



## **BHS – South Beauregard Medical Campus**

13806 Hwy 171  
Longville, Louisiana 70652

### **CD Specifications**

January 27, 2026

Grace. Project 6024182

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**END OF SECTION**

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### **Owner:**

West Louisiana Health Services, Inc, d/b/a  
Beauregard Health System  
600 Pine Street  
DeRidder, LA, 70634  
p. 337.462.7100

### **Architect/Interior Design:**

Grace Design Studios, LLC  
501 Government Street, Suite 200  
Baton Rouge, LA 70802  
p. 225.338.5569

### **Structural Engineer:**

Cypress Engineering and Development Group,  
LLC  
4310 Ryan St., STE 122,  
Lake Charles, LA 70605  
p. 337.504.7755

### **Electrical Engineer:**

Parish Engineering  
102 Magnate Drive, Suite 203  
Lafayette, LA 70508  
p. 337.473.7364

SECTION 00 0003 - PROFESSIONAL SEALS

 <p>1-26-24</p> <p>ARCHITECT – GRACE DESIGN STUDIOS, LLC</p>	 <p>CIVIL ENGINEER</p>	<p>SEE ENGINEERS SECTION</p> <p>ELECTRICAL ENGINEER</p>

SECTION 00 0004 – INVITATION FOR BIDS

Deliver sealed bids to: Beauregard Health Systems, 600 S Pine St, DeRidder, LA. 70634, before **2:00 PM, Tuesday, February 24, 2026** for the project entitled:

BHS – South Beauregard Medical Campus  
13806 Hwy 171  
Longville, LA 70652  
GRACE Project No. 6024182

Complete Bidding Documents for this project are available in electronic form. They may be obtained without charge and without deposit from [www.centerline.co](http://www.centerline.co). Printed copies are not available from the Designer but arrangements can be made to obtain them through most reprographic firms. Plan holders are responsible for their own reproduction costs.

Electronic Bidding: Bidders may use Centerline the bidding module to submit their bids electronically. Please find bid related information and post your electronic bids online at [www.centerline.co](http://www.centerline.co).

All bids must be accompanied by bid security equal to 5% of the low bid and must be in the form of a certified check, or cashier's check. The Bid Bond shall be in favor of the West Louisiana Health Services, Inc, d/b/a Beauregard Health System and shall be accompanied by the appropriate power of attorney. No bid indicating an obligation of less than five percent (5%) by any method is acceptable.

The successful bidder shall be required to furnish a Performance and Payment Bond written by a company licensed to do business in Louisiana, in amount equal to 100% of the Contract amount. The Surety Company must be listed currently on the U. S. Department of Treasury Financial Management Service List (Treasury List) as approved for an amount equal or greater than the contract amount or must be an insurance company domiciled in Louisiana or owned by Louisiana residents. If The Surety Company is qualified other than by listing on the Treasury list, the contract amount may not exceed fifteen percent of policyholders' surplus as shown by The Surety's Company most recent financial statements filed with the Louisiana Department of Insurance and may not exceed the amount of \$500,000. However, a Louisiana domiciled insurance company with at least an A-rating in the latest printing of the A. M. Best's Key Rating guide shall not be subject to the \$500,000 limitation, provided that the contract amount does not exceed ten percent of the policyholders' surplus filed with the Louisiana Department of Insurance. The Bond shall be signed by The Surety's Company agent or attorney-in-fact and countersigned by a person who is under contract with The Surety's Company as a licensed agent in this State, and who is residing in this State.

**A MANDATORY PRE-BID CONFERENCE WILL BE HELD  
At 2:00 PM on Monday February 9, 2026, VIA TEAMS.**

Bids shall be accepted from Contractors who are licensed under LA. R. S. 37:250-2163 for the classification of Building Construction. Bidder is required to comply with provisions and requirements of LA R. S. 38:2212 (A)(1)(c). No bid may be withdrawn for a period of thirty (days) after receipt of bids, except under the provisions of LA. R. S. 38:2214.

The Owner reserves the right to reject any and all bids for just cause. In accordance with LA. R. S. 38:2212 (A)(1)9b), the provisions and requirements of this Section, those stated in the advertisement bids, and those required on the bid form shall not be considered informalities and shall not be waived by any public entity.

Other Important Dates:

**Invitations ~ Tuesday, January 27, 2026**  
**Pre-Construction Meeting ~ February 9, 2026**  
**Last Day to Submit RFI ~ February 18, 2026**  
**Last Addendum ~ February 20, 2026**

## SECTION 00 0005 – ARCHITECTS INSTRUCTIONS TO BIDDERS

### 1.01 BIDDING DOCUMENTS

- A. The Bidding Documents include the following:
  - 1. Instructions to Bidders
  - 2. Bid Form
  - 3. General Conditions of the Contract for Construction
  - 4. Supplementary Conditions
  - 5. Contract Between Owner and Contractor - AIA Document A101, available from Architect upon request.
  - 6. Performance Bond - Refer to specification section Special Conditions
  - 7. Payment Bond - Refer to specification section Special Conditions
  - 8. Specifications & Drawings
  - 9. Addenda issued during the bid period and acknowledged in the Bid Form
- B. All definitions set forth in the General Conditions of the Contract for Construction, or in other Contract Documents are applicable to the Bidding Documents.
- C. Addenda are written and/or graphic instruments issued by the Architect prior to the opening of bids which modify or interpret the Bidding Documents by additions, deletions, clarifications, corrections and prior approvals.
- D. A bid is a complete and properly signed proposal to do the work or designated portion thereof for the sums stipulated therein supported by data called for by the Bidding Documents.
- E. Base bid is the sum stated in the bid for which the Bidder offers to perform the work described as the base, to which work may be added, or deleted for sums stated in alternate bids.
- F. An alternate bid (or alternate) is an amount stated in the bid to be added (if an Additive Alternate), or deducted (if an Deductive Alternate) to the amount of the base bid if the corresponding change in project scope or materials or methods of construction described in the Bidding Documents is accepted.
- G. A Bidder is one who submits a bid for a prime Contract with the Owner for the work described in the proposed Contract Documents.
- H. A Sub-bidder is one who submits a bid to a Bidder for materials and/or labor for a portion of the work.
- I. Where the word "Architect" is used in any of the documents, it shall refer to the Prime Designer of the project, regardless of discipline.

### 1.02 ACCESS TO BIDDING DOCUMENTS

- A. Complete bidding documents can be obtained at [www.centerlinebidconnect.com](http://www.centerlinebidconnect.com) via the Centerline bidding module. A secure password is required to access these documents. This password is emailed to all invited subscribers when the bid process becomes **live**.
- B. If electronic distribution is available, printed copies will not be available from the Designer, but arrangements can be made to obtain them through most reprographic firms and/or plan rooms.
- C. All plan holders are responsible for their own reproduction costs. No reproduction costs will be refunded.
- D. Complete sets of Bidding Documents shall be used in preparing bids; neither the Owner nor the Architect assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- E. The Owner or Architect in making copies of the Bidding Documents available on the above terms, do so only for the purpose of obtaining bids on the work and do not confer a license or grant for any other use.

### 1.03 INTERPERTATION OF THE BIDDING DOCUMENTS

- A. Bidders shall promptly notify the Architect thru Centerline of any discrepancy, ambiguity, inconsistency or error which they may discover upon examination of the Bidding Documents or of the site and local conditions. Failure to notify the Architect thru Centerline of any

discrepancy, ambiguity, inconsistency, or error upon discovery of the item shall cause the bidder to be bound by the interpretation of the Architect in regard to the discrepancy, ambiguity, inconsistency or error.

- B. Prospective bidders desiring further information or interpretations of the Drawings and/or Specifications must request such data from the Architect electronically via Centerline. Answers to all questions, inquiries and requests for additional information will be issued in the form of Addenda to the Drawings and Specifications and copies of each addendum will be posted on Centerline to all prospective bidders. Every request for such interpretation should be submitted electronically via Centerline. To be given consideration, requests must be RECEIVED at least seven (7) days prior to date fixed for the opening of bids or **date listed on "Invitation for Bids"**. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications and/or Drawings.
- C. Refer to Specification Section 00 0005a How to enter Request for Information (RFI) and Prior Approvals from bidding side.
- D. Any interpretation, correction or change of the Bidding Documents will be made by addendum. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections and changes.

#### **1.04 SUBSTITUTIONS**

- A. The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitutions shall be allowed after bidding.
- B. Where a single manufacturer or trade name appears in these Specifications, and / or the words "or equal" follow, it is the intent of these specifications that products of equal quality which meet the Architect's approval may be used. The brand, make or manufacturer listed describes the general style, type, character and quality of product desired.
- C. Requests for approval of substitute materials of equal quality and performance to those specified shall be RECEIVED by the Architect electronically via Centerline no later than seven (7) days before the date set for the opening of bids or **date listed on "Invitation for Bids"**.
- D. No substitution will be considered unless written request for approval has been submitted by the Proposer and has been received by the Architect at least seven (7) working days prior to the date for receipt of bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including model numbers, drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. It shall be the responsibility of the proposer to include in his proposal all changes required of the Contract Documents if the proposed product is used. Prior approval is given contingent upon supplier being responsible for any costs which may be necessary to modify the space or facilities needed to accommodate the materials and equipment approved.
- E. If the Architect approves any proposed substitution, such approval will be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner.

#### **1.05 ADDENDA**

- A. Addenda will be posted electronically on Centerline. All bidders registered on Centerline and attached to the project shall receive notice of each addendum and will be able to view, download or send it to printer.
- B. Additional copies of addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
- D. Each Bidder shall ascertain from the Architect prior to submitting his bid that he has received all addenda issued, and he shall acknowledge their receipt on the Bid Form.

## **1.06 BID SUBMISSION**

- A. Deliver written bids to the address indicated on the Bid Form, prior to the time and date for submission indicated on the Bid Form. Any bid received after the time and date indicated shall be disqualified. The bid form and all documents required to accompany the bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the bids, and shall be identified by the Project Name, the Bidder's name, address the Bidders state contractor's license number, and the notation "SEALED BID ENCLOSED".
- B. Electronic Bidding: Bidders may use Centerline to submit their bids electronically. Please find bid related information and submit your electronic bids online at [www.centerline.co](http://www.centerline.co). Prior to time and date indicated in the Bid Form.
- C. All blanks on the Bid Form shall be filled in by typewriter or manually in ink.
- D. Bid sums shall be expressed in both words and figures, and in case of discrepancy between the two, the written words shall govern.
- E. Any interlineation, alteration or erasure must be initialed by the signer of the bid or his authorized representative.
- F. Bidders are cautioned to complete all alternates should such be required in the Bid Form. Failure to submit alternate prices will render the proposal informal and shall cause its rejection.
- G. Bidder shall make no additional stipulations on the Bid Form nor qualify his bid in any other manner.
- H. The bid shall include the legal name of Bidder and shall be signed by the person or persons legally authorized to bind the Bidder to a Contract.
- I. The authority of the signature of the person submitting the bid shall be deemed sufficient and acceptable under any of the following conditions:
  - 1. Signature on bid is that of authorized representative of corporation, partnership, or other legal entity and bid is accompanied by corporate resolution, certification as to the corporate principal, or other documents, (written evidence), indicating authority.
- J. On any bid in excess of fifty thousand dollars (\$50,000.00), the Contractor shall be licensed under R.S. 37: 2150-2173 and show his license number on the bid above his signature or his duly authorized representative. Placement of the signature on the bid shall serve as certification of licensure.

## **1.07 LAWS AND REGULATIONS:**

- A. All laws, ordinances, and rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout and they shall be deemed to be included in the Contract the same as though herein written out in full.

## **1.08 BIDDER'S REPRESENTATION:**

- A. Each Bidder by making his bid represents that:
  - 1. He has read and understands the Bidding Documents and his bid is made in accordance therewith.
  - 1. He has visited the site and has familiarized himself with the local conditions under which the work is to be performed. No compensation shall be allowed for items of cost due to the contractor's lack of knowledge of existing conditions resulting in additional cost not included in the bid.
  - 2. Should conditions be encountered below the natural grade which are not normally encountered and which could not be anticipated from visiting the site or from information available in the contract documents, the contractor may negotiate for additional cost as stipulated in the General Conditions of these Specifications.
  - 3. His bid is based solely upon the materials, systems and equipment described in the Bidding Documents and as modified by addenda, and shall cover all applicable regulatory fees, building permit fees, tap fees, etc., all fees not specifically noted in the contract documents as by Owner.

4. His bid is not based on any verbal instructions contrary to the Contract Documents and addenda.
5. The Bidder must be fully qualified under any State or local licensing law for Contractors in effect at the time and at the location of the work before submitting his bid. In the State of Louisiana, Revised Statutes 37:2150, et seq. will be considered, if applicable.
2. The Contractor shall be responsible for determining that all of his Sub-bidders or prospective Subcontractors are duly licensed in accordance with law.

**1.09 DURATION OF BIDS:**

- A. Bids shall remain open to acceptance for a period of Sixty (60) days after the bid closing date.

**1.10 CONSIDERATION OF BIDS:**

- A. The bids received on time will be opened privately, and a tabulation abstract of the amounts of the base bids and alternates, if any, will be made available to Bidders.

**1.11 PRE-BID CONFERENCE:**

- A. A Mandatory Pre-Bid Conference will be held VIA TEAMS on Monday February 9, 2026 at 2:00 pm. The purpose of the mandatory Pre-Bid Conference is to familiarize interested Bidders with the requirements of the Project and the intent of the Contract Documents, and to receive comments and information from interested Bidders.
- B. Any revision of the Bidding Documents made as a result of the mandatory Pre-Bid Conference shall not be valid unless included in an addendum.

**1.12 COMPLETION OF WORK AND LIQUIDATED DAMAGES:**

- A. If this bid is accepted, the Bidder hereby agrees to commence the work under this contract on a date specified in a written "Notice to Proceed", by the Owner and to fully complete the project no later than **One Hundred and Twenty (120)** calendar days in the Bid Form, including Saturdays, Sundays, and holidays, after the written Notice to Proceed.
- B. The Bidder hereby agrees that the Owner may retain the sum of **Five Hundred Dollars, (\$500.00)**, from the amount of compensation to be paid the Bidder for each consecutive calendar day, (Saturday, Sundays, and holidays included), after the Contract Time, that the work remains incomplete. This amount is agreed upon as the proper measure of liquidated damages the Owner will sustain per day by the failure of the Bidder to complete the work at the stipulated Contract time and is not construed in any sense as a penalty.
- C. The Bidder hereby agrees that the Owner may retain the sum of **One Hundred Dollars, (\$100.00)**, from the amount of compensation to be paid the Bidder for each consecutive calendar day, (Saturday, Sundays, and holidays included), after thirty (30) days past the agreed date of Substantial Completion set forth in the Contract, that the punch list and closeout procedures work remains incomplete. This amount is agreed upon as the proper measure of liquidated damages the Owner will sustain per day by the failure of the Bidder to complete the work at the stipulated Contract time and is not construed in any sense as a penalty.

**1.13 ACCEPTANCE OF OFFER**

- A. Owner reserves the right to accept or reject any or all offers.

**1.14 POST-BID INFORMATION**

- A. Submissions
- B. Prior to the submittal of the first Application for Payment, the Contractor shall submit the following information to the Architect.
  1. A designation of the work to be performed by the Contractor with his own forces.
  2. A breakdown of the Contract cost attributable to each item listed in the **Schedule of Values Form** (attached). No payments will be made to the Contractor until this is received.
  3. The proprietary names and the suppliers of principal items or systems of material and equipment proposed for the work.

