to allow for off-site signage which provides wayfinding to emergency services such as police stations, fire stations, paramedic facilities and hospitals, such as Baptist Medical Center Beaches, which provide “Emergency services and care” as this term is defined under Florida Statutes.

In its decades of operation, Baptist Medical Center, Beaches has repeatedly heard from patients that it is difficult to find the facility, in particular during an emergency. The purpose of this amendment is to allow Beaches Baptist to place limited wayfinding signage on the major roadways that will help guide patients to the hospital.

The applicant understands that amending this portion of the land development code is the beginning of the process and that final design and location of signs will involve oversight and approval from the City in order to ensure that the signs do not detract from the character of the community in which they are located.

Applicant respectfully submits, per the application requirements, that the proposed amendment furthers the following goals and objectives of the 2030 Comprehensive Plan:

Objective TE 1.4 Provide for safe and convenient traffic flow and parking.

Policy LU.1.1.3 Prepare, adopt, and enforce regulatory measures to promote and enhance the visual appearance of the City such as sign controls, tree preservation and landscaping requirements, and nuisance laws. Encourage the use of street furniture in appropriate pedestrian areas.

Policy TE 1.6.2 New development shall provide operational improvements to the City’s transportation system to mitigate their impacts on the system, to ensure smooth traffic flow, and to aid in the elimination of hazards. Improvements may include, but are not limited to adding turn lanes, deceleration lanes, signing, signals, and pavement marking.

Policy TC 1.4.7 Encourage travel demand management strategies to modify peak hour travel demand and reduce the number of vehicle miles traveled per capita within the City, as well as transportation system management strategies to improve system efficiency and enhance safety.
February 28, 2018

Bill Mann
Planning and Development Director
City of Jacksonville Beach
11 North Third Street
Jacksonville Beach, FL 32250

Re: Beaches Baptist Hospital PUD

Dear Bill:

In response to our phone call on February 21, 2019, enclosed please find a revised proposed text amendment to the Jacksonville Beach Land Development Code sign provisions. Also, enclosed is a redline showing the changes from the previously submitted version.

If you have any questions please do not hesitate to contact me.

Sincerely,

Paul M. Harden

PMH/zm
encl.

c: Keith Tickell
   Joe Mitrick
MEMORANDUM

To: Mike Staffopoulos, City Manager

From: Bill Mann, Planning and Development Director

Subject: Ordinance No. 2019-8117, amending the text of the Land Development Code Division 4. Sign Standards to provide standards for off-site signage for emergency services only, such as police stations, fire stations, paramedic facilities, and hospitals, (Applicant – Baptist Medical Center of the Beaches)

Date: October 29, 2019

ACTION REQUESTED:

Defer 1st Reading/Public Hearing of Ordinance No. 2019-8117 to the February 3, 2020 City Council meeting.

BACKGROUND:

Baptist Medical Center of the Beaches submitted the attached Land Development Code (LDC) Text Amendment application in February of this year to amend the City’s LDC’s sign regulations to provide standards for off-site signage for emergency services only, to include police, fire, paramedic and hospital facilities.

It was originally scheduled to be heard by City Council on May 6, 2019. However, at the request of the City Attorney at that meeting, and then subsequently by the applicant prior to a subsequently scheduled City Council meeting, the application has been carried over several times, ultimately to the November 4 City Council meeting. In between these meetings the City Manager and staff have been exploring other options that might be available to the Hospital regarding offsite directional signage and have met several times with Hospital representatives and their attorney to discuss same.

It was agreed to by the City Manager, Planning Director, and Hospital representatives at our last meeting that staff would appear at the November 4 City Council meeting and request that the amendment be deferred to the February 3, 2020 City Council meeting in order that additional research may be performed and perhaps one or more meetings with staff could be held in order to arrive at a mutually agreed upon solution to the Hospital’s offsite sign needs/desires.
RECOMMENDATION:

Defer First Reading and Public Hearing of Ordinance No. 2019-8117 to the February 3, 2020 City Council meeting, as requested by staff.
MEMORANDUM

To: Mike Staffopoulos, City Manager

From: Heather Ireland, Senior Planner

Re: Ordinance No. 2019-8117, amending the text of the Land Development Code Division 4. Sign Standards to provide standards for off-site signage for emergency services only, such as police stations, fire stations, paramedic facilities, and hospitals. (Applicant – Baptist Medical Center of the Beaches)

Date: April 25, 2019

ACTION REQUESTED:

Adopt Ordinance No. 2019-8117, amending the text of the Land Development Code Division 4. Sign Standards to provide standards for off-site signage for emergency services only, such as police stations, fire stations, paramedic facilities, and hospitals.

BACKGROUND:

Baptist Medical Center of the Beaches has submitted a Land Development Code (LDC) Text Amendment application to amend the City's LDC's sign regulations to provide standards for off-site signage for emergency services only, to include police, fire, paramedic and hospital facilities. Currently, off-site signs are considered billboards and are prohibited city-wide. The purpose of the proposed amendment is primarily to allow Beaches Baptist to place and maintain existing off-site wayfinding signage on major roadways to help guide patients and visitors to the hospital and also to make legal the hospital's existing nonconforming off-site signs. According to the narrative submitted with the application, and also from testimony at the Planning Commission meeting on the application, patients have expressed that the hospital is difficult to find. The hospital desires to provide direction and wayfinding signs to aid patients and visitors in locating the facility.

Currently, the only existing off-site signs for the hospital are ones that pre-existed the current sign regulations. These existing off-site signs are "grandfathered" until they are removed, destroyed, or abandoned. As nonconforming signs however, they cannot be modified in any way. Under the applicant's proposed text amendment, "emergency services wayfinding signage" would be made allowable off-site directional signage. Emergency services include police, fire, paramedic
and hospital providing on-site emergency services. The applicant proposes Emergency Services Wayfinding Signage to be permitted in all zoning districts except Redevelopment: RD districts.

A new Land Development Code section, "Section 34-458 – Emergency Services Wayfinding Signage", is proposed to be added to Division 4. Sign Standards. The purpose of this new section is to provide detailed standards for the types of emergency services signs permitted, the size of signs permitted, the content of signs, and other details.

The new proposed Section 34-458 would permit the following:

- Off-site wayfinding signage that contains directions and distances to emergency services;
- Off-site pole mounted signs with a maximum height of 24 feet and signage area of 54 square feet;
- Off-site monument signs with a maximum height of 16 feet and signage area of 120 square feet;
- Internal or external illumination of signs, except that illuminated signage shall not be located within 50 feet of the property line of a single-family residence;
- Off-site signs located within 50 feet of roadways which serve as a collector, arterial, or highway, or which feature more than 10,000 daily trips; and
- Off-site sign may be located on either private property or public right-of-ways with appropriate City approvals.

Pole mounted signs are no longer permitted in the City generally, so existing pole mounted signs can only be replaced with conforming monument style signs. Pursuant to the LDC, the maximum height of monument signs is 16 feet. The applicant's proposed pole sign height of 24 feet would exceed the existing sign height standards for commercial signs.

Existing off-site directional signs for the hospital consisting of the standard blue "H" and a directional arrow are located on 9th Street South facing both north and south bound lanes. These signs are approximately 8-9 feet tall and 6 square feet each. Other "H" signs are located at South Beach Parkway and Butler Boulevard (northbound), and Beach Boulevard at 9th Street facing both east and westbound lanes. Two larger pole mounted signs exist at 13th Avenue South and 3rd Street (northwest corner), and Beach Boulevard and 9th Street (southwest corner), both with approved right-of-way permits. These existing pole signs are each 15 feet tall and approximately 48 square feet in area.
The proposed amendment would allow both pole-mounted emergency wayfinding and monument style wayfinding signs to be located within 50 feet of a roadway that is a collector, arterial or highway, or which have more than 10,000 daily trips. Figure TE-5 from the Transportation Element of the City's 2030 Comprehensive Plan (attached) identifies all of the arterial and collector roadways in the City of Jacksonville Beach. The applicant did not provide a proposed number of, or proposed locations of, potential wayfinding signage, however diagrams of the proposed signage were distributed by the applicant at the Planning Commission hearing and are attached with the application materials.

While the City has enacted sign regulations to promote the use of monument signs for commercial advertising, the request for pole-mounted emergency wayfinding signage in right-of-way locations is actually preferable from a safety and visibility standpoint near street intersections. Staff does not feel that it would be appropriate to allow monument style emergency signage in any right-of-way locations for this same reason. Permits for signs located in rights-of-ways would be issued by The Public Works Department, and permits for signs on private property would be issued by the Planning and Development Department.

The Planning Commission met on April 8, 2019 to conduct their required public hearing on the application. Following the hearing and discussion of the proposed amendment with the applicant, the Planning Commission voted unanimously to recommend its approval by the City Council.

Proposed changes are located on the following pages of the attached Ordinance: 3, 4, 5, 14, 15, 16, 17, 19, 27, 28, and 29.