4. A list of names and business domiciles of all Subcontractors, manufacturers, suppliers or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the work. It is the preference of the Owner that, to the greatest extent possible or practical, the Contractor utilize Louisiana Subcontractors, manufacturers, suppliers and labor.
- C. The Contractor will be required to establish to the satisfaction of the Architect the reliability and responsibility of the proposed Subcontractors to furnish and perform the work described in the sections of the Specifications pertaining to such proposed Subcontractor's respective trades. The General Contractor shall be responsible for actions or inactions of Subcontractors and/or material suppliers.
- D. The General Contractor is totally responsible for any lost time or extra expense incurred due to a Subcontractor's/or Material Supplier's failure to perform. Failure to perform includes, but is not limited to, a Subcontractor's financial failure, abandonment of the project, failure to make prompt delivery, or failure to do work up to standard. Under no circumstances shall the Owner mitigate the General Contractor's losses or reimburse the General Contractor for losses caused by these events.
- E. Subcontractors and other persons and organizations selected by the Bidder must be used on the work for which they were proposed and shall not be changed except with the written approval of the Owner and the Architect.

**1.15 PERFORMANCE AND PAYMENT BOND, CONTRACT, NOTICE OF AWARD**

- A. Bond Requirements: Refer to Specification Section 00 0009, Supplementary Conditions
- B. The Architect shall issue a Notice of Award, (signed by the Owner), to the Contractor with three original Owner / Contractor contracts, to allow the acquisition of the Performance Bond and insurance certificates by the Contractor. The Contractor shall have 15 calendar day to deliver the signed contract, performance and payment Bond, and Insurance Certificates to the Architect.
- C. The Bidder shall require the Attorney-in-Fact who executes the required bond on behalf of the surety to affix thereto a certified and current copy of his power of Attorney.

**1.16 INSURANCE REQUIREMENTS:**

- A. Refer to Specification Section 00 0009 Supplementary Conditions

**1.17 RELATED DOCUMENTS**

- A. Document 00 0006 - Bid Form.
- B. Document 00 0008 - General Conditions of the Contract for Construction

**END OF SECTION**

## SECTION 00 0005a - HOW TO ACCESS BIDDING DOCUMENTS - PLAN HOLDER'S LIST

1. Go to the following site:  
[www.centerlinebidconnect.com](http://www.centerlinebidconnect.com)

*If this is your first time to Centerline's bidding module, you will need to go to "Don't have an account? Sign Up" and fill out the form and your password will be emailed to you, then continue with instructions. Sign up if you are a first time user.*

2. Type in your username (complete email address) and password. (if you forgot it, press "forgot password", your password will be emailed to you. Go back to login screen.

CENTERLINE

BidConnect SIGN IN  
CREATE DESKTOP SHORTCUT

Email Address \*

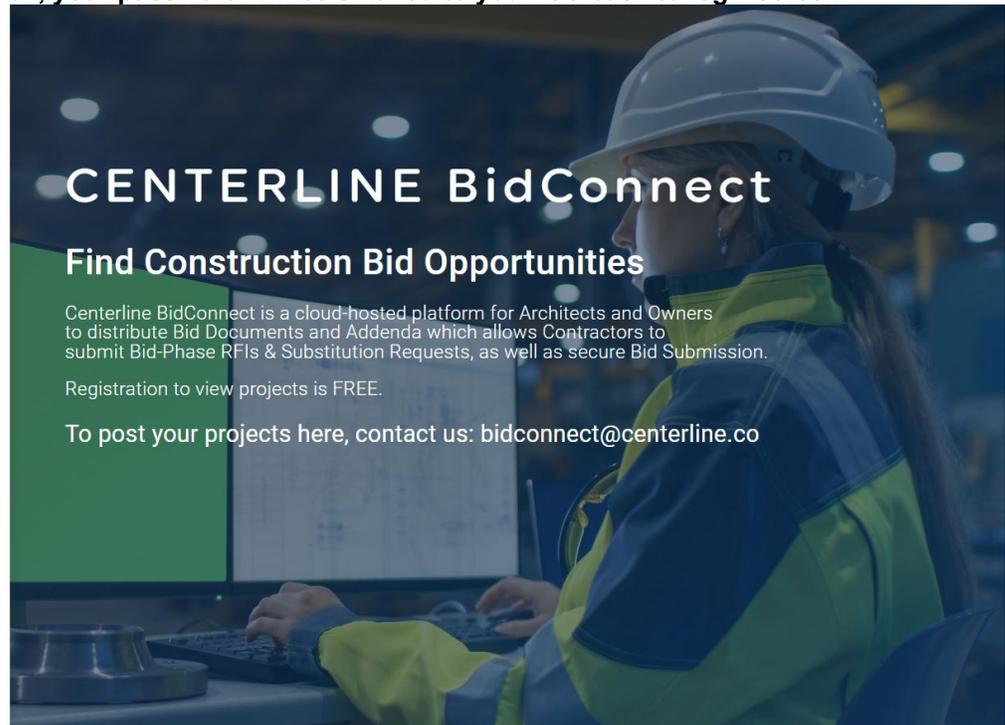
Password \*

Remember me

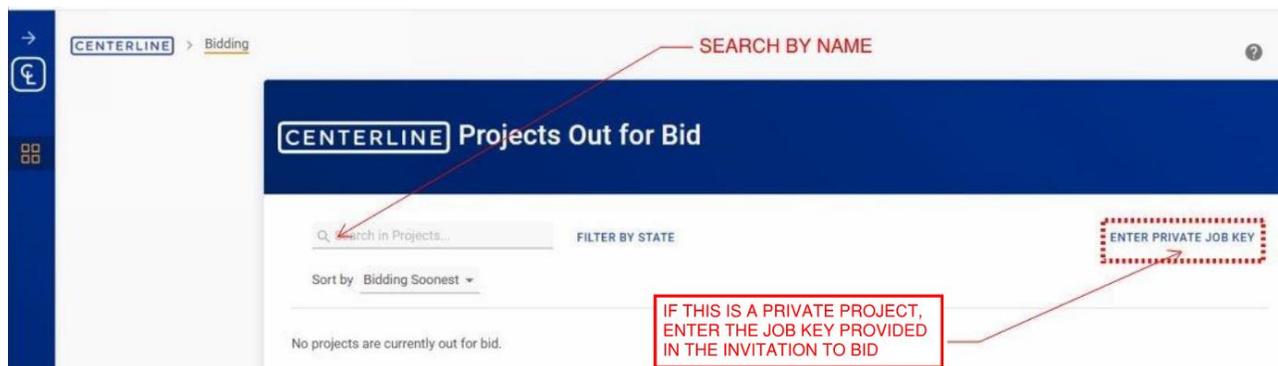
SIGN IN

FORGOT PASSWORD?  
DONT HAVE AN ACCOUNT? SIGN UP

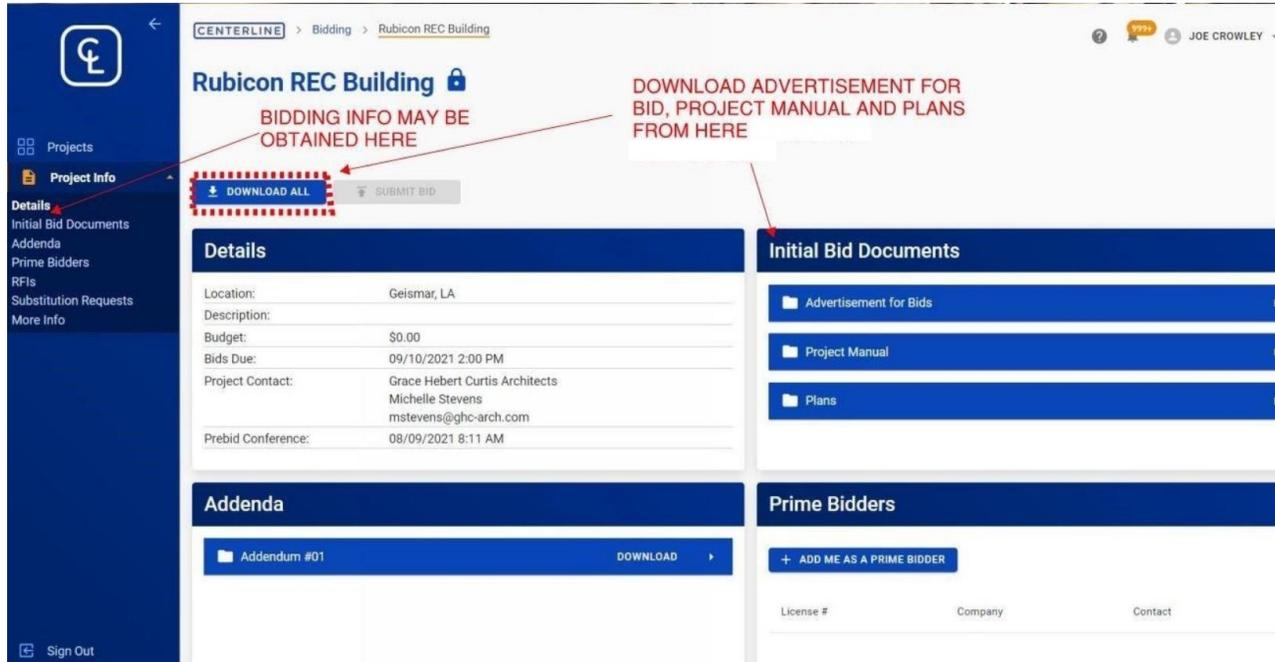
← PROJECT MANAGEMENT LOGIN



3. The first time you log in, you will be asked to change your password.
4. You will be taken to a page that looks like the screenshot on the next page that reads "Projects Out for Bid".
5. Once in scroll until you will see the project name that you are looking for.
6. Click on the project.
7. The BID MODULE IS ON THE LOWER LEFTHAND SIDE OF THE SCREEN.



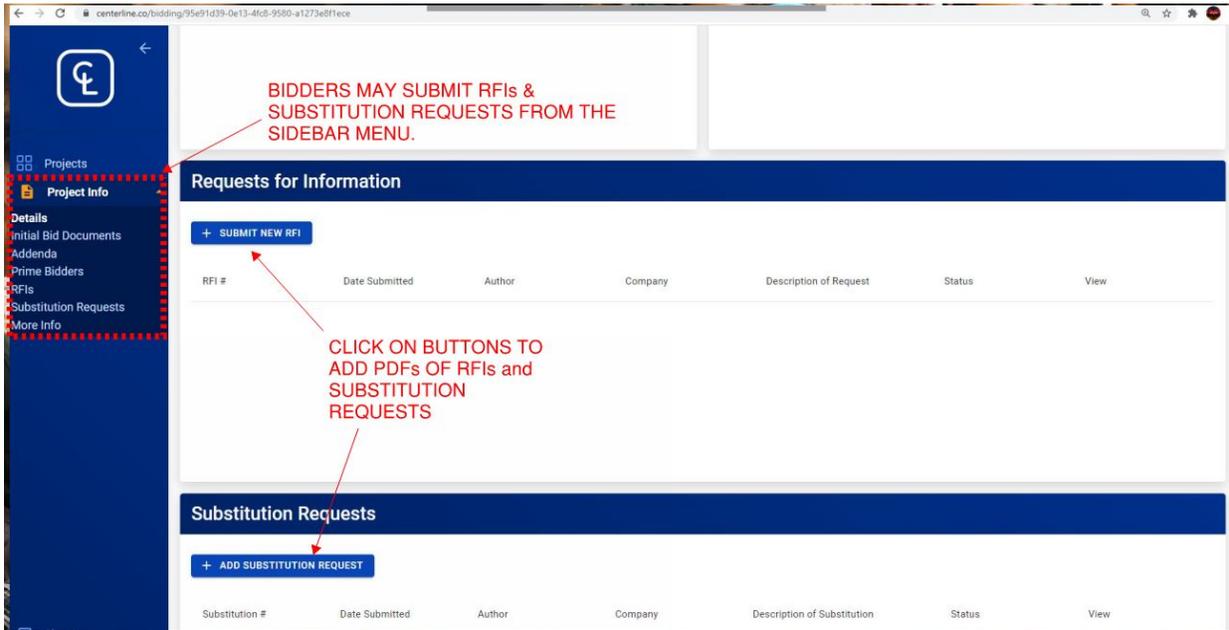
8. Select Project Info and a drop down menu is seen to the left.
9. You may download all Bid Documents, add yourself as a prime bidder and submit a bid on this page. Addenda, Prime Bidders, RFIs, Substitution Requests and More Info are placed here.
10. Print and download any info from this page.



**END OF SECTION**

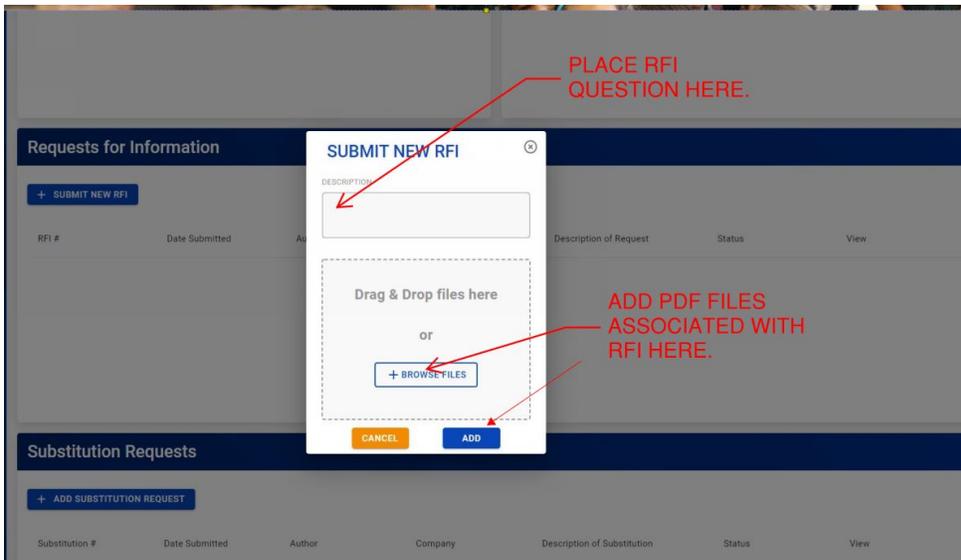
## 00 0005b - HOW TO ENTER REQUEST FOR INFORMATION (RFI) AND SUBSTITUTION REQUESTS FROM BIDDING SIDE

Once the bid is set up, and the User chooses the project and enters the password if a private bid, they will see the Submit buttons for NEW RFI's and SUBSTITUTION REQUESTS.

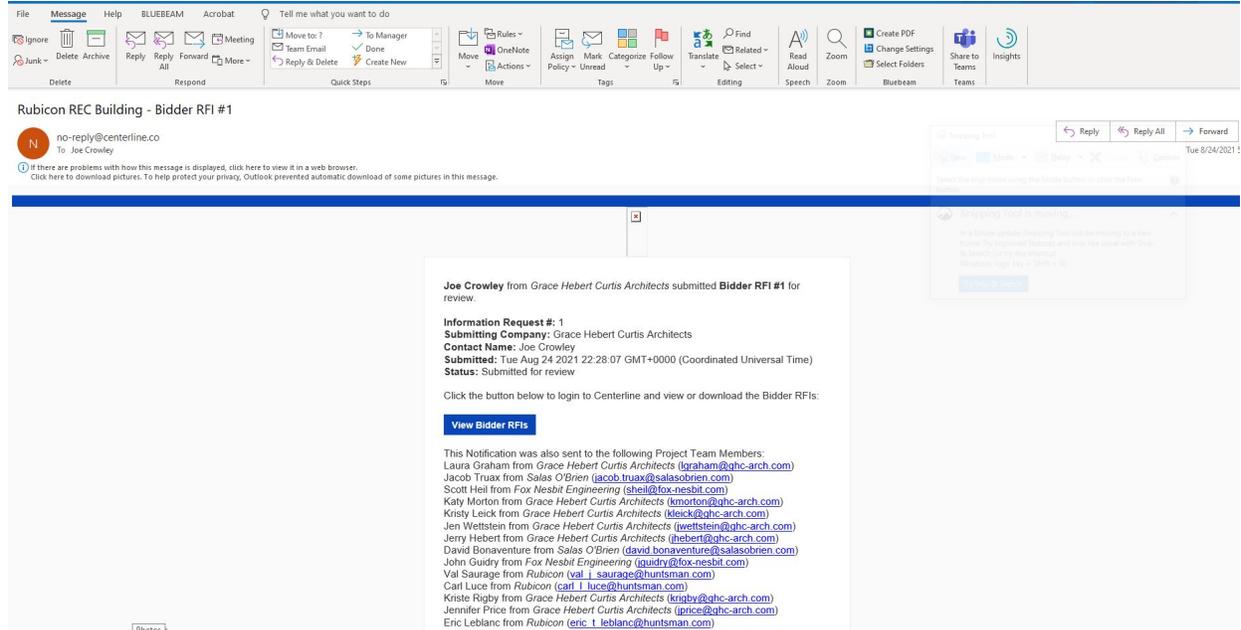


### RFI

This is the SUBMIT NEW RFI form the contractor/sub-contractor will get. **Simply fill in the information and attach files and press SUBMIT RFI. Your RFI will then appear in the log below.**



Once it is submitted, the User will receive an email to the person submitting it that it has been received. The Architect will receive a notification they have received an RFI for his project. You can click on the blue button in the email to take you to the RFI.



## SUBSTITUTION REQUEST

This is what the Substitution Request looks like.

**Simply fill in the information, attach necessary files and press SUBMIT SUBSTITUTION REQUEST.**

The screenshot displays a web application interface. On the left is a dark blue sidebar with a logo and navigation links: 'Projects', 'Project Info', 'Details', 'Original Bid Documents', 'Agenda', 'Time Bidders', 'RFIs', 'Substitution Requests', and 'More Info'. At the bottom of the sidebar is a 'Sign Out' link. The main content area is titled 'Requests for Information' and features a '+ SUBMIT NEW RFI' button. Below this is a table with the following data:

RFI #	Date Submitted	Author
1	08/24/2021 17:28	Joe Crowley

Below the table is a 'Substitution Requests' section with an '+ ADD SUBSTITUTION REQUEST' button. A table below this section has the following headers:

Substitution #	Date Submitted
----------------	----------------

Overlaid on the right side of the main content is a white modal form titled 'ADD SUBSTITUTION REQUEST'. The form contains the following fields:

- SPEC SECTION
- PAGE NUMBER (with '0' entered)
- PARAGRAPH NUMBER (with '0' entered)
- DESCRIPTION OF SUBSTITUTION
- PROPOSED SUBSTITUTION
- REASON FOR SUBSTITUTION
- LIST WAYS IN WHICH THE PROPOSED SUBSTITUTION AFFECTS DIMENSIONS SHOWN ON DRAWINGS
- LIST EFFECTS OF PROPOSED SUBSTITUTION ON OTHER TRADES

When you see the Substitution Request appear on the list where you submitted it, your Substitution Request has been submitted; you may VIEW the document and save or print as well from this location by clicking on the VIEW eyeball icon.

Once it is submitted, similar to RFIs, the User will receive an email noting that it has been received and the Architect will receive a notification that there is a Substitution Request for the project.

## 00 0005c – HOW TO ENTER REQUEST FOR CHANGE DURING CONSTRUCTION

Once the construction tab is open, and the User chooses the project and may select Request for Change to view documents that the Contractor is to price:

The screenshot shows a software interface for project management. On the left is a dark blue sidebar menu with various options. The 'Construction' section is expanded, and 'Requests for Change' is highlighted with a red dashed box. A red arrow points from this menu item to the 'Upcoming' table in the main content area. The table lists tasks with columns for Due Date, Project, Type, Item, and Status. The 'Upcoming' section is titled 'Upcoming' and has tabs for 'ALL', 'ASSIGNED TO ME', and 'ASSIGNED BY ME TO OTHERS'. The 'ASSIGNED TO ME' tab is selected. The table has the following data:

DUE	PROJECT	TYPE	ITEM	STATUS
16 June	Ochsner West Metairie	Consultant Review - Requests For Information	PreCon21	Submitted For Review
17 June	Ochsner West Metairie	Consultant Review - Requests For Information	PreCon4	Submitted For Review
20 July	Ochsner West Metairie	Consultant Review - Submittals	08 43 13	Under Review
20 July	Ochsner West Metairie	Consultant Review - Submittals	08 43 13	Submitted For Review
20 July	Ochsner West Metairie	Consultant Review - Submittals	08 44 13	Submitted For Review

Below the table is a pagination control showing '1' of 12 pages. At the bottom of the interface, there are sections for 'Message Board' (with 'Project Directory' link) and 'Recent Project Activity' (with 'Clear All' link). The 'Recent Project Activity' section shows a message: 'Submittal 055100-09 REV 1 - Stair 1 - Shop Drawings - BRM RFC 010 (GHC RFC 014)'.

## RFCs

The list of RFCs are displayed with the RFC #, brief description, potential impact to cost, impact to time, date submitted and current responsible party shown as seen below:

<input type="checkbox"/>	RFC #	TITLE	DESCRIPTION	IMPACT TO COST	IMPACT TO TIME	SUBMITTED	CURRENT RESPONSIBLE PARTY
<input type="checkbox"/>	001	South EIFS	Removal of EIFS at the South Exterior Elevation \$6,699.00 Incorporated into GMP.	\$0.00	TBD	05/05/2021	Not As
<input type="checkbox"/>	001 - B	Addendum 5	Broadmoor RFC for Addendum 5, GHC requested complete breakdown, Broadmoor workin...	\$120,466.00	TBD	10/06/2021	Grace Hebert Curtis Archite Joe Crowle
<input type="checkbox"/>	002	3HR walls 1st floor West	New 3-Hour Rated Walls \$11,553 Incorporated into GMP.	\$0.00	TBD	05/05/2021	Not As
<input type="checkbox"/>	002 - B	Addendum 6	Broadmoor RFC for Addendum 6 attached for GHC review	\$33,207.00	TBD	10/06/2021	Grace Hebert Curtis Archite Joe Crowle
<input type="checkbox"/>	003	Infill Rooftop Openings	RFC 003 - Addendum 1 (Infill at Rooftop Openings) \$38,314 Incorporated into GMP...	\$0.00	TBD	05/18/2021	Not As
							Grace Hebert

To print or save a copy of the RFC Log in PDF or Excel, click on the **red rectangle** in the upper right seen above.

Scroll down to view **SUPPORTING DOCUMENTS** which are organized by:

**Current File** and **Previous Files**.

The Architect will place the **Current File** to be reviewed and responded to by the Contractor under the **Current File** tab **highlighted below**.

Only the files necessary to price the RFC will be located here. Previous files will be considered superseded by the **Current File**. Previous files may include a version of the Contractor's proposal with backup. Each file is date and time stamped to be able to easily track history of each document version.

Minimize to not view all previous files if printing a summary page or expand to view previous version of files. See red circled area in the screenshot below.

**Important Note to Architect, Contractor, et al:**  
**Current file** must be a single file.

If posting multiple files, i.e.: drawings, specifications, sketches, narratives, cutsheets and similar, Zip the files together and post the Zip folder. If files are similar in size format, i.e.: ALL full size drawings, they may be included in a single file PDF as well and posted.

The screenshot displays a software interface for managing Request for Change (RFC) items. The main content area is titled "RFC #001 - B Supporting Items" and includes a description: "Broadmoor RFC for Addendum 5, GHC requested complete breakdown, Broadmoor working on." Below the description, there are two sections: "Current File" and "Previous Files".

The "Current File" section shows a file upload entry for "RFC 001 - Addenda 5 Rev 3.pdf" by Joe Crowley, Grace Hebert Curtis Architects, dated 11/02/2021 @ 4:01 PM. Below this entry are buttons for "VIEW", "DOWNLOAD", and "DELETE".

The "Previous Files" section shows two older versions of the file:

- RFC 001 - Addenda 5 Rev1 (10.11.2021).pdf by Joe Crowley, Grace Hebert Curtis Architects, dated 10/25/2021 @ 4:52 PM.
- RFC 001 - Addenda 5 (09.23.2021).pdf by Jimmy Hebert, Grace Hebert Curtis Architects, dated 10/06/2021 @ 9:15 AM.

Each entry in the "Previous Files" section has buttons for "VIEW", "DOWNLOAD", and "DELETE".

Red annotations highlight the "MINIMIZE (-) & EXPAND (+)" button in the top right corner of the file management area and the "CURRENT FILE" label. The right side of the screenshot shows a list of activity logs with dates and user names.

Comments relevant to the RFC are below the Previous Files and are date and time stamped. Anybody in the distribution group may add comments here. While they are not part of the current file, they may modify the Request for Change and need to be reviewed. Status updates and similar comments may also be added here.

The screenshot displays a software interface for managing documents and comments. On the left is a dark blue sidebar menu with a logo at the top and a search bar. The menu items include: Dashboard, Calendar, Design, Bidding, Construction (highlighted), Construction Management, Drawings, Specifications, ASI Documents, Submittals, Requests for Information, Change Orders, Const. Change Directives, Potential Change Orders, Requests for Change, Work Change Proposal Req., Pay Applications, Contractor Daily Logs, Field Reports, Meeting Minutes, and Miscellaneous Documents.

The main content area is divided into three sections:

- Previous Files:** A list of documents with thumbnails and actions. Two files are shown:
  - RFC 001 - Addenda 5 Rev1 (10.11.2021).pdf by Joe Crowley, Grace Hebert Curtis Architects, dated 10/25/2021 @ 4:52PM. Actions: VIEW, DOWNLOAD, DELETE.
  - RFC 001 - Addenda 5 (09.23.2021).pdf by Jimmy Hebert, Grace Hebert Curtis Architects, dated 10/06/2021 @ 9:15AM. Actions: VIEW, DOWNLOAD, DELETE.
- COMMENTS:** A section for 'RFC #001 - B Comments' by Joe Crowley, Grace Hebert Curtis Architects. It features a text input field with the placeholder 'Type here... \*' and a blue 'COMMENT' button.
- document:** A history list of actions:
  - 11/02/2021 @ 4:01 PM
  - Nov 02: Joe Crowley, Grace Hebert Curtis Architects, downloaded a file RFC 001 - Addenda 5 Rev1 (10.11.2021).pdf (11/02/2021 @ 4:00 PM)
  - Nov 02: Joe Crowley, Grace Hebert Curtis Architects, viewed this document (11/02/2021 @ 3:59 PM)
  - Oct 29: Royce Girouard, Broadmoor, viewed this document (10/29/2021 @ 10:56 AM)
  - Oct 29: Stephen Millet, Broadmoor, viewed this document (10/29/2021 @ 9:57 AM)

**SECTION 00 0006 – BID FORM**

**TO:** West Louisiana Health Services, Inc, d/b/a  
Beauregard Health System  
600 Pine Street  
DeRidder, LA, 70634

**BID FOR: BHS South Beauregard Medical Campus**  
**13806 Hwy 171**  
**Longville, Louisiana 70652**

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: GRACE DESIGN STUDIOS, LLC and dated: January 27, 2026.

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging)

\_\_\_\_\_ .

**TOTAL BASE BID:** For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" \* but not alternates) the sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**ALTERNATES:** For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

**Alternate No. 1 (n/a)** for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Alternate No. 2 (n/a)** for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Alternate No. 3 (n/a)** for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**NAME OF BIDDER:** \_\_\_\_\_

**ADDRESS OF BIDDER:** \_\_\_\_\_

**LOUISIANA CONTRACTOR'S LICENSE NUMBER:** \_\_\_\_\_

**NAME OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**TITLE OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER \*\*:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

\* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

\*\* **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

**SECTION 00 0006 – BID FORM**

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SECTION – 00 0006a BID BOND

BID BOND

FOR

West Louisiana Health Services, Inc, d/b/a  
Beauregard Health System  
Grace Project No. 6024182

Date: \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_ of \_\_\_\_\_, as Principal, and \_\_\_\_\_, as Surety, are held and firmly bound unto West Louisiana Health Services, Inc, d/b/a Beauregard Health System in the full and just sum of five (5%) percent of the total amount of this proposal, including all alternates, lawful money of the United States, for payment of which sum, well and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents.

Surety represents that it is listed on the current U. S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater that the amount for which it obligates itself in this instrument or that it is a Louisiana domiciled insurance company with at least an A - rating in the latest printing of the A. M. Best's Key Rating Guide. If surety qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith submitting its proposal to the Obligee on a Contract for: West Feliciana Hospital Urgent Care & Specialty Clinic

NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the Contract in writing and give a good and sufficient bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the Obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

\_\_\_\_\_  
PRINCIPAL (BIDDER)

\_\_\_\_\_  
SURETY

BY: \_\_\_\_\_  
AUTHORIZED OFFICER-OWNER-PARTNER

BY: \_\_\_\_\_  
AGENT OR ATTORNEY-IN-FACT (SEAL)

\_\_\_\_\_  
Typed or Printed Name

\_\_\_\_\_  
Typed or Printed Name

I certify that I am, as of the date of this bond, under contract with Surety as a licensed Agent, in good standing with the Louisiana Department of Insurance, residing in this state, and Authorized to countersign this Bond on behalf of Surety.

By: \_\_\_\_\_

\_\_\_\_\_  
Name of Surety

\_\_\_\_\_  
Typed or Printed Name

\_\_\_\_\_  
Address of Surety

\_\_\_\_\_  
Agent License Number

# AIA<sup>®</sup> Document A201<sup>®</sup> – 2017

## General Conditions of the Contract for Construction

### for the following PROJECT:

*(Name and location or address)*

6024182 - BHS South Beauregard Medical Campus

### THE OWNER:

*(Name, legal status and address)*

West Louisiana Health Services Inc, d/b/a  
Beauregard Health System  
600 S Pine Street  
DeRidder, LA 70634

### THE ARCHITECT:

*(Name, legal status and address)*

Grace Design Studios, LLC  
501 Government Street, Suite 200  
Baton Rouge, LA 70802

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11	INSURANCE AND BONDS
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13	MISCELLANEOUS PROVISIONS

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503<sup>™</sup>, Guide for Supplementary Conditions.

Init.

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User Notes:

(1634814822)

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Init.

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## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 Basic Definitions

#### § 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. The Contract Documents shall include the Bid Documents as listed in the Instructions to Bidders and any modifications made thereto by addenda.