RECOMMENDATION:

Adopt Ordinance No. 2019-8117, amending the text of the Land Development Code Division 4. Sign Standards to provide standards for off-site signage for emergency services only, such as police stations, fire stations, paramedic facilities, and hospitals.
ORDINANCE NO. 2019-8117

AN ORDINANCE TO AMEND AN ORDINANCE ENACTING AND ESTABLISHING A COMPREHENSIVE LAND DEVELOPMENT REGULATION AND OFFICIAL ZONING MAP FOR THE INCORPORATED AREA OF THE CITY OF JACKSONVILLE BEACH, FLORIDA, AS AUTHORIZED BY CHAPTER 163.3202, FLORIDA STATUTES, BY AMENDING ARTICLE VIII. SITE DEVELOPMENT STANDARDS DIVISION 4. SIGN STANDARDS TO PERMIT AND PROVIDE STANDARDS FOR OFF-SITE EMERGENCY WAYFINDING SIGNS FOR EMERGENCY SERVICES ONLY, FOR THE INCORPORATED AREA OF THE CITY, AND TO PROVIDE FOR CODIFICATION, SEVERABILITY, CONFLICTS, AND AN EFFECTIVE DATE:

WHEREAS, the City of Jacksonville Beach has the authority to adopt this Ordinance pursuant to Article VIII of the Constitution of the State of Florida; Chapters 163 & 166, Florida Statutes; and

WHEREAS, the City of Jacksonville Beach updated Division 4. Sign Standards in 2015 under Ordinance Numbers 2015-8064 and 2016-8065; and

WHEREAS, Baptist Medical Center Beaches desires to amend Division 4. Sign Standards to permit off-site wayfinding signs for emergency services such as police stations, fire stations, paramedic facilities, and hospitals; and

WHEREAS, the Jacksonville Beach Planning Commission, after notice and public hearing, has considered the ordinance and has presented its recommendation to the City Council;

WHEREAS, the City Council has considered the application, all relevant support materials, the staff report, the recommendation of the Planning Commission, and public testimony given at the public hearings.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY OF JACKSONVILLE BEACH, FLORIDA:

SECTION 1. Recitals. The above recitals are ratified and confirmed as being true and correct and are made a part of this Ordinance and adopted as legislative findings.

SECTION 2. Amendment of City Code. That Article VIII. Division 4. Sign Standards is hereby amended and, as amended, shall henceforth read as follows:
DIVISION 4. - SIGN STANDARDS

Sec. 34-441. - Purpose, intent and scope.

It is the purpose of this division to promote the public health, safety and general welfare through reasonable, consistent and non-discriminatory sign standards. The sign regulations in this division are also designed and intended to meet the statutory requirement that this municipality adopt land development regulations that regulate signage, a requirement set forth in F.S. § 163.3202(f). The sign regulations in this division are not intended to censor speech or to regulate viewpoints, but instead are intended to regulate the adverse secondary effects of signs. The sign regulations are especially intended to address the secondary effects that may adversely impact aesthetics and safety. The sign regulations are designed to serve substantial governmental interests and, in some cases, compelling governmental interests such as traffic safety and warning signs of threats to bodily injury or death.

This division regulates signs, as defined in this Land Development Code, which are placed on private property or on property owned by public agencies including the city and over which the city has zoning authority. This division is not intended to extend its regulatory regime to objects that are not traditionally considered signs for purpose of government regulation.

The city of Jacksonville Beach is primarily a single family residential and small resort community on the east coast of Florida. The eastern boundary of the city is the Atlantic Ocean and the western boundary is the Atlantic Intracoastal Waterway (Pablo Creek). The economic base of the city is heavily dependent on visitors from the Northeast Florida and Southeast Georgia area, as well as other areas of the United States. In order to preserve and promote the city as a desirable community in which to live, vacation and do business, a pleasing, visually attractive environment is of foremost importance. The regulation of signs within the city is a highly contributive means by which to achieve this desired end.

These sign regulations have been prepared with the intent of enhancing the visual environment of the city and promoting its continued well-being, and are intended to:

1) Encourage the effective use of signs as a means of communication in the city;
2) Maintain and enhance the aesthetic environment and the city's ability to attract sources of economic development and growth;
3) Improve pedestrian and traffic safety;
4) Minimize the possible adverse effect of signs on nearby public and private property;
5) Foster the integration of signage with architectural and landscape designs;
6) Lessen the visual clutter that may otherwise be caused by the proliferation, improper placement, illumination, animation, excessive height, and excessive size (area) of signs which compete for the attention of pedestrian and vehicular traffic;
7) Allow signs that are compatible with their surroundings and aid orientation, while excluding the placement of signs that contribute to sign clutter or that conceal or obstruct adjacent land uses or signs;
8) Encourage and allow signs that are appropriate to the zoning district in which they are located;
9) Establish sign size in relationship to the scale of the lot and building on which the sign is to be placed or to which it pertains;
10) Preclude signs from conflicting with the principal permitted use of the site and adjoining sites;
11) Regulate signs in a manner so as to not interfere with, obstruct the vision of or distract motorists, bicyclists or pedestrians;
(12) Except to the extent expressly preempted by state or federal law, ensure that signs are constructed, installed and maintained in a safe and satisfactory manner, and protect the public from unsafe signs;

(13) Preserve, conserve, protect, and enhance the aesthetic quality and scenic beauty of all districts of the city;

(14) Allow for traffic control devices consistent with national standards and whose purpose is to promote highway safety and efficiency by providing for the orderly movement of road users on streets and highways, and that notify road users of regulations and provide warning and guidance needed for the safe, uniform and efficient operation of all elements of the traffic stream;

(15) Protect property values by precluding, to the maximum extent possible, sign types that create a nuisance to the occupancy or use of other properties as a result of their size, height, illumination, brightness, or movement;

(16) Protect property values by ensuring that sign types, as well as the number of signs, are in harmony with buildings, neighborhoods, and conforming signs in the area;

(17) Regulate the appearance and design of signs in a manner that promotes and enhances the beautification of the city and that complements the natural surroundings in recognition of this city's reliance on its natural surroundings and beautification efforts in retaining economic advantage for its resort community, as well as for its major subdivisions, shopping centers and industrial parks;

(18) Enable the fair and consistent enforcement of these sign regulations;

(19) Promote the use of signs that positively contribute to the aesthetics of the community, are appropriate in scale to the surrounding buildings and landscape, and advance the city's goals of quality development;

(20) Provide standards regarding the non-communicative aspects of signs, which are consistent with city, county, state and federal law;

(21) Provide flexibility and encourage variety in signage, and create an incentive to relate signage to the basic principles of good design; and

(22) Assure that the benefits derived from the expenditure of public funds for the improvement and beautification of streets, sidewalks, public parks, public rights-of-way, and other public places and spaces, are protected by exercising reasonable controls over the physical characteristics and structural design of signs.

(Ord. No. 2015-8065, § 2 (Exh. A), 12-7-15)

Sec. 34-442. - Definitions.

The definitions in Article IV shall apply to this division. Any term or phrase not defined therein or herein shall have its commonly understood meaning.

(Ord. No. 2015-8065, § 2 (Exh. A), 12-7-15)

Cross reference— Definitions— General, § 34-41.
Sec. 34-443. - Applicability.

This division does not pertain and is not applicable to:

(1) A sign, other than a window sign, located entirely inside the premises of a building or enclosed space.
(2) A sign on a car, other than a prohibited vehicle sign or signs.
(3) A statutory sign.
(4) A traffic control device sign.
(5) Any sign not visible from a public street, sidewalk or right-of-way or from a navigable waterway or body of water; except that the foregoing does not exempt a sign for a commercial use that is visible from an abutting residential use.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-444. - Prohibited signs.

The signs and sign types listed below are prohibited within the city limits and shall not be erected, operated or placed on any property. Any lawfully existing permanent sign structure or sign type that is among the prohibited signs and sign types listed below shall be deemed a nonconforming sign subject to the provisions of section 34-450, nonconforming signs.

(1) Abandoned signs; discontinued signs.
(2) Animated signs.
(3) Attached signs that are taller than the wall of the building to which the sign is attached.
(4) Attached signs that exceed two hundred fifty (250) square feet in sign area.
(5) Billboards; off-site commercial signs, except Emergency Services Wayfinding Signage authorized pursuant to Sec. 34-458.
(6) Bandit signs; snipe signs.
(7) Bus bench advertising signs and bus shelter advertising signs.
(8) Flashing signs.
(9) Floodlights and beacon lights, except when required by the Federal Aviation Administration.
(10) Freestanding or ground signs, including any ground mounted monument signs, which are higher than sixteen (16) feet.
(11) Freestanding or ground signs that exceed two hundred (200) square feet in sign area.
(12) Holographic display signs.
(13) Moving, twirling, or swinging signs, including multi-prism and tri-vision signs.
(14) Pavement markings, except for official traffic control markings and building address markings required by law.
(15) Flutter signs, feather signs, streamers, balloons, wind signs, wind activated banners, cold air inflatables, pennants and other fixed aerial signage used for commercial advertising.
(16) Permanent pole signs, unless allowed within certain zoning districts pursuant to this division.
(17) Portable signs, except for A-frame and T-frame signs as allowed herein.

(18) Revolving signs; rotating signs.

(19) Roof signs.

(20) Signs within a sight visibility triangle, as described in subsection 34-425(b)(1) herein, that obstruct a clear view of pedestrian or vehicular traffic.

(21) Signs attached to a seawall, dock, buoy, tie pole or pier; other than warning signs and safety signs.