#### § 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### § 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### § 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

#### § 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

#### § 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### § 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### § 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor.

### § 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and

enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### § 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### § 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### § 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

### § 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

### § 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form to establish the protocols for the development, use, transmission, and exchange of digital data.

*(Paragraphs deleted)*

## ARTICLE 2 OWNER

### § 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such

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information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

*(Paragraphs deleted)*

### **§ 2.3 Information and Services Required of the Owner**

**§ 2.3.1** The Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

**§ 2.3.2** The term Architect, when used in the Contract Documents, shall mean the prime Designer (Architect, Engineer, or Landscape Architect), or his authorized representative, lawfully licensed to practice architecture, engineering, or landscape architecture in the State of Louisiana, identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number.

**§ 2.3.3** If the employment of the Architect terminates, the Owner shall employ a successor whose status under the Contract Documents shall be that of the Architect.

**§ 2.3.4** The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

**§ 2.3.5** The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

**§ 2.3.6** Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

### **§ 2.4 Owner's Right to Stop the Work**

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

### **§ 2.5 Owner's Right to Carry Out the Work**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

## **ARTICLE 3 CONTRACTOR**

### **§ 3.1 General**

**§ 3.1.1** The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

### § 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

### § 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

### § 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

*(Paragraph deleted)*

§ 3.4.3 Contractor and its employees, officers, agents, representatives, and Subcontractors shall conduct themselves in an appropriate and professional manner, in accordance with the Owner's requirements, at all times while working on the Project. Any such individual who behaves in an inappropriate manner or who engages in the use of inappropriate language or conduct while on Owner's property, as determined by the Owner, shall be removed from the Project at the Owner's request. Such individual shall not be permitted to return without the written permission of the Owner. The Owner shall not be responsible or liable to Contractor or any Subcontractor for any additional costs, expenses, losses, claims or damages incurred by Contractor or its Subcontractor as a result of the removal of an individual from the Owner's property pursuant to this Section. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

### § 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.6.

### § 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### § 3.7 Permits, Fees, Notices and Compliance with Laws

*(Paragraph deleted)*

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of State authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### § 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those

indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, during the course of the Work, the Contractor discovers human remains, unmarked burial or archaeological sites, burial artifacts, or wetlands, which are not indicated in the Contract Documents, the Contractor shall follow all procedures mandated by State and Federal law, including but not limited to La R.S. 8:671 et seq., the Office of Coastal Protection and Restoration, and Sections 401 & 404 of the Federal Clean Water Act. Request for adjustment of the Contract Sum and Contract Time arising from the existence of such remains or features shall be submitted in writing to the Owner pursuant to the Contract Documents.

### § 3.8 Allowances

*(Paragraphs deleted)*

§ 3.8.1 Allowances shall not be made on any of the Work.

### § 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

### § 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. For projects with a contract sum greater than \$1,000,000.00, the Contractor shall include with the schedule, for the Owner's and Architect's information, a network analysis to identify those tasks which are on the critical path, i.e., where any delay in the completion of these tasks will lengthen the project timescale, unless action is taken. A revised schedule shall be submitted with each Application and Certificate for Payment. Not payment shall be made until this schedule is received.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in accordance with the most recent schedules submitted to the Owner and Architect. If the Work is not on schedule, as determined by the Architect, and the Contractor fails to take action to bring the Work on schedule, then the Contractor shall be deemed in default under this Contract and the progress of the Work shall be deemed unsatisfactory. Such default may be considered grounds for termination by the Owner for cause in accordance with Section 14.2.

3.10.4 Submittal by the contract of a schedule or other documentation showing a completion date for his Work prior to the completion date stated in the contract shall not impose any obligation or responsibility on the Owner or Architect for the earlier completion date.

3.10.5 In the even the Owner employs a commissioning consultant, the Contractor shall cooperate fully in the commissioning process and shall require all subcontractors and other under his control to cooperate. The purpose of such services shall be to ensure that all systems perform correctly and interactively according to the provisions of the Contract Documents.

### § 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed. This requirement is of the essence of the contract. The Architect shall determine the value of these documents and this amount shall not be approved for payment to the Contractor until all of the listed documents are delivered to the Architect in good order, completely marked with field changes and otherwise complete in all aspects.

### § 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect

of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

### § 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### § 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

### § 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

### § 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

### § 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

### § 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

## ARTICLE 4 ARCHITECT

### § 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

### § 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date final payment is due, and with the Owner's concurrence, from time to time during the one year period for correction of Work described in Section 12.2. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed to endeavor to guard the Owner against defects and deficiencies in the Work, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

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§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

#### § 4.2.4 Communications

The Owner and Contractor may communicate directly with each other, when deemed necessary by the Owner, and the Owner will notify the Architect of any decision. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives. There shall be no restriction on the Owner having a Representative.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests

will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretation required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretation until 15 days after written request is made for them.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretation required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretation until 15 days after written request is made for them. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### § 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise required by the Contract Documents, the Contractor shall furnish at the Pre-Construction Conference, to the Owner and the Architect, in writing, the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. No Contractor payments shall be made until this information is received.

§ 5.2.2 The Contractor shall be solely responsible for selection and performance of all subcontractors. The Contractor shall not be entitled to claims for additional time and/or an increase in contract sum due to a problem with performance or nonperformance of a subcontractor.

§ 5.2.3 The Contractor shall notify the Architect and the Owner when a subcontractor is to be changed and substituted with another subcontractor.

*(Paragraph deleted)*

### § 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor,

prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

*(Paragraphs deleted)*

## **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts**

**§ 6.1.1** The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

**§ 6.1.2** When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

**§ 6.1.3** The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

**§ 6.1.4** Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

### **§ 6.2 Mutual Responsibility**

**§ 6.2.1** The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

**§ 6.2.2** If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

**§ 6.2.3** The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

**§ 6.2.4** The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

**§ 6.2.5** The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

7.1.4 As part of the pre-construction conference submittals, the Contractor shall submit the following prior to the Contractor's initial request for payment:

7.1.4.1 Fixed job site overhead cost itemized with documentation to support daily rates.

7.1.4.2 Bond Premium Rate with supporting information from the General Contractor's carrier.

7.1.4.3 Labor Burden by trade for both Subcontractors and General Contractor. The Labor Burden shall be supported by the Worker's Compensation and Employer's Liability Insurance Policy Information Page. Provide for all trades.

7.1.4.4 Internal Rate Charges for all significant company owner equipment.

7.1.5 If the General Contractor fails to submit the aforementioned documentation as part of the pre-construction submittals, then pay application shall not be processed until such time as the Owner receives this information.

### § 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, the Architect, and the Contractor issued after execution of the Contract, authorizing a change in the Work and/or an adjustment in the Contract Sum and/or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time. Any reservation of rights, stipulation or other modification made on the change order by the contractor shall have no effect.

7.2.2 "Cost of the Work" for the purpose of Change Orders shall be the eligible costs required to be incurred in performance of the Work and paid by the Contractor and Subcontractors which eligible costs shall be limited to:

7.2.2.1 Actual wages paid directly to labor personnel, with a labor burden markup exclusively limited to applicable payroll taxes, worker's compensation insurance, unemployment compensation, and social security taxes for those labor personnel performing the Work. Wages shall be the basic hourly labor rate paid an employee exclusive of fringe benefits or other employee costs. The labor burden percentage for the "cost of the Work" is limited to categories listed herein. Employer-provided health insurance, fringe benefits, employee training (whether a requirement of employment or not), vacation pay, etc., are examples of ineligible labor burden costs which *shall not* be included, as these costs are already compensated by the Overhead and Profit markup.

Supervision shall not be included as a line item in the "cost of the Work", except when the change results in a documented delay in the critical path, as described in Section 7.2.7.

7.2.2.2 Cost of all material and supplies necessary and required to perform the Work, identifying each item and its individual cost, including taxes. Incidental consumables are not eligible costs and shall not be included.

7.2.2.3 Cost of each necessary piece of machinery and equipment required to perform the Work, identifying each item and its individual cost, including taxes. Incidental small tools of a specific trade (i.e., shovels, saws, hammers, air compressor, etc.) and general use vehicles, such as pickup trucks even for moving items around the site, fuel for these general use vehicles, travel, lodging, and/or meals are not eligible and shall not be included.

7.2.2.4 Eligible Insurance costs shall be limited to documented increase in "Builder's Risk" insurance premium / cost only. Commercial General Liability, Automobile Liability, and all other required insurances, where referenced in the Contract shall be considered part of normal overhead. These costs are already compensated by the Overhead and Profit markup.

7.2.2.5 Cost for the General Contractor Performance and Payment Bond premium, where the documented cost of the premiums have been increased due to the Change Order.

7.2.3 Overhead and Profit - The Contractor and Subcontractor shall be due home office fixed overhead and profits on the Cost of the Work, but shall not exceed a total of 16% of the direct cost of any portion of Work.

The credit to the Owner resulting from a change in the Work shall be the sum of those items above, including overhead and profit. Where a change results in both credits to the Owner and extras to the Contractor for related items, overhead and profit shall be computed for credits to the Owner and extras to the Contractor. The Owner shall receive full credit for the computed overhead and profit on credit change order items.

7.2.4 The cost to the Owner resulting from a change in the Work shall be the sum of: Cost of the Work (as defined at Section 7.2.2) and Overhead and Profit (as defined at Section 7.2.3), and shall be computed as follows:

7.2.4.1 When all of the Work is General Contractor Work; 8% markup on the Cost of the Work.

7.2.4.2 When the Work is all Subcontract Work; 8% markup on the Cost of the Work for Subcontractor's Overhead and Profit, plus 8% markup on the Cost of the Work, not including the Subcontractor's Overhead and Profit markup, for General Contractor's Overhead and Profit.

7.2.4.3 When the Work is a combination of General Contractor Work and Subcontract Work; that portion of the direct cost that is General Contract Work shall be computed per Section 7.2.4.1 and that portion of the direct cost that is Subcontract Work shall be computed per Section 7.2.4.2.

Premiums for the General Contractor's bond may be included, but after the markup is added to the Cost of the Work.

Premiums for the Subcontractor's Bond shall not be included.

7.2.4.4 Subcontract cost shall consist of the items in Section 7.2.2 above plus Overhead and Profit as defined in Section 7.2.3.

7.2.5 Before a Change Order is prepared, the Contractor shall prepare and deliver to the Architect the following information concerning the Cost of the Work, not subject to waiver, within a reasonable time after being notified to prepare said Change Order:

A detailed, itemized list of labor, material and equipment costs for the General Contractor's Work including quantities and unit costs for each item of labor, material and equipment.

An itemized list of labor, material and equipment costs for each Subcontractor's and/or Sub-Subcontractor's Work including quantities and unit costs for each item of labor, material and equipment.

7.2.6 After a Change Order has been approved, no future requests for extensions of time or additional cost shall be considered for that Change Order.

7.2.7 Extended fixed job-site costs are indirect costs that are necessary to support the work in the field. Examples of fixed job-site costs are field office rental, salaries of field office staff, field office

utilities, and telephone.

Extended fixed job-site costs or equitable adjustment may be included in a Change Order due to a delay in the critical path, with the exception of weather related delays. In the event of a delay in the critical path, the Contractor shall submit all changes or adjustments to the Contract Time **within twenty-one (21) days** of the event giving rise to the delay. The Contractor shall submit documentation and justification for the adjustment by performing a critical path analysis of its most recent schedule in use prior to the change, which shows an extension in critical path activities.

The Contractor shall notify the Architect in writing that the Contractor is making a claim for extended fixed job-site overhead as required by Section 15.1.2. The Contractor shall provide proof that the Contractor is unable to mitigate financial damages through Alternate Work within this Contract or replacement work. "Replacement Work" is that work which the Contractor is obligated to perform under any construction contract separate from this Contract. Reasonable proof shall be required by the Architect that the delays affected the Completion Date.

7.2.8 "Cost of the Work" whether General Contractor cost or Subcontractor cost shall not apply to the following:

7.2.8.1 Salaries or other compensation of the Contractor's personnel at the Contractor's principal office and branch offices.

7.2.8.2 Any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work.

7.2.8.3 Overhead and general expenses of any kind or the cost of any item not specifically and expressly included above in Cost of the Work.

7.2.8.4 Cost of supervision refer to section 7.2.2.1, with exception as provided in Section 7.2.7.

7.2.9 When applicable as provided by the Contract, the cost to Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be as submitted by the Contractor and approved by the Architect. Unit prices shall cover cost of Material, Labor, Equipment, Overhead and Profit.

### § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods, but not to exceed a specified amount:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and

profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including social security, old age and employment insurance, applicable payroll taxes, and workers' compensation insurance;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total costs of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

### ARTICLE 8 TIME

#### § 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

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§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.1.5 The Contract Time shall not be changed by the submission of a schedule that shows an early completion date unless specifically authorized by change order.

## § 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work. Completion of the Work must be within the Time for Completion stated in the Agreement, subject to such extensions as may be granted under Section 8.3. The Contractor agrees to commence Work not later than fourteen (14) days after the transmittal date of Written Notice to Proceed from the Owner and to substantially complete the project within the time stated in the Contract. The Owner will suffer financial loss if the project is not substantially complete in the time set forth in the Contract Documents. The Contractor and the Contractor's Surety shall be liable for and shall pay to the Owner the sum stated in the Contract Documents as fixed, agreed and liquidated damages for each consecutive calendar day (Saturdays, Sundays and holidays included) of delay until the Work is substantially complete. The Owner shall be entitled to the sum stated in the Contract Documents. Such Liquidated Damages shall be withheld by the Owner from the amounts due the Contractor for progress payments.

*(Paragraph deleted)*

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

## § 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending litigation; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may recommend, subject to Owner's approval of Change order. If the claim is not made within the limits of Article 15, all rights for future claims for that month are waived..

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

## 9.2 SCHEDULE OF VALUES

At the Pre-Construction Conference, the Contractor shall submit to the Owner and the Architect a Schedule of Values prepared as follows:

9.2.1 The attached Schedule of Values Format shall be used. If applicable, the cost of Work for each section listed under each division, shall be given. The cost for each section shall include Labor, Materials, Overhead and Profit.

9.2.2 The Total of all items shall equal the Total Contract Sum. This schedule, when approved by the Architect, shall be used as a basis for the Contractor's Applications for Payment and it may be used for determining the cost of the Work in deductive change orders, when a specific item of Work listed

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on the Schedule of Values is to be removed. Once the Schedule of Values is submitted at the Pre-Construction Conference, the schedule shall not be modified without approval from the Owner and Architect.

*(Paragraphs deleted)*

### § 9.3 Applications for Payment

9.3.1 Monthly, the Contractor shall submit to the Architect a Facility Planning and Control – Application and Certification for Payment form, supported by any additional data substantiating the Contractor's right to payment as the Owner or the Architect may require. Application for Payment shall be submitted on or about the first of each month for the value of labor and materials incorporated into the Work and of materials, suitably stored, at the site as of the twenty-fifth day of the preceding month, less normal retainage as follows, per La R.S. 38:2248:

9.3.1.1 Projects with Contract price up to \$500,000.00 – 10% of the Contract price.

9.3.1.2 Projects with Contract price of \$500,000.00, or more – 5% of the Contract price.

9.3.1.3 No payment shall be made until the revised schedule required by Section 3.10.1 is received.

9.3.1.4 The normal retainage shall not be due the Contractor until after substantial completion and expiration of the forty-five day lien period and submission to the Architect of a clear lien certificate, consent of surety, and invoice for retainage.