(22) Signs in, on, or over the public right-of-way; other than fixed projecting signs in the Central Business District (CBD) and the Redevelopment Zoning District (RD), traffic control device signs, bus stop informational signs, warning signs; safety signs, vertical streetlight banners, A-frame signs, T-frame signs, and awning Emergency Services Wayfinding Signage or attached canopy signs over a public right-of-way as allowed in this division.

(23) Signs in or upon any river, bay, lake, or other body of water within the limits of the city; except government regulatory signs, warning signs, and safety signs.

(24) Signs located on real property without the permission of the property owner.

(25) Signs nailed, fastened, affixed to, or painted on any tree or part thereof (living or dead), or other vegetation.

(26) Signs, other than traffic control device signs, that use the word "stop" or "danger," or present or imply the need or requirement of stopping or the existence of danger, or which are a copy or imitation of traffic control device signs and which are adjacent to the right-of-way of any road, street, or highway.

(27) Signs that are not effectively shielded as to prevent beams or rays of light from being directed at any portion of the traveled public rights-of-way thereby creating a potential traffic or pedestrian hazard or a nuisance to inhabitants of an adjacent neighborhood. No sign shall be so illuminated that it interferes with the effectiveness of, or obscures an official traffic sign, device, or signal.

(28) Signs that contain any food or other substance that attracts large numbers of birds or other animals and causes them to congregate on or near the sign.

(29) Signs that emit sound, vapor, smoke, odor, or gaseous matter.

(30) Signs that obstruct, conceal, hide or otherwise obscure from view any traffic control device sign or official traffic signal.

(31) Wall wrap signs.

(32) Vehicle sign or signs with a total sign area in excess of twenty (20) square feet on any vehicle, and

a. The vehicle is not "regularly used in the conduct of the business," and

b. The vehicle is visible from a street right-of-way within fifty (50) feet of the vehicle, and

c. The vehicle is parked for more than two (2) consecutive hours in any twenty-four (24) hour period within fifty (50) feet of any street right-of-way, and

d. A vehicle shall not be considered "regularly used in the conduct of the business" if the vehicle is used primarily for advertising, and

e. This provision is not to be construed as prohibiting the identification of a firm or its principal products on a vehicle operating during the normal hours of business; and which is currently licensed, insured and operable; provided, however, that no such vehicle shall be parked on
public or private property with signs attached or placed on such vehicle primarily for the purpose of advertising a business establishment or firm or calling attention to the location of a business establishment or firm.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-445. - General provisions for signs.

The following general sign provisions shall apply to this division and to all lawful conforming and nonconforming signs, unless otherwise indicated.

(1) Measurement of sign size (sign area). The area of a sign is measured or calculated as follows:

a. **Background panel signs.** Sign copy that is mounted, affixed, or painted on a background panel or area distinctively painted, textured or constructed as a background for the sign copy, is measured as that area contained within the sum of the smallest rectangles, squares, triangles, parallelograms, circles or ellipses that will enclose both the sign copy and the background.

b. **Background surface signs.** The area of a sign consisting of copy mounted as individual letters or graphics against a wall, fascia, or parapet of a building surface or another surface, that has not been painted, textured, or otherwise altered to provide a distinctive background for the sign copy, is measured as the sum of the smallest rectangles, squares, triangles, parallelograms, circles or ellipses that will enclose each word, graphic or discrete visual element in the total sign.

c. **Illuminated background signs.** The area of a sign with copy mounted, affixed, or painted on an illuminated surface or illuminated element or a building or structure, is measured as the entire illuminated surface or illuminated element which contains sign copy.

d. **Double-faced signs.** If a sign has two display faces, and the interior angle between the two faces is thirty (30) degrees or less, then the sign area is one sign face only; however, if the two faces are of different sizes or shapes, then the larger is used. If the sign has two display faces, and the interior angle between the two faces is greater than thirty (30) degrees, then the sign area is the sum of the areas of the two faces.

e. **Multi-faced signs.** If a sign has three or more faces, then the sign area is equal to fifty (50) percent of the aggregate area of all sign faces. The area of each face shall be determined according to subsection (a) or (b) of this section, as applicable.

f. **Sculptural and nonplanar signs.** The area of a spherical, free form, sculptural or other nonplanar sign is fifty (50) percent of the sum of the areas, using only the four vertical sides of the smallest four-sided polyhedron which will completely enclose the entire sign structure.

(2) Measurement of sign height. The height of a freestanding sign shall be measured as the vertical distance from the average finished grade of the ground below the sign excluding any filling, berming, mounding or excavating solely for the purposes of increasing the height of the sign, to the top edge of the highest portion of the sign. The maximum height allowed for a freestanding sign, however, shall not include any architectural embellishment provided the embellishment does not exceed thirty-six (36) inches at the base of the sign and eighteen (18) inches at the top of the sign.

For the purposes of this section, average finished grade shall be considered the lower of (a) the lowest elevation where the base of the sign meets ground level; or (b) the top of the curb of the
nearest public street adjoining the property upon which the sign is erected, or (c) the grade of the land at the principal entrance to the lot on which the sign is located.

(3) **Sign illumination for temporary signs and permanent signs.**

a. Sign illumination is prohibited for temporary signs.

b. Permanent sign on a parcel in residential use. A permanent sign located on a parcel in residential use in any zone may not be separately or specially illuminated, unless otherwise specified in this division.

c. Permanent sign on a parcel in nonresidential use. A permanent sign on a parcel in nonresidential use may be illuminated by internal illumination, internal indirect (halo) illumination, or lit by external indirect illumination, unless otherwise specified in this division. However, a permanent sign may not be illuminated in a manner that leaves the illumination device exposed to public view except with the use of neon tubing as provided in subsection (h) of this section.

d. Internal illumination. Outdoor internally illuminated signs, including but not limited to awning/canopy signs, cabinet signs (whether freestanding or building mounted), changeable copy panels or service island signs, shall be constructed with an opaque background and translucent letters or other graphical elements, or with a colored background and lighter letters or graphics.

e. External indirect illumination. Externally lit signs are permitted to be illuminated only with steady, stationary, down directed and shielded light sources directed solely onto the sign. Light bulbs or tubes (excluding neon), used for illuminating a sign, shall not be visible from the adjacent public rights-of-way or residential properties.

f. Illumination of signs adjacent to single-family residential uses. No sign located within fifty (50) feet of a property with a single-family use or zoned for a single-family use shall be internally illuminated.

g. Any portion of the sign face or sign structure that is illuminated shall count against the total square footage of allowable sign area.

h. Neon.

(i) **Exposed neon.** Exposed neon tube illumination is not permitted in residential zones, or for residential uses in any zone. It is allowed in all other places, unless otherwise specified.

(ii) **Neon borders.** Neon illumination used as a sign copy projection, border, frame or other embellishment of sign copy shall not be included in the total size or area of the sign, provided the measured area of any such projection or detailed embellishment does not exceed twelve (12) square feet in area, or twenty-five (25) percent of the sign display face area, whichever is greater. If neon embellishments exceed these limits, then the embellishments shall be included and counted as part of the permitted sign area for the use.

(4) **Viewpoint neutrality.** Notwithstanding anything in this division to the contrary, no sign or sign structure shall be subject to any limitation based upon the viewpoint of the message contained on such sign or displayed on such sign structure.

(5) **Substitution of noncommercial speech for commercial speech.** Notwithstanding anything contained in this division to the contrary, any sign erected pursuant to the provisions of this division may, at the option of the owner, contain a non-commercial message in lieu of a
commercial message and the noncommercial copy may be substituted at any time in place of the commercial copy. The noncommercial message (copy) may occupy the entire sign face or any portion thereof. The sign face may be changed from a commercial message to a noncommercial message or from one noncommercial message to another non-commercial message; provided, however, that there is no change in the size, height, setback or spacing criteria contained in this division.

(6) **Consent of legal owner of property.** No sign may be displayed without the consent of the legal owner of the property on which the sign is mounted or displayed. For purposes of this policy, "owner" means the holder of the legal title to the property and any party and person holding a present legal right to possession, control, or use of the property.

(7) **Signs on public property.** Any sign installed or placed on public property, except in conformance with the requirements of this division, shall be deemed illegal and shall be forfeited to the public and subject to confiscation. In addition to other remedies hereunder, the city shall have the right to recover from the owner or person placing such sign the cost of removal and disposal of such sign. The foregoing shall not apply to temporary A-frame signs and T-frame signs as allowed pursuant to the conditions and limitations set forth herein.

(8) **Signs that obstruct means of egress.** No sign shall be erected so as to obstruct any fire escape, required exit, window, or door opening intended as a means of egress.

(9) **Signs that interfere with ventilation openings.** No sign shall be erected that interferes with any opening required for ventilation.

(10) **Signs must maintain clearance from utilities and shall not interfere with surface and underground water or with drainage.** Signs shall maintain a minimum distance of six (6) feet horizontal clearance and twelve (12) feet overhead clearance from electrical conductors and from all communications equipment or lines. Signs and their supporting structures shall maintain clearance from and noninterference with all surface and underground facilities and conduits for water, sewage, electricity, or communications equipment or lines. Sign placement shall not interfere with surface or underground water or with natural or artificial drainage.

(11) **Signs shall not be attached to certain property and shall not impair roof access.** Signs shall not be attached to standpipes, gutters, drains or fire escapes. Signs shall not be installed so as to impair access to a roof.

(12) **Signs declared a nuisance and repair; signs presenting immediate peril to public health or safety.** The building official may order the repair of signs declared a nuisance, and with or without notice may cause any structurally unsafe or structurally insecure sign to be immediately removed if in his or her professional judgment and professional opinion the sign presents an immediate peril to the public health or safety.

(13) **Street address signs.** For each parcel and for each tenant space, one sign for the official street address shall be displayed for public safety and to serve as visible street address for delivery of mail and official governmental notification.

a. For a parcel in residential use, the street address sign shall not exceed two (2) square feet in sign area.

b. For a parcel in non-residential use, the street address sign shall not exceed four (4) square feet in sign area.

c. The street address sign in a residential use may be externally illuminated and in a non-residential use may be externally or internally illuminated.
(14) **Flagpoles and flags; flag brackets, flag stanchions and flags.**

a. Flagpoles and flags. For each parcel and development site in residential use with one principal structure, one flagpole may be installed and two (2) flags may be displayed per flagpole. For each parcel and development site that is over one-half (½) acre in size and is in nonresidential use, up to three flagpoles may be installed and up to two (2) flags may be displayed per flagpole. A flag shall not exceed twenty-four (24) square feet in size.

b. Flag brackets, flag stanchions, and flags. For each principal structure on a parcel, up to two flag brackets or stanchions may be attached or placed for the display of flags. A flag displayed from a flag bracket or a flag stanchion shall not exceed twenty-four (24) square feet in size.

c. For the purpose of determining the size of a flag, only one side of the flag shall be counted as the display surface.

d. Flags on parcels in non-residential use may be externally illuminated.

(15) **Noncommercial onsite parking space signs.** Parking space signs identifying parking spaces necessary for traffic safety, regulation, control and circulation. A parking space sign shall carry no commercial message and shall not exceed two (2) square feet of sign face per sign. Parking space signs shall be allowed on each parcel having multiple parking spaces onsite. One such sign shall be allowed for each parking space. The maximum height for a freestanding or an attached parking space sign shall be six (6) feet.

(16) **Signs at service station islands.** For service stations, one (1) double-sided sign or two (2) single-sided signs are allowed per island. Such signs shall not exceed four (4) square feet per side and shall not be mounted higher than eight (8) feet. Such signs shall not be mounted on any bollard or barrier designed to protect equipment from damage. Such signs may not be illuminated.

   For service stations, one (1) canopy sign may be installed for each canopy side facing a public street or driveway. A canopy sign shall not exceed ten (10) square feet and shall not be mounted higher than the top of the canopy itself. A canopy sign may be internally illuminated. The square footage of all canopy signs on a canopy shall be counted against the maximum square footage of allowed wall signage for any building wall sign on the same parcel.

(17) **Monument signs.**

a. **Monument signs for single occupant or tenant buildings.** One (1) monument sign is allowed for each single occupant or tenant building. The maximum size of a monument sign shall be the lesser of: (1) one hundred (100) square feet, or (2) one (1) square foot of sign area for each one (1) linear foot of road frontage along the street toward which the monument sign is oriented. The maximum height of the monument sign shall be ten (10) feet, and the maximum width of the monument sign shall be twelve (12) feet. Up to fifty (50) percent of the sign surface of the monument sign may consist of a changeable copy sign; provided, however, that the sign copy cannot be changed more frequently than once in a twenty-four (24) hour time period. The monument sign may be illuminated.

b. **Monument signs for multiple occupant or tenant developments.** One (1) monument sign is allowed for each multiple occupant or tenant development inclusive of a shopping center. The maximum size of the monument sign shall be the lesser of: (1) two hundred (200) square feet, or (2) one (1) square foot of sign area for each one (1) linear foot of road frontage along the street toward which the monument sign is oriented for the first one hundred (100) feet of frontage plus one-fourth (¼) square foot of sign area for each additional linear foot of the aforesaid road frontage. The maximum height of the monument sign shall be sixteen (16) feet, and the maximum width of the monument sign shall be twelve and one-half (12½) feet.
Up to fifty (50) percent of the sign surface of the monument sign may consist of a changeable copy sign; provided, however, that the sign copy cannot be changed more frequently than once in a twenty-four (24) hour time period. The monument sign may be illuminated.

c. Monument signs at entrances to single-family and multi-family developments. One (1) monument sign is allowed at each point of ingress or egress from or to a single-family development and from or to a multi-family development. The maximum size of a monument sign shall not exceed twenty-four (24) square feet in size and shall not exceed six (6) feet in height. The twenty-four (24) square feet of sign area may be split equally between two monument signs located on each side of the entry or exit street. The monument sign shall be located on a landscaped island or lawn area protected from vehicular contact, and shall not encroach into any corner sight visibility triangle required pursuant to section 34-395. The sign may be internally or indirectly illuminated.

d. Monument sign for a parcel in educational, religious or public use. In addition to any monument sign allowed above, one (1) permanent monument sign may be allowed for a parcel in educational, religious or public use. The sign shall not exceed thirty-two (32) square feet in sign area and shall not exceed eight (8) feet in height. The sign may be illuminated. However, this additional monument sign shall not be allowed if there is an additional permanent wall sign on the same parcel.

(18) Wall signs. One (1) wall sign is allowed for each face of a building or part of a building that is occupied by a permitted or conditional non-residential use. The size (area) of the wall sign for an occupant or a tenant shall be the lesser of: (i) two hundred fifty (250) square feet, or alternatively (ii) one (1) square foot per one (1) linear foot of building frontage for a single occupant building or one (1) square foot per one (1) linear foot of building frontage for the occupant or tenant space in a multi-tenant development, each as measured on the street toward which the wall sign is oriented. A wall sign shall not extend higher than the building wall to which it is attached. Up to fifty (50) percent of the wall sign surface may consist of a changeable copy sign; provided, however, that the sign copy of the changeable copy sign shall not change more than once in any twenty-four (24) hour time period. The wall sign shall not project more than twelve (12) inches from the wall. If the wall sign projects more than two and one-half (2 ½) inches from the wall, the wall sign shall be mounted so that the bottom of the wall sign is at least nine (9) feet above ground at finished grade below the wall sign. The wall sign may be illuminated.

In addition to any wall sign allowed above, one (1) permanent wall sign may be allowed for a parcel in educational, religious or public use. The wall sign shall not exceed thirty-two (32) square feet in sign area and shall not exceed eight (8) feet in height. The wall sign may be illuminated. However, this additional permanent wall sign shall not be allowed if there is an additional monument sign on the same parcel.

(19) Wall signs at restaurants. In addition to any other wall sign allowance, a restaurant shall be allowed one (1) wall sign installed within twenty (20) feet of its main entrance. The wall sign shall not exceed six (6) square feet in area and shall not exceed six (6) feet in height. The wall sign may be illuminated.

(20) Drive-through lane signs. For a drive-through establishment, an additional display sign is allowed for each drive-through lane provided that such sign does not exceed forty (40) square feet in size and does not exceed eight (8) feet in height. The additional display sign may be internally illuminated and may emit sound only as part of a business transaction. Any sounds emitted must comply with Chapter 18 of the Code of Ordinances of the City of Jacksonville Beach.

(21) Umbrella signs. For each table in an outside seating area for a licensed business establishment, one (1) umbrella sign per umbrella is allowed. An umbrella sign shall not exceed three (3) square
feet in area and shall not exceed eight (8) feet in height. An umbrella having an umbrella sign shall be mounted on or in the table or in an umbrella holder adjacent to the table. A sign permit is not required for an umbrella sign.

(22) *Awning signs.* For each awning, one (1) sign is allowed. The awning sign shall not exceed an area greater than twenty (20) percent of the surface area of the awning or canopy. The total square footage of the awning sign shall count toward the maximum square footage of the wall sign area allowed for a parcel or a tenant. An awning sign may be internally illuminated.

(23) *Canopy signs.* For each canopy, one sign is allowed. Except for the sign area limitation for canopy signs at service station islands, a canopy sign shall not exceed an area greater than twenty (20) percent of the surface area of the canopy. The total square footage of the canopy sign shall count toward the maximum square footage of the wall sign area allowed for a parcel or a tenant. A canopy sign may be internally illuminated.

(24) *Changeable copy signs.* As part of a permitted monument sign or wall sign, a changeable copy sign, manual or electronic (LED), may be installed. The changeable copy sign shall not exceed fifty (50) percent of allowable area of the monument sign or wall sign. The changeable copy sign shall not exceed ten (10) feet in height when installed as a part of a monument sign for a single occupant or tenant building. The changeable copy sign shall not exceed sixteen (16) feet in height if part of the monument sign is for a multiple occupant or tenant building. A changeable copy sign that is a part of wall sign shall not be installed higher than the wall of the building. The sign copy on a changeable copy sign shall not be changed more than once in any twenty-four (24) hour time period. Changeable copy signs may be internally illuminated.