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. Payments for materials or equipment stored on the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, including applicable insurance.

*(Paragraphs deleted)*

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

### § 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor

deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

### § 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

*(Paragraph deleted)*

### § 9.6 Progress Payments

9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment within twenty days except for projects funded fully or in part by a Federal reimbursement program. For such projects the Owner will make payment in a timely manner consistent with reimbursement.

*(Paragraph deleted)*

§ 9.6.2 The Contractor shall pay each Subcontractor, after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner. La R.S. 9:2784 (A) and (C) require a Contractor or Subcontractor to make payment due to each Subcontractor and supplier within fourteen (14) consecutive days of the receipt of payment from the Owner. If not paid, a penalty in the amount of ½ of 1% per day is due, up to a maximum of 15% from the expiration date until paid. The contractor or subcontractor, whichever is applicable, is solely responsible for payment of a penalty.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

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§ 9.6.4 Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law. Pursuant to La. R.S. 38:2242 and La. R.S. 38:2242.2, when the Owner receives any claim of nonpayment arising out of the Contract, the Owner shall deduct 125% of such claim from the Contract Sum. The Contractor, or any interested party, may deposit security, in accordance with La. R.S. 38:2242.2, guaranteeing payment of the claim with the recorder of mortgages of the parish where the Work has been done. When the Owner receives original proof of such guarantee from the recorder of mortgages, the claim deduction will be added back to the Contract Sum.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

## 9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The Architect shall determine if the project is substantially complete in accordance with this Section.

9.8.2 When the Contractor considers that the Work is Substantially Complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

9.8.3 Upon receipt of the Contractor's list, the Architect shall make an inspection to determine whether the Work is substantially complete. A prerequisite to the Work being considered as substantially complete is the Owner's receipt of the executed Roofing Contractor's and Roofing Manufacturer's guarantees, where roofing Work is part of the Contract. Prior to inspection by the Architect, the Contractor shall notify the Architect that the project is ready for inspection by the State Fire Marshal's office. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use, the Contractor shall, before the Work can be considered as Substantially Complete, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

9.8.4 When the Architect determines that the project is Substantially Complete, he shall

prepare a punch list of exceptions and the dollar value related thereto. The monetary value assigned to this list will be the sum of the cost estimate for each particular item of Work the Architect develops based on the mobilization, labor, material and equipment costs of correcting the item and shall be retained from the monies owed the contractor, above and beyond the standard lien retainage. The cost of these items shall be prepared in the same format as the schedule of values. At the end of the forty-five day lien period payment shall be approved for all punch list items completed up to that time. After that payment, none of the remaining funds shall be due the contractor until all punch list items are completed and are accepted by the Architect. If the dollar value of the punch list exceeds the amount of funds, less the retainage amount, in the remaining balance of the Contract, then the Project shall not be considered as substantially complete. If funds remaining are less than that required to complete the Work, the Contractor shall pay the difference.

9.8.5 When the preparation of the punch list is complete the Architect shall prepare a Recommendation of Acceptance incorporating the punch list and submit it to the Owner. Upon approval of the Recommendation of Acceptance, the Owner may issue a Notice of Acceptance of Building Contract which shall establish the Date of Substantial Completion. The Contractor shall record the Notice of Acceptance with the Clerk of Court in the Parish in which the Work has been performed. If the Notice of Acceptance has not been recorded seven (7) days after issuance, the Owner may record the Acceptance at the Contractor's expense. All additive change orders must be processed before issuance of the Recommendation of Acceptance. The Owner shall not be responsible for payment for any Work associated with change orders that is not incorporated into the contract at the time of the Recommendation of Acceptance.

9.8.6 Warranties required by the Contract Documents shall commence on the date of Acceptance of the Work unless otherwise agreed to in writing by the Owner and Contractor. Unless otherwise agreed to in writing by the Owner and Contractor, security, maintenance, heat, utilities, damage to the Work not covered by the punch list and insurance shall become the Owner's responsibility on the Date of Substantial Completion.

9.8.7 If all punch list items have not been completed by the end of the forty-five (45) day lien period, through no fault of the Architect or Owner, the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within forty-five (45) days after notification, the Surety has not completed the punch list, through no fault of the Architect or Owner, the Owner may, at his option, contract to have the balance of the Work completed and pay for such Work with the unpaid funds remaining in the Contract sum. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future state contracts. If the surety fails to complete the punch list within the stipulated time period, the Owner may not accept bonds submitted, in the future, by the surety.

*(Paragraphs deleted)*

#### **§ 9.9 Partial Occupancy or Use**

9.9.1 Partial Occupancy is that stage in the progress of the Work when a designated portion of the Work is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the designated portion of the Work for its intended use. The Owner may occupy or use any substantially completed portion of the Work so designated by separate agreement with the Contractor and authorized by public authorities having jurisdiction over the Work. Such occupancy or use may commence provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers the designated portion substantially complete the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.

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*(Paragraph deleted)*

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

#### § 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

9.10.4 The making of final payment shall not constitute a waiver of Claims by the Owner for the following:

- 9.10.4.1 Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- 9.10.4.2 failure of the Work to comply with the requirements of the Contract Documents irrespective of when such failure is discovered;
- 9.10.4.3 terms of special warranties required by the Contract Documents; or
- 9.10.4.4 audits performed by the Owner, after final payment.

*(Paragraphs deleted)*

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

### **§ 10.2 Safety of Persons and Property**

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing the health and, safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.1.8.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

### **§ 10.2.8 Injury or Damage to Person or Property**

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

### § 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB) or lead, encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. The Contract time shall be extended appropriately.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

### 10.4 EMERGENCIES

In an emergency affecting the safety of persons or property, the Contractor shall notify the Owner and Architect immediately of the emergency, simultaneously acting at his discretion to prevent damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency Work shall be determined as provided in Article 15 and Article 7.

## INSURANCE REQUIREMENTS FOR NEW CONSTRUCTION, ADDITIONS AND RENOVATIONS

### 11.1 CONTRACTOR'S LIABILITY INSURANCE

The Contractor shall purchase and maintain without interruption for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by the Contractor, its agents, representatives, employees or subcontractors. The duration of the contract shall be from the inception of the contract until the date of final payment.

### 11.2 MINIMUM SCOPE AND LIMITS OF INSURANCE

#### 11.2.1 Worker's Compensation

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Worker's Compensation insurance shall be in compliance with the Worker's Compensation law of the Contractor's headquarters. Employers Liability is included with a minimum limit of \$1,000,000 per accident/per disease/per employee. If Work is to be performed over water and involves maritime exposure, applicable LHWCA, Jones Act or other maritime law coverage shall be included. A.M. Best's insurance company rating requirement may be waived for Worker's compensation coverage only.

11.2.2 Commercial General Liability

Commercial General Liability insurance, including Personal and Advertising Injury Liability and Products and Completed Operations Liability, shall have a minimum limit per occurrence based on the project value. The Insurance Services Office (ISO) Commercial General Liability occurrence coverage form CG 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. Claims-made form is unacceptable.

The aggregate loss limit must apply to each project. ISO form CG 25 03 (current form approved for use in Louisiana), or equivalent, shall also be submitted. The State project number, including part number, and project name shall be included on this endorsement.

**COMBINED SINGLE LIMIT (CSL) PER OCCURRENCE**

Type of Construction	Projects up to \$1,000,000	Projects over \$1,000,000 up to Projects over \$10,000,000	
		\$10,000,000	\$10,000,000
<b>New Buildings:</b>			
Each Occurrence			
Minimum Limit	\$1,000,000	\$2,000,000	\$4,000,000
Per Project Aggregate	\$2,000,000	\$4,000,000	\$8,000,000
<b>Renovations:</b>			
	The building(s) value for the Project is \$_____.		
Each Occurrence			
Minimum Limit	\$1,000,000**	\$2,000,000**	\$4,000,000**
Per Project Aggregate	2 times per occur limit**	2 times per occur limit**	2 times per occur limit**

\*\*While the minimum Combined Single Limit of \$1,000,000 is required for any renovation, the limit is calculated by taking 10% of the building value and rounding it to the nearest \$1,000,000 to get the insurance limit. Example: Renovation on a \$33,000,000 building would have a calculated \$3,300,000 combined single limit of coverage (33,000,000 times .10 = 3,300,000 and then rounding down to \$3,000,000). If the calculated limit is less than the minimum limit listed in the above chart, then the amount needed is the minimum listed in the chart. Maximum per occurrence limit required is \$10,000,000 regardless of building value. The per project aggregate limit is then calculated as twice the per occurrence limit.

11.2.3 Automobile Liability

Automobile Liability Insurance shall have a minimum combined single limit per occurrence of \$1,000,000. ISO form number CA 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. This insurance shall include third-party bodily injury and property damage liability for owned, hired and non-owned

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automobiles.

#### 11.2.4 Excess Umbrella

Excess Umbrella Insurance may be used to meet the minimum requirements for General Liability and Automobile Liability only.

#### 11.2.5 Builder's Risk

11.2.5.1 Builder's Risk Insurance shall be in an amount equal to the amount of the construction contract including any amendments and shall be upon the entire Work included in the contract. The policy shall provide coverage equivalent to the ISO form number CP 10 20, Broad Form Causes of Loss (extended, if necessary, to include the perils of wind, earthquake, collapse, vandalism/malicious mischief, and theft, including theft of materials whether or not attached to any structure). The policy must include architects' and engineers' fees necessary to provide plans, specifications and supervision of Work for the repair and/or replacement of property damage caused by a covered peril, not to exceed 10% of the cost of the repair and/or replacement.

11.2.5.2 Flood coverage shall be provided by the Contractor on the first floor and below for all projects, except as otherwise noted. The builder's risk insurance policy, sub-limit for flood coverage shall not be less than ten percent (10%) of the total contract cost per occurrence. If flood is purchased as a separate policy, the limit shall be ten percent (10%) of the total contract cost per occurrence (with a max of \$500,000 if NFIP). Coverage for roofing projects shall **not** require flood coverage.

11.2.5.3 A Specialty Contractor may provide an installation floater in lieu of a Builder's Risk policy, with the similar coverage as the Builder's Risk policy, upon the system to be installed in an amount equal to the amount of the contract including any amendments. Flood coverage is not required.

11.2.5.4 The policy must include coverage for the Owner, Contractor and any subcontractors as their interests may appear.

#### 11.2.6 Pollution Liability (*required when asbestos or other hazardous material abatement is included in the contract*)

Pollution Liability insurance, including gradual release as well as sudden and accidental, shall have a minimum limit of not less than \$1,000,000 per claim. A claims-made form will be acceptable. A policy period inception date of no later than the first day of anticipated Work under this contract and an expiration date of no earlier than 30 days after anticipated completion of all Work under the contract shall be provided. There shall be an extended reporting period of at least 24 months, with full reinstatement of limits, from the expiration date of the policy if the policy is not renewed. The policy shall not be cancelled for any reason, except non-payment of premium.

#### 11.2.7 Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and accepted by the Owner. The Contractor shall be responsible for all deductibles and self-insured retentions.

### 11.3 OTHER INSURANCE PROVISIONS

11.3.1 The policies are to contain, or be endorsed to contain, the following provisions:

#### 11.3.1.1 Worker's Compensation and Employers Liability Coverage

11.3.1.1.1 To the fullest allowed by law, the insurer shall agree to waive all rights of subrogation against the Owner, its officers, agents, employees and volunteers for losses arising from Work performed by the Contractor for the Owner.

#### 11.3.1.2 Commercial General Liability Coverage

11.3.1.2.1 The Owner, its officers, agents, employees and volunteers are to be added as additional insureds as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor. ISO Form CG 20 10 (for ongoing work) AND CG 20 37 (for completed work) (current forms approved for use in Louisiana), or equivalent, are to be used.

11.3.1.2.2 The Contractor's insurance shall be primary as respects the Owner, its officers, agents, employees and volunteers for any and all losses that occur under the contract. The coverage shall contain no special limitations on the scope of protection afforded to the Owner, its officers, officials, employees or volunteers. Any insurance or self-insurance maintained by the Owner shall be excess and non-contributory of the Contractor's insurance.

#### 11.3.1.3 Builder's Risk

The policy must include an endorsement providing the following:

In the event of a disagreement regarding a loss covered by this policy, which may also be covered by a State of Louisiana self-insurance or commercial property policy through the Office of Risk Management (ORM), Contractor and its insurer agree to follow the following procedure to establish coverage and/or the amount of loss:

Any party to a loss may make written demand for an appraisal of the matter in disagreement. Within 20 days of receipt of written demand, the Contractor's insurer and either ORM or its commercial insurance company shall each select a competent and impartial appraiser and notify the other of the appraiser selected. The two appraisers shall select a competent and impartial umpire. The appraisers shall then identify the policy or policies under which the loss is insured and, if necessary, state separately the value of the property and the amount of the loss that must be borne by each policy. If the two appraisers fail to agree, they shall submit their differences to the umpire. A written decision by any two shall determine the policy or policies and the amount of the loss. Each insurance company agrees that the decision of the appraisers and the umpire if involved shall be binding and final and that neither party will resort to litigation. Each of the two parties shall pay its chosen appraiser and bear the cost of the umpire equally.

#### 11.3.1.4 All Coverages

11.3.1.4.1 All policies must be endorsed to require 30 days written notice of cancellation to the Agency. Ten-day written notice of cancellation is acceptable for non-payment of premium. Notifications shall comply with the standard cancellation provisions in the Contractor's policy. In addition, Contractor is required to notify Agency of policy cancellations or reductions in limits.

11.3.1.4.2 Neither the acceptance of the completed Work nor the payment thereof shall release the Contractor from the obligations of the insurance requirements or indemnification agreement.

11.3.1.4.3 The insurance companies issuing the policies shall have no recourse against

the Owner for payment of premiums or for assessments under any form of the policies.

11.3.1.4.4 Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Owner, its officers, agents, employees and volunteers.

### 11.3.2 Acceptability of Insurers

All required insurance shall be provided by a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located. Insurance shall be placed with insurers with an A.M. Best's rating of **A-: VI or higher**. This rating requirement may be waived for Worker's compensation coverage only.

If at any time an insurer issuing any such policy does not meet the minimum A.M. Best rating, the Contractor shall obtain a policy with an insurer that meets the A.M. Best rating and shall submit another certificate of insurance within 30 days.

### 11.3.3 Verification of Coverage

Contractor shall furnish the Owner with Certificates of Insurance reflecting proof of required coverage. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The Certificates are to be received and approved by the Owner before Work commences and upon any contract renewal or insurance policy renewal thereafter. The Certificate Holder must be listed as follows:

State of Louisiana

Name of Owner

Owner Address

City, State, Zip

Attn: Project # \_\_\_\_\_

The Owner reserves the right to request complete certified copies of all required insurance policies at any time.

Upon failure of the Contractor to furnish, deliver and maintain required insurance, this contract, at the election of the Agency, may be suspended, discontinued, or terminated. Failure of the Contractor to purchase and/or maintain any required insurance shall not relieve the Contractor from any liability or indemnification under the contract.

If the Contractor does not meet the insurance requirements at policy renewal, at the option of the Owner, payment to the Contractor may be withheld until the requirements have been met, OR the Owner may pay the renewal premium and withhold such payment from any monies due the Contractor, OR the contract may be suspended or terminated for cause.

### 11.3.4 Subcontractors

Contractor shall include all subcontractors as insureds under its policies OR shall be responsible for verifying and maintaining the certificates provided by each subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The Owner reserves the right to request copies of subcontractor's certificates at any time.

If Contractor does not verify subcontractors' insurance as described above, Owner has the right to withhold payments to the Contractor until the requirements have been met.

### 11.3.5 Worker's Compensation Indemnity

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In the event Contractor is not required to provide or elects not to provide Worker's compensation coverage, the parties hereby agree the Contractor, its Owners, agents and employees shall have no cause of action against, and shall not assert a claim against, the State of Louisiana, its departments, agencies, agents and employees as an employer, whether pursuant to the Louisiana Worker's Compensation Act or otherwise, under any circumstance. The parties also hereby agree that the State of Louisiana, its departments, agencies, agents and employees shall in no circumstance be, or considered as, the employer or statutory employer of Contractor, its Owners, agents and employees. The parties further agree that Contractor is a wholly independent Contractor and is exclusively responsible for its employees, Owners, and agents. Contractor hereby agrees to protect, defend, indemnify and hold the State of Louisiana, its departments, agencies, agents and employees harmless from any such assertion or claim that may arise from the performance of this contract.

#### 11.3.6 Indemnification/Hold Harmless Agreement

Contractor agrees to protect, defend, indemnify, save, and hold harmless, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants, employees and volunteers, from and against any and all claims, damages, expenses and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur, or in any way grow out of, any act or omission of Contractor, its agents, servants and employees, or any and all costs, expenses and/or attorney fees incurred by Contractor as a result of any claims, demands, suits or causes of action, except those claims, demands, suits or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its officers, agents, servants, employees and volunteers.

Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent. The State of Louisiana may, but is not required to, consult with the Contractor in the defense of claims, but this shall not affect the Contractor's responsibility for the handling and expenses of all claims.

### 11.4 PERFORMANCE AND PAYMENT BOND

11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

11.4.3 Recordation of Contract and Bond [La R.S. 38:2241 thru 38:2241.1]

The Owner shall record within thirty (30) days the Contract Between Owner and Contractor and Performance and Payment Bond with the Clerk of Court in the Parish in which the Work is to be performed.

*(Paragraphs deleted)*

## ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

### § 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

### § 12.2 Correction of Work

#### § 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense. If the Contractor fails to correct Work identified as defective within a thirty (30) day period, through no fault of the Designer, the Owner may hold the Contractor in default. If the Owner finds the Contractor in default, the Surety shall be notified. If within thirty (30) days after notification, the Surety has not corrected the nonconforming Work, through no fault of the Architect or Owner, the Owner may contract to have nonconforming Work corrected and hold the Surety and Contractor responsible for the cost, including architectural fees and other indirect costs. If the Surety fails to correct the Work within the stipulated time period and fails to meet its obligation to pay the costs, the Owner may elect not to accept bonds submitted in the future by the Surety. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future state contracts.

#### § 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work, or Work covered by warranties, within a thirty (30) day period, through no fault of the Architect or Owner, the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within thirty (30) days after notification, the Surety has not corrected the non-conforming or warranty Work, through no fault of the Architect or Owner, the Owner may contract to have the nonconforming or warranty Work corrected and hold the Surety responsible for the cost including architects fees and other indirect costs. Corrections by the Owner shall be in accordance with Section 2.4. If the Surety fails to correct the nonconforming or warranty Work within the stipulated time period and fails to meet its obligation to pay the costs, the Owner may not accept bonds submitted, in the future, by the Surety.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

### § 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located.

### § 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

*(Paragraph deleted)*

### § 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

13.3.3 The Nineteenth Judicial Court in and for the Parish of East Baton Rouge, State of Louisiana shall have sole jurisdiction and venue in any action brought under this contract.

### § 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. The Contractor shall make arrangements for such tests, inspections and approvals with the Testing Laboratory provided by the Owner, and the Owner shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

*(Paragraphs deleted)*

## **ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT**

### **§ 14.1 Termination by the Contractor**

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

*(Paragraph deleted)*

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit for Work completed prior to stoppage, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

### **§ 14.2 Termination by the Owner for Cause**

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.
- .5 failure to complete the punch list within the lien period as provided in 9.8.7.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work. Termination by the Owner shall not suspend assessment of liquidated damages against the Surety

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

14.2.5 If an agreed sum of liquidated damages has been established, termination by the Owner under this Article shall not relieve the Contractor and/or Surety of his obligations under the liquidated damages provisions and the Contractor and/or Surety shall be liable to the Owner for per diem liquidated damages.

#### § 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

#### § 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, along with reasonable profit on the work not executed.

### ARTICLE 15 CLAIMS AND DISPUTES

#### § 15.1 Claims

##### § 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility

to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

**§ 15.1.2 Time Limits on Claims**

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

**§ 15.1.3 Notice of Claims**

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. A Reservation of Rights and similar stipulations shall not be recognized under this contract as having any effect. A party must make a claim as defined herein within the time limits provided.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

**§ 15.1.4 Continuing Contract Performance**

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

**§ 15.1.4.2** The Contract Sum and Contract Time shall be adjusted in accordance with the Architect's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with his/her decision..

**§ 15.1.5 Claims for Additional Cost**

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

**§ 15.1.6 Claims for Additional Time**

**§ 15.1.6.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

**15.1.6.2** If adverse weather conditions are the basis for a claim for additional time, the Contractor shall document that weather conditions had an adverse effect on the scheduled construction. An increase in the contract time due to weather shall not be cause for an increase in the contract sum. At the end of each month, the Contractor shall make one Claim for any adverse weather days occurring within the month. The Claim must be accompanied by sufficient documentation evidencing the adverse days and the impact on construction. Failure to make such Claim within twenty-one (21) days from the last day of the month shall prohibit any future claims for adverse days for that month. No additional adverse weather days shall be granted after the original or extended contract completion date, except those adverse weather days associated with a National Weather Service named storm or federally declared weather related disaster directly affecting the project site.

**15.1.6.3** The following are considered reasonably anticipated days of adverse weather on a monthly basis:

January	11 days	July	6 days
February	10 days	August	5 days
March	8 days	September	4 days
April	7 days	October	3 days

May	5 days	November	5 days
June	6 days	December	8 days

The Contractor shall ask for total adverse weather days. The Contractor's request shall be considered only for days over the allowable number of days stated above.

*Note: Contract is on a calendar day basis.*

*(Paragraph deleted)*

**§ 15.1.7 Waiver of Claims for Consequential Damages**

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

**§ 15.2 Initial Decision**

**§ 15.2.1** Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect shall always serve as the Initial Decision Maker. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

**§ 15.2.2** The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

**§ 15.2.3** In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 15.2.4** If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

**§ 15.2.5** The Initial Decision Maker will render an initial decision approving or rejecting the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties except that the Owner may reject the decision or suggest a compromise or both.

Init.

| *(Paragraphs deleted)*

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

| *(Paragraphs deleted)*

## SECTION 00 0009 - SPECIAL CONDITIONS

### GENERAL

#### 1.01 INSURANCE REQUIREMENTS FOR CONSTRUCTION OF BUILDINGS

- A. All policies and certificates of insurance of the Contractor/Subcontractor shall contain the following clauses:
1. The Contractor/Subcontractor's insurer will have no right of recovery or subrogation against the owner or the Architect, it being the intention of the parties that the insurance policies so affected shall protect both parties and the primary coverage for any and all losses covered by the below described insurance.
  2. The Owner and Architect shall be named as an additional insured as regards negligence by the contractor (ISO Forms CG 20 10 11 85).
  3. The Contractor shall, before commencing any work to be conducted under this Contract, procure Workmen's Compensation and Employer's Liability Insurance affording coverage under the statutory provisions of the Workmen's Compensation laws and any other compensation or common law liability pertaining to the operations to be performed under this Contract, with an insurance company authorized to write such policies of insurance in the State of Louisiana. It shall be the further responsibility of the Contractor to require that all subcontractors have in full force and effect a policy of Workmen's Compensation and Employer's Liability Insurance before proceeding with any of the work required under this Contract.
  4. The Contractor shall procure and maintain, during the life of the contract, such public liability and property damage insurance, including the operation of motor vehicles, with limits as hereinafter provided, which will cover the Contractor's, Owner's and Architect's legal liability arising out of the work performed by the Contractor and any Subcontractor, and by anyone directly or indirectly employed by either of them for claims for damages for personal injury, including accidental death as well as claims for property damages, which may arise from operations under this Contract.
- B. The following items of insurance, amounts of coverage, etc. shall be furnished by the Contractor.
1. Worker's Compensation and Employer's Liability. The Contractor shall furnish evidence that he is carrying Workers' Compensation and Employer's Liability Insurance on all of his employees in amounts as set forth in the Louisiana Workers' Compensation Act with minimum \$100,000 Employer's Liability limits as follows:
    - a. Workers' Compensation-Statutory basis for Louisiana
      - 1) Employers Liability:
      - 2) \$500,000 bodily injury by accident-each accident;
      - 3) \$500,000 bodily injury by disease-each employee;
      - 4) \$500,000 bodily injury by disease-policy limit.
    2. Comprehensive General Liability. The Contractor will provide Comprehensive General Liability Insurance on the project with limits as follows:
      - a. Commercial General Liability
        - 1) \$2,000,000 general aggregate
        - 2) \$2,000,000 products/completed operations aggregate
        - 3) \$1,000,000 personal or advertising injury
        - 4) \$1,000,000 each occurrence
        - 5) Including contractual liability coverage
      - b. Coverage must be extended to cover all hazards such as:
        - 1) Operations, premises.
        - 2) Contractor's Protective Liability (will cover Subcontractor's Liability).
        - 3) Owner's Protective Liability.
        - 4) Architect's Protective Liability.
        - 5) Completed Operations - Products.
        - 6) Contractual Liability.

- 7) Contractor must have "XCU" (Explosion, Collapse, Underground) exclusions eliminated.
  - 8) Contractor must provide Products or Completed Operations coverage listed above for a term of one (1) year after the date of substantial completion of the project.
  - 9) Contractor must provide evidence of assumption of Contractual Liability imposed by Hold Harmless paragraph.
3. Comprehensive Automobile Liability. Contractor will provide Bodily Injury Liability in the amount of \$1,000,000 each person, \$1,000,000 Bodily Injury - all persons in one occurrence, and \$1,000,000 Property Damage Liability and will include Non-owned and Hired Car Liability in the same limits, and all vehicles, whether leased, owned, hired, as well as non-owned vehicles used for the job, must be protected as outlined above.
  4. The contractor must carry the following coverages with minimum limits as shown:
    - a. Commercial General Liability
      - 1) Commercial Automobile Liability-
        - (a) \$1,000,000 combined single limit
          - (1) Including all owned, hired and borrowed vehicles
      - 2) Umbrella or Excess Liability:
        - (a) Contract Value, Less than \$500,000.00
          - (1) \$1,000,000.00
        - (b) Contract Value, \$500,000.00 to \$2,000,000.00
          - (1) \$2,000,000.00
        - (c) Contract Value, Greater than \$2,000,000.00
          - (1) Equal to, or greater than Contract Value
        - (d) Including excess coverage for general liability, automobile liability, and employer's liability.
  5. It shall be the further responsibility of the Contractor to require that all subcontractors have in full force and effect general liability, automobile liability, and workers' compensation insurance.
  6. All required coverages to be provided by the contractor must:
    - a. Name the Owner as additional insureds.
    - b. Be primary insurance.
    - c. Contain a waiver of transfer of rights of recovery in favor of the Owner.
    - d. Be evidenced by a certificate of insurance provided to the parish prior to the commencement of the project naming the Owner.
    - e. Be in effect at minimum required limits for at least two (2) years past the construction completion date.
    - f. Be on an occurrence basis.
    - g. Be written with an insurer that has a Best's rating of no less than "A-" and a financial size category of no less than "VI" according to the most recent edition of Best's Insurance Reports at the time the certificate of insurance is submitted to the Owner.

## **1.02 BUILDER'S RISK (GENERAL CONTRACTOR)**

- A. 'All Risk" (Standard form as approved by the state in which the work is performed) in an amount equal to 100% of the value of the Contract Sum written in the name of the General Contractor and Owner as their interest may appear.
- B. The Owner does not waive any not waive any rights of recovery against the Contractor and/or Subcontractor for damages that are covered by the Owner's property insurance coverage of builders' risk coverage.

## **1.03 PROPERTY INSURANCE**

- A. The Contractor shall provide Property Insurance coverage and/or shall be
  1. Contractor's machinery and equipment.
  2. Materials and work stored off site or in transit.

### **END OF SECTION**



**SECTION 00 0010 - NOTICE OF AWARD**

Within ten (10) days after you comply with the above conditions, the Owner will return to you one (1) fully signed counterpart of the Agreement and Notice to Proceed.

\_\_\_\_\_  
(Owner)

By: \_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(Title)

**ACCEPTANCE OF AWARD**

\_\_\_\_\_  
(Contractor)

By: \_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

SECTION 00 0120 – NOTICE TO PROCEED

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TO: **Contractors Legal Name**

ADDRESS: **Contractors Address**

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PROJECT: BHS South Beauregard Medical Campus

Grace Design Studios LLC, Project Number: 6024182

Contract For: West Louisiana Health Services, Inc, d/b/a  
Beauregard Health System  
600 Pine Street  
DeRidder, LA, 70634

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You are notified that the Contract Times under the above Contract will commence to run on Start Date. By that date, you are to start performing your obligations under the Contract Documents. The date of Substantial Completion is: Date of Substantial Completion.

Also, before you may start any Work at the site you must notify Architect of Start Date.

---

By: \_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(Title)

**ACKNOWLEDGED:**

\_\_\_\_\_  
(Contractor)

By: \_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

## SECTION 01 1000 - SUMMARY

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Project information.
  - 2. Work covered by Contract Documents.
  - 3. Construction Areas.
  - 4. Access to site.
  - 5. Coordination with Owner's Building Contractor.
  - 6. Work restrictions.
  - 7. Specification and drawing conventions.

#### 1.2 PROJECT INFORMATION

- A. Project Identification: New BHS South Beauregard Medical Campus – Phase 1
  - 1. Project Location: 13806 Hwy 171, Longville, Louisiana 70652
- B. Owner: West Louisiana Health Services, Inc, d/b/a Beauregard Health Systems; 600 S Pine Street, DeRidder, LA 70634.
- C. Architect: Grace Design Studios, LLC; 501 Government Street, Suite 200, Baton Rouge, Louisiana 70802

#### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
  - 1. The New BHS Medical Campus Development – consists of Phase 1 site improvements to include preparation of building pads for two (2) Owner Provided, Owner Installed Rural Medical Buildings located in Longville, LA.
  - 2. Civil scope includes new, drainage, utilities, drive apron, drives, parking areas, stripping, sidewalks, and landscaping.
  - 3. Plumbing, and Electrical systems to accommodate scope of work.
- B. Type of Contract:
  - 1. Project will be constructed under a single prime contract.