(25) *Projecting signs.* For buildings in the Central Business District (CBD) or a Redevelopment District (RD), one (1) projecting sign is allowed for each ground floor occupant or tenant space. The projecting sign shall be attached to the building frontage on the street or driveway on which the sign is located. The maximum size of the projecting sign shall be the lesser of (1) sixteen (16) square feet or (2) one (1) square foot per linear foot of occupant or tenant building frontage on the street or private driveway on which it is located; however, the square footage of a projecting sign shall count toward the maximum square footage of wall signage allowed for the building. The maximum thickness of the sign face of a projecting sign shall not exceed twenty-four (24) inches when such sign is of solid construction. A projecting sign shall have a minimum vertical clearance of nine (9) feet, and shall not be mounted higher than the wall of the building. A projecting sign that extends over a sidewalk in the public right-of-way shall be limited to a projection distance not to exceed two-thirds (2/3) of the width of the sidewalk. A projecting sign may be illuminated.

(26) *Window signs.* Window signs are permitted provided that the window sign may not cover more than twenty-five (25) percent of the area of any window. Window signs may be internally illuminated. A sign permit is not required for a window sign.

(27) *Door signs.* Door signs are permitted provided that the door sign may not cover more than twenty-five (25) percent of the area of any door. Door signs shall not be illuminated. A sign permit is not required for a door sign.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-446. - Temporary and permanent signs allowed in zoning districts.

The signage rights and responsibilities for temporary signs and permanent signs shall be determined by the provisions of section 34-445, general provisions for signs, and by the sign provisions for the zoning
districts as set forth below in section 34-447.1, temporary signs allowed in zoning districts, and section 34-447.2, permanent signs allowed in zoning districts.

However, in connection with residential uses in nonresidential zoning districts and nonresidential uses in residential zoning districts, the signage rights and responsibilities applicable to any particular use shall be determined as follows:

(1) In a residential zoning district where a nonresidential use is allowed, whether as a matter of right or by way of a conditional use permit or other process with stated criteria governing the allowance of the nonresidential use, the nonresidential use shall be treated as if it was located in a zoning district where the nonresidential use would be allowed, either as a matter of right or subject to a conditional use permit or other process with stated criteria governing the allowance of the nonresidential use; and

(2) In a nonresidential zoning district where a residential use is allowed, the residential use shall be treated as if it was located in the residential zoning district where that type of use would be allowed as a matter of right.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-447.1. - Temporary signs allowed in zoning districts.

Within its zoning districts and subject to any applicable provisions with section 34-445, general provisions for signs, the city shall allow temporary signs that meet the criteria and limitations set forth in Table 34-447.1a and Table 34-447.1b, shown below.

A government sign shall not require a sign permit and shall be allowed in all zoning districts on public property and public rights-of-way unless otherwise provided herein. However, the foregoing shall have no impact on any separate requirements established by state statute for building permits, electrical permits or other statutory permits.

A temporary sign displayed on a window surface must be displayed on the inside of the window surface, shall cover no more than twenty-five (25) percent of the window surface, and shall not be illuminated.

<table>
<thead>
<tr>
<th>Table 34-447.1a.</th>
<th>Criteria and Limitations for Temporary A-Frame and T-Frame Signs—CBD Zoning District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Number of Signs</td>
<td>1 per business</td>
</tr>
<tr>
<td>Maximum Width</td>
<td>3 feet</td>
</tr>
<tr>
<td>Maximum Height</td>
<td>3½ feet</td>
</tr>
<tr>
<td>Minimum Setback/Distance from Curb</td>
<td>1 foot</td>
</tr>
<tr>
<td>Maximum Width of Public Sidewalk that the Sign May Obstruct</td>
<td>No more than one third of width of public sidewalk</td>
</tr>
<tr>
<td>Maximum Distance of Sign from Main Entrance to Business</td>
<td>10 feet</td>
</tr>
<tr>
<td>Duration Allowed</td>
<td>Only during hours while business is open</td>
</tr>
<tr>
<td>Allowed on Public Property and Right-of-Way</td>
<td>Yes</td>
</tr>
<tr>
<td>Allowed in a sight visibility triangle described in section 34-395</td>
<td>No</td>
</tr>
<tr>
<td>Criteria and Limitations for All Other Temporary Signs in All Zoning Districts</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Zoning Districts</strong></td>
<td><strong>RS-1, RS-2, RS-3, RM-1, RM-2</strong></td>
</tr>
<tr>
<td>Maximum Number of Temporary Signs Per Parcel</td>
<td>8</td>
</tr>
<tr>
<td>Maximum Sign Size (Area) for a Temporary Sign</td>
<td>4 sf.</td>
</tr>
<tr>
<td>Maximum Sign Height for a Temporary Freestanding Sign</td>
<td>6 ft.</td>
</tr>
<tr>
<td>Maximum Sign Height for a Temporary Wall Sign (inclusive of a Window Sign)</td>
<td>15 ft.</td>
</tr>
<tr>
<td>Minimum Sign Setback required to be maintained by a Temporary Ground Sign from any property line</td>
<td>3 ft.</td>
</tr>
<tr>
<td>Minimum Sign Setback required to be maintained by a Temporary Ground Sign from the edge of any paved street or road</td>
<td>3 ft.</td>
</tr>
<tr>
<td>Minimum Spacing that is required to be maintained by a Temporary Ground Sign from any other Temporary Ground Sign</td>
<td>15 ft.</td>
</tr>
<tr>
<td>Maximum Aggregate Surface Area Allocated for All Temporary Signs on a Parcel</td>
<td>64 sf.</td>
</tr>
<tr>
<td>Whether Temporary Sign is Allowed on Public Property or Public Right-of-Way</td>
<td>No</td>
</tr>
<tr>
<td>Allowed in a sight visibility triangle described in section 34-395</td>
<td>No</td>
</tr>
<tr>
<td>Direct Illumination of Surface of Temporary Sign Allowed</td>
<td>No</td>
</tr>
<tr>
<td>Duration allowed after event ends</td>
<td>7 calendar days</td>
</tr>
</tbody>
</table>

1. The number of temporary commercial signs per parcel shall be no more than two (2) signs; however, no more than one (1) temporary commercial sign per parcel may be a banner sign and a temporary commercial banner sign is limited to a maximum duration of display of no more than thirty (30) days per calendar year per parcel.

2. The square footage limitation is per side for a back-to-back sign. For example, a four (4) square foot limitation means that there is a limit of four (4) square feet of surface area per side of a back-to-back sign, and an aggregate limit of eight (8) square feet is allowed if the sign is a back-to-back temporary sign.

3. Not applicable to signs displayed on flagpoles.
4 Minimum sign setbacks do not apply to wall signs. Except as set forth in Table 34-447.1a for A-frame signs and T-frame signs, all temporary signs are prohibited on public property and from public rights-of-way.

5 Not applicable to signs displayed on flagpoles.

6 There is no limit to the number of separate messages that may appear on the allowable surface(s) of any temporary sign. The maximum aggregate surface area allowed is subject to circumstances that may reduce the maximum aggregate surface area allowable on some parcels.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-447.2. Permanent signs allowed in zoning districts.

Within its zoning districts and subject to any applicable provisions within section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in the subsections below. Unless otherwise provided herein, a permanent sign shall require a sign permit; however, a government sign on public property or public rights-of-way shall not require a sign permit and shall be allowed in all zoning districts on public property or public rights-of-way unless otherwise provided herein. The foregoing shall have no impact on separate requirements established by state statute for building code permits or other code permits.

1) Single-Family Residential Zoning Districts (RS-1, RS-2, RS-3). Within Single-Family Residential Zoning Districts (RS-1, RS-2, RS-3) and subject to the provisions with section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in Table 34-447.1 below.

<table>
<thead>
<tr>
<th>Table 34-447.1</th>
<th>Single-Family Residential Zoning Districts (RS-1, RS-2, RS-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress and Egress Signs</td>
<td>Allowed as per Sec. 34-451</td>
</tr>
<tr>
<td>Street Address Signs</td>
<td>Allowed as per Sec. 34-445</td>
</tr>
<tr>
<td>Flagpoles</td>
<td>Allowed as per Sec. 34-445</td>
</tr>
<tr>
<td>Flag Brackets and Stanchions</td>
<td>Allowed as per Sec. 34-445</td>
</tr>
<tr>
<td>On-Site Parking Space Signs</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Emergency Services Wayfinding Signage</td>
<td>Allowed as per Sec. 34-458</td>
</tr>
<tr>
<td>Signs at Service Station Islands</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Monument Signs</td>
<td>Allowed as per Sec. 34-445</td>
</tr>
<tr>
<td>Wall Signs</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Restaurant Wall Signs</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Drive-Through Lane Signs</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Umbrella Signs</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Awning Signs</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Canopy Signs</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>Changeable Copy Signs</td>
<td>Not Allowed</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Type of Sign</th>
<th>Allowance</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projecting Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Window Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Door Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
</tbody>
</table>

(2) **Multi-Family Residential Zoning Districts (RM-1, RM-2).** Within Multi-Family Residential Zoning Districts (RM-1, RM-2) and subject to any applicable provisions within section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in Table 34-447.2 below.

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Allowance</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress and Egress Signs</td>
<td>Allowed as per Sec. 34-451</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Street Address Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flagpoles</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flag Brackets and Stanchions</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>On-Site Parking Space Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td><strong>Emergency Services Wayfinding Signage</strong></td>
<td><strong>Allowed as per Sec. 34-458</strong></td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Signs at Service Station Islands</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Monument Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>N/A</td>
</tr>
<tr>
<td>Wall Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Restaurant Wall Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Drive-Through Lane Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Umbrella Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Awning Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Canopy Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Changeable Copy Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Projecting Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Window Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Door Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
</tbody>
</table>

(3) **Commercial Zoning Districts (CPO, C-1, C-2, CS).** Within Commercial Zoning Districts (CPO, C-1, C-2, CS) and subject to any applicable provisions within section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in Table 34-447.3 below.
Table 34-447.3  
Commercial Zoning Districts (CPO, C-1, C-2, CS)

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Allowed/Prohibited</th>
<th>Sign Permit Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress and Egress Signs</td>
<td>Allowed as per Sec. 34-451</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Street Address Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flagpoles</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flag Brackets and Stanchions</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>On-Site Parking Space Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Signs at Service Station Islands</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Monument Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Wall Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Restaurant Wall Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Drive-Through Lane Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Umbrella Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Awning Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Canopy Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Changeable Copy Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Projecting Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Window Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Door Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td><strong>Emergency Services Wayfinding Signage</strong></td>
<td><strong>Allowed as per Sec. 34-458</strong></td>
<td><strong>Sign Permit Required</strong></td>
</tr>
</tbody>
</table>

(4) Central Business Zoning District (CBD). Within the Central Business Zoning District (CBD) and subject to any applicable provisions within section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in Table 34-447.4 below.

Table 34-447.4  
Central Business Zoning District (CBD)

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Allowed/Prohibited</th>
<th>Sign Permit Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress and Egress Signs</td>
<td>Allowed as per Sec. 34-451</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Street Address Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flagpoles</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flag Brackets and Stanchions</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>On-Site Parking Space Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Signs at Service Station Islands</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Monument Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Wall Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Restaurant Wall Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Sign Type</td>
<td>Allowance</td>
<td>Permit Requirement</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Drive-Through Lane Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Umbrella Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Awning Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Canopy Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Changeable Copy Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Projecting Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Window Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Door Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Emergency Services Wayfinding Signage</td>
<td>Allowed as per Sec. 34-458</td>
<td>Sign Permit Required</td>
</tr>
</tbody>
</table>

(5) Industrial Zoning District (I-1). Within the Industrial Zoning District (I-1) and subject to any applicable provisions within section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in Table 34-447.5 below.

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Allowance</th>
<th>Permit Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress and Egress Signs</td>
<td>Allowed as per Sec. 34-451</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Street Address Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flagpoles</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Flag Brackets and Stanchions</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>On-Site Parking Space Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Signs at Service Station Islands</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Monument Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Wall Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Restaurant Wall Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Drive-Through Lane Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Umbrella Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Awning Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Canopy Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Changeable Copy Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Required</td>
</tr>
<tr>
<td>Projecting Signs</td>
<td>Not Allowed</td>
<td>N/A</td>
</tr>
<tr>
<td>Window Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Door Signs</td>
<td>Allowed as per Sec. 34-445</td>
<td>Sign Permit Not Required</td>
</tr>
<tr>
<td>Emergency Services Wayfinding Signage</td>
<td>Allowed as per Sec. 34-458</td>
<td>Sign Permit Required</td>
</tr>
</tbody>
</table>
(6) Redevelopment Zoning District (RD). Within the Redevelopment Zoning District (RD) and subject to any applicable provisions within section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in Table 34-447.6 below.

<table>
<thead>
<tr>
<th>Table 34-447.6</th>
<th>Redevelopment Zoning District (RD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress and Egress Signs</td>
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(7) Planned Unit Development Zoning District (PUD). Within its Planned Unit Development Zoning District (PUD) and subject to any applicable provisions within section 34-445, general provisions for signs, the city shall allow permanent signs that meet the criteria and limitations set forth in Table 34-447.7 below.

<table>
<thead>
<tr>
<th>Table 34-447.7</th>
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<td><strong>Emergency Services Wayfinding Signage</strong></td>
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</tr>
</tbody>
</table>

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-448. - Building permits.

It shall be unlawful for any person or business or the person in charge of the business to erect, construct, alter or maintain a sign structure, as defined in the Florida Building Code, without first obtaining a building permit from the city in accordance with the provisions of the Florida Building Code and applicable law. Permit fees for a building permit shall be paid in accordance with the applicable city fee schedules. The requirement of a building permit under the Florida Building Code is separate and independent of the requirement for a sign permit under this division.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-449. - Sign permits.

Temporary signs do not require a sign permit.

Unless exempt from permitting, no permanent sign shall be erected, altered, relocated, maintained or displayed until a sign permit is obtained from and the appropriate fee paid to the city. The sign permit is in addition to any building permit required to be obtained pursuant to the provisions of the Florida Building Code.

(1) No sign permit shall be issued for the erection of a prohibited sign.

(2) A sign lawfully erected may be repainted or have ordinary and customary repairs performed, including replacement of plastic or glass panels, without a sign permit; however, if such sign is to be structurally altered in any manner, a new sign permit shall be required and the altered sign must meet all requirements of this division and this Code.

(3) Exceptions from permitting. Temporary signs shall not require a sign permit. Unless identified in the tables in section 34-447.2 as not requiring a sign permit and unless otherwise excepted from requiring a sign permit such as a government sign, all permanent signs shall require a sign permit. However these exceptions in no way waive any requirement set forth in the Florida Building Code; or any limitation or restriction on the number, size, height, setback, placement or duration.
of such signs under this division, or any limitation or restriction under any other applicable law or regulation.

(4) Permits not required for change of sign copy. No permit or permit fee shall be required for changing the copy of a sign, as long as no changes are made to the sign's height, size, location, or structure. This exemption shall also apply to any change of copy on a changeable copy sign.

(5) Sign permit applications. A sign permit application for a permanent sign as may be required by this division shall be prepared and submitted on forms available at the department of planning and development. The sign permit application is in addition to any building permit application required by the Florida Building Code. The applicant shall furnish the following information on or with the sign permit application form:

a. Name, address, telephone number, and e-mail address (if available) of the person making application for the permit. If the applicant is anyone other than the property owner, the applicant shall provide written authorization from the property owner permitting the installation of the sign.

b. Name, address, telephone number, and e-mail address (if available) of the property owner. If the owner is an entity other than an individual, list the contact person's name.

c. Name, address, telephone number, and e-mail address (if available) of the business tenant, if applicable. If the tenant is an entity other than an individual, list the contact person's name.

d. Name, address, telephone, e-mail address (if available), and license number of the contractor, if applicable. If the contractor is an entity other than an individual, list the contact person's name.

e. Address and legal description of the property upon which the sign is to be located. The legal address may be located on a certified boundary survey.

f. Lot frontage on all streets and public rights-of-way.

g. Indicate in feet and inches the location of the sign in relation to property lines, public rights-of-way, easements, overhead utility lines, other utility facilities and equipment, buildings and other signs on the property.

h. Freestanding signs, including monument signs, shall require an accurate boundary survey signed and sealed by a land surveyor or engineer licensed in Florida showing the proposed location of the sign.

i. For all wall mounted signs, the facade elevation with dimensions, drawn to scale. Windows and doors and other openings shall be delineated and their dimensions given.

j. Sign dimensions and elevation, drawn to scale.

k. Maximum and minimum height of the sign measured from finished grade.

l. Dimensions of the supporting members of the sign.

m. Sign illumination, specifying illumination type, placement, and intensity.

n. Two (2) copies of the plans, specifications, calculations and details, signed and sealed as required by the Florida Building Code; and specifications documenting the applicable windload and electrical specifications, if applicable, meeting the minimum requirements of the applicable Electric Code.

o. Number, type, location and surface area of all existing signs on the same property.

p. Landscape plan, as applicable.
q. Notarized signature of applicant. If the value of construction is two thousand five hundred dollars ($2,500.00) or greater, a certified copy of notice of commencement shall be required prior to permit issuance.

(6) Sign construction specifications.

a. *Florida Building Code.* Construction and erection of signs shall be in accordance with the structural requirements set forth in the Florida Building Code.

b. *National Electrical Code.* Signs having electrical connections of any kind shall be wired in accordance with the National Electrical Code.

c. *Inspections.* Any sign having an electrical connection shall be permitted, inspected and approved by the electrical inspector prior to its completion. All sign structures shall be inspected and approved by the building official. The inspection point shall be selected by the building official. All excavations for concrete sign support bases shall be inspected and approved by the building official prior to the pouring of concrete.

d. *Support requirements.* The supporting members of all signs shall be free of any external bracing such as guy wires or cables. All supporting columns shall be designed as integral or architectural features of the sign.

e. *Materials.* Paper or cardboard signs and cloth or plastic fabric banners may only be used in conjunction with a special event as provided herein. However, paper or cardboard signs may be used for indoor window or election signs, when such are allowed.

f. *Construction standards.* All signs shall be installed and constructed in a professional and workmanlike manner; and shall be maintained in good and safe structural condition and good physical appearance. All exposed structural components shall be painted, coated, or made of rust inhibitive material.