#### 1.4 CONSTRUCTION AREAS

- A. The Work shall be conducted in areas as indicated within the drawings.
  - 1. Contractor to submit a site plan indicating lay down areas, location of dumpsters, temporary toilets, etc. for Architect and Owner's approval prior to commencing Work.
  - 2. Before commencing Work within each area, submit an updated copy of Contractor's construction schedule showing the sequence, commencement and completion dates for all areas of the Work. To be included in contractors schedule Owner Provided and Installed Buildings, coordinate with Owners Subcontractor.

#### 1.5 ACCESS TO SITE

- A. General: Contractor shall have use of Project site for construction operations during construction period as indicated.
- B. Use of Site: Limit use of Project site to work in areas indicated in to complete scope of work. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Limits: Confine construction operations to the limits indicated.

2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
  - a. Schedule deliveries to minimize impacts to adjacent roadways by construction operations. Do not obstruct roadways, sidewalks or other public ways without permit.
  - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

#### **1.6 OWNER SUPPLIED ITEMS**

- A. The Owner will supply and install the following items. Contractor to coordinate adjacent work to allow Owners subcontractor to perform and complete the installation of their scope. for clear dimensions and shall request cut sheets or existing dimensions for such coordination prior to fabrication and installation of surrounding work:
  1. Pre-Fabricated Buildings (Currently complete and ready for installation)
  2. Building landings, ramps, stairs and railings

#### **1.7 WORK RESTRICTIONS**

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Work hours shall occur within the requirements of authorities having jurisdiction and shall comply with all noise ordinances. Work after 5:00 pm and before 7:00am and work occurring on weekends shall be coordinated with AHJ
- C. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- D. Employee Screening: Comply with Owner's requirements for drug screening of Contractor personnel working on Project site.
  1. Maintain list of approved screened personnel with Owner's representative.

#### **1.8 SPECIFICATION AND DRAWING CONVENTIONS**

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
  1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
  3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

**PART 2 - PRODUCTS (Not Used)**  
**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 1000**

## SECTION 01 2600 - MODIFICATION PROCEDURES

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification sections, apply to this section.

#### 1.02 SUMMARY

- A. This section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections: The following sections contain requirements that relate to this section:
  - 1. Division 01 Section "Allowances" for administrative requirements governing use of allowances.
  - 2. Division 01 Section "Submittals" for requirements for the Contractor's Construction Schedule.
  - 3. Division 01 Section "Payment Procedures" for administrative procedures governing applications for payment.
  - 4. Division 01 Section "Construction Progress Documentation" for requirements of the Contractor's Construction Schedule.
  - 5. Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.

#### 1.03 MINOR CHANGES IN THE WORK

- A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect on AIA form G710, Architect's Supplemental Instructions.

#### 1.04 CHANGE ORDER PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.
  - 1. Proposal requests issued by the Architect are for information only. Do not consider them instruction either to stop work in progress, or to execute the proposed change.
  - 2. Unless otherwise indicated in the proposal request, within 14 calendar days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.
    - a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
- B. Contractor-Initiated Change Order Proposal Requests: When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.
  - 1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
  - 2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Comply with requirements in Section "Product Substitutions" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.

## SECTION 01 2600 - MODIFICATION PROCEDURES

5. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
- C. Proposal Request Form: Use Construction Managers Standard Change Order Proposal Request Form.

### 1.05 CHANGE ORDER PROCEDURES

- A. Upon the Owner's approval of a Change Order Proposal Request, the Construction Manager will issue a Change Order for signatures of the Owner and Architect on AIA Document G701.

### 1.06 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowance for cutting losses, tolerances, mixing wastes, normal produce imperfections, and similar margins.
  1. Include installation costs in purchase amount only where indicated as part of the allowance.
- B. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  1. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  2. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- C. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within twenty one (21) days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than twenty one (21) days after such authorization.
  1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

### 1.07 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

## PART 2 PRODUCTS

(NOT APPLICABLE)

## PART 3 EXECUTION

(NOT APPLICABLE)

END OF SECTION

## SECTION 01 2610 - REQUESTS FOR INTERPRETATION

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes administrative provisions for submitting and processing Requests for Interpretation (RFIs) after execution of the Agreement:

#### 1.03 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

#### 1.04 REQUESTS FOR INTERPRETATION (RFIS)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified in Paragraph 1.4.C.
  - 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following (fill in software blanks where applicable):
  - 1. RFI ID number, numbered sequentially.
  - 2. Subject.
  - 3. To: (choose Project Architect / Project Manager).
  - 4. Contractor's question, which shall include:
    - a. Specification Section number and title and related paragraphs, as appropriate.
    - b. Drawing number and detail references, as appropriate.
    - c. Field dimensions and conditions, as appropriate.
    - d. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  - 5. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation. Provide attachments in .pdf format.
    - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials,
- C. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
  - a. RFIs shall be submitted thru Architect's Centerline Info Exchange (link provided by Architect).
- D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven (7) calendar days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
  - 1. The following RFIs will be returned without action:
    - a. RFIs not submitted per Paragraph 1.4.C.
    - b. Requests for approval of submittals.
    - c. Requests for approval of substitutions.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Architect's actions on submittals.
    - g. Incomplete RFIs or RFIs with numerous errors.
    - h. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

## SECTION 01 2610 - REQUESTS FOR INTERPRETATION

- i. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section 01 26 00 "Modification Procedures."
  - j. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within ten (10) calendar days of receipt of the RFI response.
  - k. RFIs involving request for remedial action to correct nonconforming work, which are returned in more than ten (10) calendar days, are not eligible for Contractor's request for an increase in Contract Sum or an extension of Contract Time.
- E. On receipt of Architect's action, immediately distribute the RFI response to affected parties. Review response and notify Architect within ten (10) calendar days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit updated log at each Construction Progress Meeting. Provide software log with not less than the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.
  4. RFI number including RFIs that were dropped and not submitted.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
  8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01 2900 - PAYMENT PROCEDURES

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

#### 1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment
  - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule and List of Subcontractors.
- B. The Contractor's Construction Schedule is included in Section "Construction Progress Documentation".

#### 1.03 SCHEDULE OF VALUES

- A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
    - a. Contractor's construction schedule.
    - b. Application for Payment form.
    - c. List of subcontractors.
    - d. Schedule of allowances.
    - e. Schedule of alternates.
    - f. List of principal suppliers and fabricators.
  - 2. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.
- B. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of the Architect.
    - c. Project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:
    - a. Generic name.
    - b. Dollar value.
    - c. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
    - d. Change Orders (numbers) that have affected value.
  - 3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
  - 4. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
  - 5. Margins of Cost: Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.
    - a. At the Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in- place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.
  - 6. Substantiating Data:
    - a. When Architect requires substantiating information, submit data justifying item amounts in question.

## SECTION 01 2900 - PAYMENT PROCEDURES

- b. On allowance items, submit actual invoice from supplier of product or service.
- c. Provide one copy of data with cover letter for each copy of submittal. Show Application number and date, and line item by number and description.

### 1.04 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
  - 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is as indicated in the Agreement Form. The period of construction Work covered by each Application for Payment is the period indicated in the Construction Agreement.
- C. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.
  - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
  - 2. Include amounts of approved Change Orders issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect by means ensuring receipt within 24 hours; one copy shall be complete, including waivers of lien and similar attachments, when required.
  - 1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.
- F. Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
  - 1. List of subcontractors approved for award.
  - 2. List of principal suppliers and fabricators approved at time of submission.
  - 3. Schedule of Values.
  - 4. Contractor's Construction Schedule (preliminary if not final).
  - 5. List of Contractor's Staff Assignments.
  - 6. Copies of Building Permits.
  - 7. Copies of authorizations and licenses from governing authorities for performance of the work.
  - 8. Certificates of insurance and insurance policies.
  - 9. Report of pre-construction meeting.
- G. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- H. Administrative actions and submittals that shall proceed or coincide with this application include:
  - 1. Occupancy permits and similar approvals.
  - 2. Warranties (guarantees) and maintenance agreements.
  - 3. Test/adjust/balance records.
  - 4. Maintenance instructions.
  - 5. Meter readings (if applicable).
  - 6. Start-up performance reports.
  - 7. Change-over information related to Owner's occupancy, use, operation and maintenance.
  - 8. Final cleaning.

## SECTION 01 2900 - PAYMENT PROCEDURES

9. Application for reduction of retainage, and consent of surety.
  10. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- I. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final Application for Payment include the following:
1. Completion of Project closeout requirements.
  2. Completion of items specified for completion after Substantial Completion.
  3. Transmittal of required Project construction records to Owner.
  4. Removal of temporary facilities and services.
  5. Removal of surplus materials, rubbish and similar elements.
  6. Change of door locks to Owner's access.

### **PART 2 PRODUCTS**

**(NOT APPLICABLE)**

### **PART 3 EXECUTION**

**(NOT APPLICABLE)**

**END OF SECTION**

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This section includes:
  1. Coordination of Work of the Contract.
  2. Preconstruction conferences.
  3. Scheduling and administration of progress meetings.
  4. Pre-installation conferences.

#### 1.03 DESCRIPTION

- A. Coordinate scheduling, submittals, and work of the various sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.

#### 1.04 RELATED SECTIONS

- A. The following Sections contain requirements that relate to this Section:
  1. Division 01 Section "Field Engineering" specifies procedures for field engineering services, including establishment of benchmarks and control points.
  2. Division 01 Section "Submittals" specifies procedures for preparing and submitting the Contractor's Construction Schedule.
  3. Division 01 Section "Materials and Equipment" specifies procedures for coordinating general installation.
  4. Division 01 Section "Closeout Procedures" specifies procedures for coordinating contract closeout.

#### 1.05 GENERAL CONTRACT PROVISIONS

- A. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Architect of any error, inconsistency, omission, or apparent discrepancy discovered.
- B. Allot time in construction scheduling for liaison with Architect, and for establishing procedures for handling queries and clarifications.
- C. If Architect is able to respond to a request for interpretation by making specific reference to Drawing sheet or Specification Section, Contractor shall reimburse Owner for charges of Architect and Architect's Consultants for performing review services for the Contractor.
- D. In addition to meetings specified herein, hold coordination meetings and conferences with personnel and subcontractors to ensure coordination of Work.
- E. Coordinate scheduling, submittals, and Work of various Specification sections to avoid conflicts and ensure efficient and orderly sequence of installation of interdependent construction elements.
- F. Coordinate Work of various Specification sections having interdependent responsibilities for installation, connection, and operation.
- G. Verify that characteristics of operating equipment are compatible with building utilities and services.
- H. Except as otherwise indicated, conceal pipes, ducts, conduit and wiring in construction. Coordinate locations of fixtures and outlets with finish elements.
- I. Make provision to accommodate items scheduled for later installation.
- J. Salvage materials and equipment involved in performance of, but not actually incorporated into the Work.

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

- K. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
- L. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- M. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- N. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- O. Recheck measurements and dimensions, before starting each installation.
- P. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- Q. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- R. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.
- S. Cleaning and Protection:
  - 1. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
  - 2. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
  - 3. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following: Excessive static or dynamic loading.
    - Excessive internal or external pressures.
    - Excessively high or low temperatures.
    - Thermal shock.
    - Excessively high or low humidity.
    - Air contamination or pollution.
    - Water or ice.
    - Solvents.
    - Chemicals.
    - Light.
    - Radiation.
    - Puncture.
    - Abrasion.
    - Heavy traffic.
    - Soiling, staining and corrosion.
    - Bacteria.
    - Rodent and insect infestation.

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

Combustion.  
Electrical current.  
High speed operation.  
Improper lubrication.  
Unusual wear or other misuse.  
Contact between incompatible materials.  
Destructive testing.  
Misalignment.  
Excessive weathering.  
Unprotected storage.  
Improper shipping or handling.  
Theft.  
Vandalism.

### 1.06 COORDINATION DRAWINGS AND LAYOUTS

#### A. General:

1. Coordination drawings are not shop drawings and are not to be submitted to Architect for approval.
2. Coordination drawings show relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in space provided or to function as intended.
3. Prepare composite coordination drawings to scale of 1:50 (1/4"=1'-0") or larger; detailing major elements, components, and systems of architectural, structural, mechanical, and electrical equipment and materials in relationship with each other, installations, and building components. Include dimensions.
4. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to efficient flow of Work affecting one or more trades.
5. Indicate scheduling, sequencing, movement, and positioning of large equipment into building during construction.
6. Prepare floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.
7. Prepare reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communications systems components, sprinklers, and other ceiling-mounted devices.
8. Show interrelationship of components to be shown on separate Shop Drawings.
9. Indicate required installation sequences.
10. CAD drawing files may be released by the Architect to the Contractor (at no charge) and/or his Subcontractors (at \$50.00 per requested individual sheet) after execution of a formal electronic document release form which may be obtained from the Architect.

#### B. Structural Systems: Include, but do not necessarily limit to following:

1. Structural frame showing interface with exterior cladding.
2. Location of openings in relation to structure.
3. Show attachments to decking, structural elements, and other systems.

#### C. Mechanical Systems: Include, but do not necessarily limit to following:

1. Proposed locations of piping, ductwork, equipment, and materials.
2. Proposed locations for access panels and doors.
3. Clearances for installing and maintaining insulation.

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

4. Clearances for servicing and maintaining equipment, including tube removal, filter removal, and space for equipment disassembly required for periodic maintenance. Show access locations.
  5. Equipment connections and support details.
  6. Exterior wall and foundation penetrations.
  7. Fire-rated wall and floor penetrations.
  8. Sizes and location of required concrete pads and bases.
  9. Valve stem movement.
- D. Electrical Systems: Include, but do not necessarily limit to following:
1. Proposed locations of major raceway systems, equipment, and materials.
  2. Clearances for servicing equipment, including space for equipment disassembly required for periodic maintenance. Show access locations.
  3. Exterior wall and foundation penetrations.
  4. Fire-rated wall and floor penetrations.
  5. Equipment connections and support details.
  6. Sizes and location of required concrete pads and bases.
- E. Coordinate in field with affected trades for proper relationship to Work based on Project conditions.
- F. Notify Architect of conflicts and other coordination issues requiring resolution prior to commencing construction in each affected area.
- G. Submit Contractor's certification to Architect that coordination documents have been completed and coordination issues have been identified and resolved prior to commencing construction in each affected area.
- H. Make coordination documents available in field office for review by Architect and Owner during entire period of construction.

### 1.07 MEETINGS

- A. In addition to progress meetings, hold coordination meetings and pre-installation conferences with personnel and subcontractors to assure coordination of Work. Provide a minimum two (2) working day notice to the Architect and Owner for meetings.

### 1.08 COORDINATION OF SUBMITTALS

- A. Schedule and coordinate submittals specified in Section 01 3300.
- B. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.
- D. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.

### 1.09 COORDINATION OF SPACE

- A. Coordinate use of Project space and sequence of installation of mechanical, and electrical work which is indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- B. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- C. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- D. Layout of plumbing, fire protection, mechanical, and electrical systems, equipment, fixtures, piping, ductwork, conduit, specialty items, and accessories indicated on Drawings is

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

diagrammatic. Variations in alignment, elevation, and details required to avoid interferences and satisfy architectural and structural limitations are not necessarily shown.

- E. Prior to installation of material and equipment, review and coordinate Work with Architectural and Structural Drawings to establish exact space conditions. Where available space is inadequate or where reasonable modifications are not possible, request information from Architect before proceeding.
- F. Coordinate installation to prevent conflicts and cooperate in making, without extra charge, reasonable modifications in layout as needed.
- G. Provide clear access to control points, valves, strainers, control devices, and specialty items of every nature related to such systems and equipment to obtain maximum head room. Provide adequate clearances as necessary for operation and maintenance.