(7) Design requirements. All signs and sign structures, except temporary signs and except for prohibited signs such as billboards and off-premises signs, shall be subject to the design requirements below.

a. *Monument signs.* Monument sign structures may extend above the allowable height and/or permitted horizontal dimension for the purposes of architecturally embellishing and enhancing the appearance of the sign structure. Such extensions shall not exceed thirty-six (36) inches for the base, eighteen (18) inches at the top of the sign, or twelve (12) inches for each vertical side of the sign.

b. *Tenant panels in monument signs.* All tenant panels in a monument sign, including those added to an existing sign structure, shall be constructed of similar materials and illuminated by a similar method.

c. *Wall signs.* Wall signs shall not be installed to cover windows, doors, or other types of fenestration.

d. *[Sign work.]* Sign work on all permanent signs shall ensure that all the letter strokes are vertically plumb or evenly slanted, and with alignment true and horizontally level.

e. *Manufactured signs.* All manufactured signs requiring a sign permit shall have a permanent and visible weatherproof identification plate affixed to the sign exterior. The plate shall identify (1) the name of the manufacturer, (2) the date of installation, (3) the sign permit number, and (4) the electric permit number (if any) with the input VA (Volt Amperes) at full load for electric.

(8) Sign permit application review.
a. An applicant shall submit a sign permit application for a permanent sign to the planning and development department, building inspection division, or such other office as may be designated by the city. The sign permit application shall be reviewed for a determination of whether the proposed sign meets the applicable requirements of this division and any applicable zoning law of the City of Jacksonville Beach as set forth in the City of Jacksonville Beach's Code of Ordinances. Whenever required by state statute, the explanation for a denial of a sign permit shall include a citation to the applicable portions of an ordinance, rule, statute, or other legal authority for the denial of the permit; in the event that the applicant fails to receive a statutorily required explanation, the applicant shall submit a written request for the explanation to the city's planning and development director via certified mail.

1. The review of the sign permit application shall be completed within thirty (30) calendar days following receipt of a completed application, not counting the day of receipt and not counting any Saturday, Sunday, or legal holiday that falls upon the first or the thirtieth (30th) day after the date of receipt.

2. A sign permit shall either be approved, approved with any condition that is specifically described and set forth in the LDC or the Jacksonville Beach Code of Ordinances, disapproved, and the decision shall be reduced to writing. A disapproval shall include or be accompanied by a statement of the reason(s) for the disapproval.

3. In the event that no decision is rendered within thirty (30) calendar days following submission, the application shall be deemed denied and the denial shall be a final decision of the City if the applicant chooses not to seek reconsideration at that time. At any time within sixty (60) calendar days, not counting any intervening Saturday, Sunday, or legal holiday, following passage of the thirty (30) calendar day period, the applicant may submit a written request via certified mail to the city and request a decision setting forth the reason that the application was not approved and the city shall promptly respond within ten (10) calendar days after receipt of the written request, not counting the day of receipt and not counting any Saturday, Sunday, or legal holiday, by providing a written explanation of the reason(s) for the nonapproval of the application for the permanent sign.

b. An approval, an approval with conditions, or disapproval by the director of planning and development shall be deemed the final decision of the city upon the application.

c. In the case of an approval with conditions or a disapproval, including a disapproval by lapse of time as described herein, an applicant may ask for reconsideration of the decision on the grounds that the director of planning and development may have overlooked or failed to consider any fact(s) that would support a different decision.

1. A written request for reconsideration accompanied by such additional fact(s) that address the deficiencies that the applicant may wish the director of planning and development to consider, shall be filed with the director of planning and development within fourteen (14) calendar days after the date of the written decision. No fee shall be required for a request for reconsideration.

2. Upon the timely filing of a request for reconsideration, the decision of the director of planning and development or designee shall be deemed stayed and not a final decision, until the request for reconsideration is decided. The request for reconsideration shall be decided within fourteen (14) calendar days of receipt by the city, not counting any intervening Saturday, Sunday, or legal city holiday. Such decision shall be in writing and shall include a statement of the reason(s) for the decision. In the event that no
decision is rendered within fourteen (14) calendar days following the request for reconsideration, the application shall be deemed denied and the denial shall then be a final decision of the city. At any time within sixty (60) calendar days, not counting any intervening Saturday, Sunday, or legal city holiday, following passage of the fourteen (14) calendar day period, the applicant may submit a written request via certified mail to the city and request a decision setting forth the reason for the denial of the request for reconsideration and the city shall promptly respond within ten (10) calendar days after receipt of the written request, not counting the day of receipt and not counting any Saturday, Sunday, or legal holiday, by providing a written explanation of the reason(s) for not approving the application upon reconsideration.

d. All decisions shall be mailed, transmitted electronically, or hand delivered to the applicant. A record shall be kept of the date of mailing, electronic transmittal, or hand delivery. For the purposes of calculating compliance with the thirty (30) day deadline for a decision upon an application or the fourteen (14) day deadline for a decision upon request for reconsideration, the decision shall be deemed made when deposited in the mail, transmitted electronically, or hand delivered to the applicant.

e. As exceptions to the foregoing, the thirty (30) day deadline for approval and the fourteen (14) day deadline for a decision upon receipt of a request for a reconsideration shall not apply (that is, the time shall be suspended):

1. In any case in which the application requires a rezoning of the property, or an amendment to the comprehensive plan of the city, then upon written request of the applicant delivered to the director of planning and development by certified mail before the applicable deadline, the time shall be suspended until a final decision is made upon the application for the variance, rezoning, or comprehensive plan amendment.

2. If the applicant is required to make any change to the application in order to obtain an unconditional approval so as to satisfy an express provision of state law, the LDC, or the City of Jacksonville Beach Code of Ordinances, then upon the written request of the applicant delivered by certified mail to the director of planning and development before the applicable deadline, the time shall be suspended while the applicant makes such change.

3. If an applicant is required by state statute or by any express provision of either the LDC or the City of Jacksonville Beach Code of Ordinances, to obtain an approval of the sign from any other governmental agency within the limitations set forth in F.S. § 166.033(4), then upon the request of the applicant in writing delivered by certified mail before the applicable deadline, the time shall be suspended. The time shall remain suspended until such approval is obtained or until the applicant requests in writing delivered by certified mail to the director of planning and development that the city take final action. The city shall comply with the provisions of F.S. § 166.033(4).

4. In any of the foregoing cases, the applicant may elect to not make any changes to the application or to not obtain an approval that may be required by another governmental agency, and may instead demand in writing a final decision upon the sign permit application as filed. Such a written demand shall be delivered by certified mail to the director of planning and development. In such event, the director of planning and development shall make a decision on the application as appropriate within thirty (30) business days after receiving such demand. If a decision is not made in such a time, the application shall be deemed denied.
f. Any person aggrieved by the decision of the director of planning and development upon a sign permit application, or aggrieved by any failure by the director of planning and development or by any other city official to act upon a sign permit application in accordance with the LDC, shall have the right to seek judicial review by the Circuit Court of the Fourth Judicial Circuit in and for Duval County, Florida, or by any other court of competent jurisdiction, filed in accordance with the requirements of law, seeking such appropriate remedy as may be available.

g. If an applicant believes that his or her speech rights are being denied due to enforcement of subsection (8)c. or (8)e., above, he or she may immediately contact the planning and development department director, in writing via certified letter, and request immediate review of any pending sign permit application. If such a letter is received by the planning and development department director, the city shall have twenty (20) days to review the permit application as under subsection (8)a., above, notwithstanding the provisions of subsection (8)c or (8)e., above. If the planning and development department director does not respond to the applicant following receipt of the certified letter, the substance of the applicant's complaint shall be deemed rejected.

h. If an application is deemed incomplete, the applicant may either take steps to submit a complete application or challenge the City's decision by seeking judicial review by the Circuit Court of the Fourth Judicial Circuit in and for Duval County, or by any other court of competent jurisdiction, filed in accordance with the requirements of law, seeking such appropriate remedy as may be available.

(9) Sign permit fees. Before issuance of a permit, the director of planning and development shall collect the necessary sign permit fees. The sign permit fees shall be as designated by resolution of the city council.

(10) Inspection. The director of planning and development may make or require any inspections to ascertain compliance with the provisions of this division and the Land Development Code.

(11) Revocation of sign permit. If the work under any sign permit is proceeding in violation of this division, the Land Development Code, or the Florida Building Code, or should it be found that there has been any false statement or misrepresentation of a material fact in the application or plans on which the sign permit was based, the permit holder shall be notified of the violation. If the permit holder fails or refuses to make corrections within ten (10) days, it shall be the duty of the director of planning and development to revoke such permit and serve notice upon such permit holder. Such notice shall be in writing and signed by the director of planning and development. It shall be unlawful for any person to proceed with any part of work after such notice is issued.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-450. - Nonconforming signs.

All signs that are lawfully in existence or are lawfully erected and that do not conform to the provisions of this division are declared nonconforming signs. It is the intent of this division to recognize that the eventual elimination of nonconforming signs as expeditiously and fairly as possible is as much a subject of health, safety, and welfare as is the prohibition of new signs that would violate the provisions of this division. It is also the intent of this division that any elimination of nonconforming signs shall be effected so as to avoid any unreasonable invasion of established property rights.

(1) Legal nonconforming signs:
a. A legal nonconforming sign is a sign that lawfully existed at the time of the enactment of this division that does not conform to the regulations as specified in this division.

b. A legal nonconforming sign may continue to be utilized only in the manner and to the extent that it existed at the time of the adoption of this division or any amendment thereof.

c. A legal nonconforming sign may not be altered in any manner not in conformance with this division. This does not apply to reasonable repair and maintenance of the sign or to a change of copy provided that by changing the copy structural alterations are not required.

d. Any building permit for an addition, alteration, or improvement valued at more than fifty (50) percent of the fair market value of the structure or building for work at locations where any nonconforming sign exists shall specify and require that such nonconforming signs located within the boundaries of the development site, and within the limits of the applicant's control, shall be brought into conformance with the provisions of this division, provided that if the nonconforming sign is a type of sign that is prohibited under section 34-444, prohibited signs in all zoning districts, it shall be removed.

e. Legal nonconforming signs that are located on a parcel of property that is severed from a larger parcel of property and acquired by a public entity for public use by condemnation, purchase or dedication may be relocated on the remaining parcel without extinguishing the legal nonconforming status of that sign provided that the nonconforming sign:

1. Is not increased in area or height to exceed the limits of the zoning district in which it is located;

2. Remains structurally unchanged except for reasonable repairs or alterations;

3. Is placed in the most similar position on the remaining property that it occupied prior to the relocation; and

4. Is relocated in a manner so as to comply with all applicable safety requirements.

After relocation pursuant to this subsection, the legal nonconforming sign shall be subject to all provisions of this section in its new location.

(2) Signs rendered nonconforming:

a. Except as provided in this section, a nonconforming sign may continue in the manner and to the extent that it existed at the time of the adoption, amendment or annexation of the division that rendered the sign nonconforming. This section shall not prohibit reasonable repairs and alterations to nonconforming signs.

b. A nonconforming sign shall not be re-erected, relocated or replaced unless it is brought into compliance with the requirements of this division. An existing monument sign that conforms to the size and height limitations set forth herein, but is otherwise nonconforming, may be relocated a single time to another location on the same parcel.

c. Any nonconforming sign shall be removed or rebuilt in full conformity to the terms of this division if it is damaged or allowed to deteriorate to such an extent that the cost of repair or restoration is fifty (50) percent or more of the cost of replacement of such sign.

(3) Signs for a legal nonconforming use:

a. New or additional signs for a nonconforming use shall not be permitted.

b. A nonconforming sign for a nonconforming use that ceases to be used for a period of sixty (60) consecutive days or is replaced by a conforming use, shall be considered a prohibited
sign and shall be removed or brought into conformance upon establishment of a conforming use.

(4) **Signs discontinued:**

a. Sign structures that remain vacant, unoccupied or devoid of any message, or display a message pertaining to a time, event or purpose that no longer applies, for a period of one hundred eighty (180) days, shall be deemed to be discontinued.

b. A nonconforming sign deemed discontinued shall immediately terminate the right to maintain such sign.

c. After a sign structure has been deemed discontinued, it shall be the responsibility of the property owner or the property owner's authorized agent to remove the discontinued sign and to patch and conceal any and all damage to any other structure resulting from removal of the sign.

d. Removal of a discontinued nonconforming sign shall include all sign support components, angle irons, poles, and other remnants of the discontinued sign, that are not currently in use, or proposed for immediate reuse as evidenced by a sign permit application for a permitted sign.

(5) **Unsafe signs:**

a. If the building official determines any sign or sign structure to be in an unsafe condition, he/she shall immediately notify, in writing, the owner of such sign who shall correct such condition within forty-eight (48) hours.

b. If the correction has not been made within forty-eight (48) hours, the building official may have the sign removed if it creates a danger to the public safety or have any necessary repairs or maintenance performed at the expense of the sign owner or owner or lessee of the property upon which the sign is located.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-451. - Miscellaneous provisions.

(1) **Maintenance of sign location.** For a sign requiring a sign permit, weeds and grass shall be kept cut in front of, behind, underneath, and from around the base of the sign for a minimum distance of ten (10) feet from the sign base, and there shall be no rubbish or debris within ten (10) feet of the sign base or underneath the sign.

(2) **Ingress and egress signs.** For safety purposes and for traffic circulation purposes, permanent ingress and egress signs to a parcel are permitted provided the same do not exceed four (4) square feet in size and no more than three (3) feet in height. Such signs shall not require a permit.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)

Sec. 34-452. - Penalties.

Penalties for violation of this division shall be as provided in section 34-640; however, notwithstanding anything in the LDC or in the Jacksonville Ordinance Code to the contrary, a penalty for a violation of this division shall be limited to civil penalties only and shall not extend to any criminal penalty including but not limited to incarceration.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15.)
Sec. 34-453. - Severability.

(1) Generally. If any part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of this division is declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, the declaration of such unconstitutionality shall not affect any other part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of this division.

(2) Severability where less speech results. Without diminishing or limiting in any way the declaration of severability set forth above in subsection (1), above, or elsewhere in this division, the Jacksonville Beach Code of Ordinances, or any adopting ordinance, if any part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of this division is declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, the declaration of such unconstitutionality shall not affect any other part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of this division, even if such severability would result in a situation where there would be less speech, whether by subjecting previously exempt signs to permitting or otherwise.

(3) Severability of provisions pertaining to prohibited signs. Without diminishing or limiting in any way the declaration of severability set forth above in subsection (1), above, or elsewhere in this division, the Jacksonville Beach Code of Ordinance, or any adopting ordinance, if any part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of this division that pertains to prohibited signs, including specifically those signs and sign types prohibited and not allowed under section 34-444, prohibited signs, of this division. Furthermore, if any part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of section 34-444 is declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, the declaration of such unconstitutionality shall not affect any other part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of section 34-444 thereby ensuring that as many prohibited sign types as may be constitutionally prohibited continue to be prohibited.

(4) Severability of prohibition on billboards. If any part, section, subsection, paragraph, subparagraph, sentence, phrase, clause, term, or word of this division and/or any other Code provisions and/or laws are declared invalid or unconstitutional by the valid judgment or decree of any court of competent jurisdiction, the declaration of such unconstitutionality shall not affect the prohibition on billboards as contained in this Division or in the Jacksonville Beach Code of Ordinances.

(Ord. No. 2015-8065, § 2(Exh. A), 12-7-15)

Secs. 34-454—34-457. - Reserved.

Sec. 34-458 – Emergency Services Wayfinding Signage

It is the express purpose of the sign regulations contained herein to promote public safety while promoting and enhancing the beautification of the city and protecting property values. It is fully acknowledged that safe and effective transit to emergency services is in the best interest of the general public. Per the regulations and restrictions contained herein, signage directing the general public to emergency services, as defined herein, shall be allowed off site from the property providing said services.

(1) Emergency Service. “Emergency Service” shall mean police stations, fire stations, paramedic facilities, as well as hospitals which feature an on-site emergency facility licensed by the State of
Florida which provides “Emergency services and care” as said term is defined per Sec. 395.002, Florida Statutes.

(2) **Wayfinding Signage.** “Wayfinding Signage” shall mean signage which contains directions, distances and general guidance to a particular point of interest which qualifies as an “Emergency Service.”

(3) **Signage Parameters.** Emergency Services Wayfinding Signage shall conform to the following requirements:

a. **Pole Sign.**

   1. Height. Maximum of Twenty-four (24) feet in height, not including any architectural embellishment provided the embellishment does not exceed thirty-six (36) inches at the base of the sign and eighteen (18) inches at the top of the sign.

   2. Signage Area. Maximum signage area of fifty-four (54) square feet for each side.

b. **Monument Signs.**

   1. Height. Maximum of sixteen (16) feet in height, not including any architectural embellishment provided the embellishment does not exceed thirty-six (36) inches at the base of the sign and eighteen (18) inches at the top of the sign.

   2. Signage Area. Maximum signage area of one-hundred (120) square feet for each side.

c. **Illumination.** Signage allowed under this subsection may be internally or externally illuminated. For internal illumination, the sign may be constructed with an opaque background and translucent letters or other graphical elements, or with a colored background and lighter letters or graphics. For external illumination, the sign may be illuminated only with steady, stationary, directed and shielded light sources directed solely onto the sign. Light bulbs or tubes (excluding neon), used for illuminating a sign, shall not be visible from the adjacent public rights-of-way or residential properties. Illuminated signage shall not be located within fifty (50) feet of the property line of a single-family residence.

d. **Content.** Signage allowed under this subsection may identify:

   1. The name and type of Emergency Service.

   2. The approximate distance from the sign location to the Emergency Service.

   3. Approximate directions from the sign location to the Emergency Service.

e. **Sign Locations.** Signs allowed under this subsection shall only be located within fifty (50) feet of roadways which serve as a collector, arterial or highway, or which feature more than ten-thousand (10,000) daily trips.
f. Approval of Sign Locations. The public works department and the planning and development department shall review and approve the proposed location for signage allowed under this subsection. In review of a proposed sign, the departments shall consider the particular location of a sign and the character of the immediate surroundings of the sign location.

g. Compliance with other laws. Any sign allowed pursuant to this subsection shall comply with all other applicable government laws and regulations.

SECTION 3. That this ordinance shall take effect upon its adoption by the City Council.

SECTION 4. That if any section, subsection, clause or provision of this ordinance is held invalid, the remainder shall not be affected by such invalidity.

SECTION 5. All ordinances, resolutions, official determinations or parts thereof previously adopted or entered into by the City or any of its officials and that are in conflict with this ordinance are repealed to the extent inconsistent herewith.

AUTHENTICATED THIS _______ DAY OF _________________, A.D., 2019.

William C. Latham, Mayor

Laurie Scott, City Clerk