### 1.10 COORDINATION OF CONTRACT CLOSEOUT

- A. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion of portions of Work designated for Owner partial occupancy.
- B. After Owner occupancy of premises, coordinate access to site by various sections for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- C. Assemble and coordinate closeout submittals specified in Section 01 7700.

### 1.11 PRECONSTRUCTION CONFERENCE

- A. Architect will schedule conference within 14 calendar days after the "Notice To Proceed".
- B. Attendance: Owner, Architect, Contractor and representatives of major subcontractors, and others as appropriate.
- C. Architect presides over meeting and is responsible for recording and distributing minutes.
- D. Agenda:
  - 1. Submittal of executed bonds and insurance certificates.
  - 2. Execution of Owner-Contractor Agreement.
  - 3. Distribution of Contract Documents.
  - 4. Submittal of list of subcontractors, list of products, schedule of values, and progress schedule.
  - 5. Designation of responsible personnel. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.
  - 6. Procedures, processing, and formats for field decisions, submittals, substitutions, applications for payments, proposal requests, change orders, and Contract closeout procedures. Formats used by Architect and Contractor must be submitted to Architect and Owner at this time and must conform to Owner requirements.
  - 7. Use of premises by Owner and Contractor.
  - 8. Owner's requirements.
  - 9. Installation and removal of temporary facilities.
  - 10. Survey and building layout.
  - 11. Security, safety, and housekeeping procedures.
  - 12. Schedules and sequencing.
  - 13. Procedures for testing.
  - 14. Procedures for maintaining record documents.
  - 15. Requirements for startup and delivery of equipment.
  - 16. Inspection and acceptance of equipment put into service during construction period.
  - 17. Notification procedures for emergencies:
    - a. **Special Note: Contractor is to notify Owner and Architect immediately upon occurrence of any incident involving personal injury, property damage,**

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

**interruption of a utility source, or an other emergency. Contractor is to file a written follow-up report to Owner within 24 hours of incident.**

### 1.12 PROGRESS MEETINGS

- A. Schedule and administer bi-weekly construction progress meetings, throughout progress of Work. Provide a minimum two (2) working day notice to the Architect and Owner for meetings.
  - 1. Prepare agenda and distribute notice of each meeting to participants.
  - 2. Make physical arrangements.
  - 3. Preside at meetings, record minutes, and distribute copies after meeting to participants, and to entities affected by decisions at meetings. (Minutes from meetings to be distributed within 72 hours after meeting.)
  - 4. Distribute one copy of minutes to Architect and one to Owner.
  - 5. Maintain in field office one copy of agenda and minutes for each conference and meeting.
- B. Location of Meetings: Contractor's field office.
- C. Attendance: Contractor, job superintendent, subcontractors, and suppliers as appropriate to agenda; Owner, Architect, and professional consultants as appropriate.
- D. Anticipated Agenda:
  - 1. Approval of minutes of previous meeting.
  - 2. Work progress since previous meeting:
    - a. Current activities.
    - b. Critical activities.
    - c. Deviations from schedule.
  - 3. Field observations, problems, conflicts, and decisions.
  - 4. Deficiencies:
    - a. Identification of items.
    - b. Status of correction.
  - 5. Requests for Interpretations (RFIs):
    - a. Status of clarification.
    - b. Status of proposal requests.
  - 6. Changes and Modifications:
    - a. Status of change orders.
    - b. Pending changes.
    - c. Pending claims and disputes.
    - d. Clarification decisions of Architect or Owner.
  - 7. Problems and conflicts which impede planned progress.
  - 8. Construction Progress and Submittal Schedules:
    - a. Off-site fabrication and delivery schedules.
    - b. Effect of proposed changes on construction progress schedule and coordination.
    - c. Submittal schedules, status of submittals, and effect on construction progress schedule.
    - d. Corrective measures to regain projected schedule.
  - 9. Planned progress during succeeding Work period. (Provide a "look ahead" schedule).
  - 10. Adequacy of work forces.
  - 11. Coordination between elements of Work.
  - 12. Maintenance of Project Record Documents.
  - 13. Other business relating to progress of Work.
  - 14. Top concerns.
  - 15. Meeting plus/minus takeaways.
- E. Meeting Minutes:
  - 1. Include column to indicate who is required to take action and date action is to be completed. Each of these items requiring action will be carried in subsequent minutes of meeting as "old business" until noted as "resolved."

## SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

2. As minimum, separate into following categories:
  - a. Old business.
  - b. New business.
3. Work progress.
  - a. Deficiencies.
  - b. RFIs.
  - c. Proposed changes.
  - d. Schedules.
  - e. Submittals.
  - f. Other business, including events to be accomplished by next meeting.
  - g. "Look ahead" schedule.

### 1.13 PRE-INSTALLATION CONFERENCES

- A. Schedule pre-installation conferences required in individual Specification sections. Convene at Project site prior to commencing Work of the section.
- B. Attendees:
  1. Project superintendent; presides over meeting and is responsible for minutes.
  2. Subcontractor (installer, applicator, or erector).
  3. Material or equipment supplier.
  4. Manufacturers' representative.
  5. Others directly affecting, or affected by the work.
  6. Testing agency (if necessary).
  7. Subcontractors, as appropriate.
  8. Owner, Architect, and professional consultants may attend as appropriate.
  9. Others as appropriate to agenda.
- C. Notify Architect and Owner minimum four (4) working days in advance of meeting date.
- D. Minimum Agenda:
  1. Access to work and conditions of proper installation.
  2. Conditions of installation, such as substrates, existing and surrounding conditions, and environmental conditions.
  3. Preparation procedures, including protection of adjacent work.
  4. Verify installers' receipt and understanding of installation instructions.
  5. Review submittals, installation procedures, and sequence.
  6. Review coordination with other work.
  7. Evaluate delivery schedule and Construction Progress Schedule.
  8. Observe sample installation.
  9. Required protection procedures.
  10. Change order procedures.
  11. Safety.
  12. Inspection and testing.
  13. Required performance results.
  14. Recording requirements.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

### PART 2 PRODUCTS

(NOT APPLICABLE)

### PART 3 EXECUTION

(NOT APPLICABLE)

**END OF SECTION**

## SECTION 01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Divisions 00 and 01 Specification Sections, apply to this section..

#### 1.02 SUMMARY

- A. This section includes the following:
  - 1. Procedures for preparation and submittal of construction progress schedules and periodical updating.
  - 2. Construction progress photographs.
- B. Related Sections:
  - 1. Section 01 1000, Summary of Work.
  - 2. Section 01 3300, Submittals.

#### 1.03 SCHEDULES

- A. Format:
  - 1. Contractor shall prepare and submit a Critical Path Construction Schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents and shall be subject to the approval of the Architect. The Contractor shall prosecute the work as required to start and complete each phase of the work on or before the dates stated.
  - 2. Should actual construction of project vary from the schedule, Contractor shall take whatever actions are necessary to improve progress as quickly as possible in order to meet predetermined milestones. Revise and re-submit schedule when the actual schedule is ahead or behind by more than 14 calendar days. The schedule will be reviewed monthly by the Architect's and Owner's representative.
  - 3. Sequence of Listings: The chronological order of the start of each item of work.
  - 4. Scale and Spacing: To provide space for notations and revisions.
  - 5. Sheet Size: Minimum 11 x 17 inches.
- B. Content
  - 1. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
  - 2. Identify each item by major Specification section number.
  - 3. Identify work of separate stages and other logically grouped activities.
  - 4. Provide sub-schedules to define critical portions of entire schedule.
  - 5. Show delivery dates for Owner furnished products.
- C. Revisions
  - 1. Indicate progress of each activity to date of submittal, and projected completion data of each activity.
  - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
  - 3. Provide report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.
- D. Distribution
  - 1. Distribute copies of reviewed Schedules to Owner, Architect, subcontractors, suppliers, and other concerned entities.
  - 2. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in Schedules.

#### 1.04 CONSTRUCTION PROGRESS PHOTOGRAPHS

- A. Photography
  - 1. Provide photographs of site and construction throughout progress of Work.
  - 2. Take photographs on cutoff date for each Application for Payment.

## SECTION 01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION

3. Take a minimum of 20 photographs weekly and at beginning and completion of elements of construction:
  - a. Demolition and site clearing.
  - b. Selective demolition.
  - c. Excavations.
  - d. Foundations.
  - e. Structural framing.
  - f. Rough-in of mechanical, electrical and plumbing systems.
  - g. Enclosure of building.
  - h. Final completion.
- B. Digital Images
  1. All construction progress photos in digital format are to be delivered each month and all photos are to be delivered with the Project Record Documents at Project Closeout. Catalog and index images in chronological sequence. Include CD or flash drive (in JPG or TIFF format for PC's) with image indexed files.
- C. Technique
  1. Provide factual presentation.
  2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
- D. Views
  1. Provide non-aerial photographs from a sufficient number of views at each specified time in order to sufficiently document the progress of the work, until Date of Substantial Completion. Aerial photographs may be submitted in addition to, but not as a substitute for required views.
  2. Consult with Architect for instructions on views required.

### 1.05 SUBMITTALS

- A. Progress Schedules:
  1. Submit initial Schedules within 14 calendar days from Notice to Proceed. After review, resubmit required revised data within 7 calendar days.
  2. Submit revised Progress Schedules with each Application for Payment.
  3. Submit the number of opaque reproductions which Contractor requires, plus 1 copy retained by Architect and 1 copy retained by Owner.
- B. Construction Photographs:
  1. Deliver digital images with each Application for Payment.
  2. Digital images on CD or flash drive of all construction photographs shall be delivered with the Project Record Documents as stated in Paragraph 1.4 .B., above.

### PART 2 PRODUCTS

(NOT APPLICABLE)

### PART 3 EXECUTION

(NOT APPLICABLE)

END OF SECTION

## SECTION 01 3300 - SUBMITTALS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section..

#### 1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
  - 1. Submittal procedures.
  - 2. Construction reports.
  - 3. Recording Contract Document Changes.
  - 4. Shop Drawings.
  - 5. Product Data.
  - 6. Samples.
- B. Administrative Submittals: Refer to other Division 01 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
  - 1. Permits.
  - 2. Applications for payment.
  - 3. Insurance certificates.
  - 4. List of Subcontractors.
- C. The construction schedule is included in Section "Construction Progress Documentation".
- D. The Schedule of Values submittal is included in Section "Payment Procedures."
- E. Inspection and test reports are included in Section "Testing Laboratory Services."

#### 1.03 DEFINITIONS

- A. Shop Drawings: Include drawings, diagrams, schedules and other data specially prepared for the Work by Contractor or a subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
- B. Product Data: Include illustrations, standard schedules, performance charts, instructions, brochures, diagrams, test data and other information furnished by Contractor to illustrate material, product or system for some portion of the Work.
- C. Samples: Physical examples illustrating materials, equipment or workmanship to establish standards by which the Work will be judged. Samples include field samples.
- D. Quality Control Submittals: Pertain to quality control and Owner information which do not require review and approval by Architect and are to be retained for project file only. If reviewed, project information will be reviewed for compliance with the Contract Documents only. The review will not constitute a detailed review of adequacy of submitted design calculations. The appropriateness and accuracy of calculations is the responsibility of the submitting Contractor (and Contractor's Professional Engineer when such calculations are required to be professionally sealed). Examples of quality control submittals:
  - 1. Design data and calculations.
  - 2. Test reports.
  - 3. Certifications.
  - 4. Manufacturer's installation instructions.
  - 5. Manufacturer's field reports.
- E. Contract Closeout Submittals: Pertain to contract closeout related information which do not require review and approval by the Architect and are to be retained for project file only. Examples of contract closeout submittals:
  - 1. Project record information.
  - 2. Warranties.
  - 3. Operation and maintenance data.

## SECTION 01 3300 - SUBMITTALS

4. Owner instruction reports.
- F. Administrative Submittals: Refer to General and Special Conditions for requirements for administrative submittals. Such submittals include, but are not limited to:
  1. Permits.
  2. Applications for payment.
  3. Insurance certificates.
  4. List of Subcontractors.
  5. Schedule of Values.
- G. Field Samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- H. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.
- I. Centerline Info Exchange: Software that enables transfer of files to and from internal and external users over the internet. Newforma Info Exchange is hosted on servers at the Architect's office and available to external users thru the use of an internet browser.
- J. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

### 1.04 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
  1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity, including content of prior submittals (with revisions) and any field changes reflected.
  2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals. Time for review shall commence on Architect's receipt of submittal.
  1. Internal Review: Allow up to fourteen (14) calendar days for review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals.
  2. Concurrent Review: When concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow up to fourteen (14) calendar days for initial review of each submittal.
  3. Direct Transmittal to Consultant: Where approved in advance by Architect, submittals may be transmitted directly to Architect's consultants, provide duplicate copy of transmittal to Architect. Submittal will be returned to Architect before being returned to Contractor. Allow a minimum of ten (10) calendar days for consultant review.
  4. Allow up to fourteen (14) calendar days for processing each re-submittal.
  5. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
  6. Contractor shall maintain in field office a copy of submittal schedule and log of submittals indicating status of each item.
- C. Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  1. Include the following information on the label for processing and recording action taken.
    - a. Project name.

## SECTION 01 3300 - SUBMITTALS

- b. Date.
  - c. Name and address of Architect.
  - d. Name and address of Contractor.
  - e. Name and address of subcontractor.
  - f. Name and address of supplier.
  - g. Unique identifier, including revision number.
  - h. Name and address of manufacturer.
  - i. Number and title of appropriate Specification Section.
2. Drawing number and detail references, as appropriate.
    - a. Other necessary identification.
  3. Provide on the label or beside the title block on the submittal a place to record the Contractor's review and approval markings and the action taken.
    - a. The Contractor's review markings must include the following information:

"This shop drawing has been reviewed by [Name of Contractor] and approved with respect to the means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incidental thereto. [Name of Contractor] also warrants that this shop drawing complies with contract documents and comprises no variations thereto."
    - b. **SUBMITTALS WITH NO REMARKS OR NOTATIONS MADE BY THE CONTRACTOR WILL BE RETURNED AS NOT SATISFYING CONTRACTOR'S REVIEW REQUIREMENT.**
- D. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- E. Hardcopy Submittal Transmittal (Approved in advance by Architect): Assemble complete submittal package incorporating submittal requirements of a single Specification Section with a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
1. Transmittal Form: Provide a transmittal form for each submittal including the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).
    - e. Names of subcontractor, manufacturer, and supplier.
    - f. Category and type of submittal.
    - g. Submittal purpose and description.
    - h. Remarks.
    - i. Signature of transmitter.
- F. Architect's Digital Data Files: One set of electronic digital data files of the architectural portion of the Contract Drawings (A-x sheets) can be provided by CD, DVD, or Centerline Info Exchange (FTP) by the Architect for the Contractor's use in preparing submittals.
1. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
  2. Digital Drawing Software Program: The digital data drawing files are available in the latest version of Revit or AutoCAD (depending on which was used by the Architect to produce the project). Digital data drawing files will not be converted to another software format.
  3. Contractor shall execute a data licensing agreement in the form of Architect's Drawing Release Form (attached at the end of this Section).
  4. For digital data drawing files pertaining to disciplines other than architectural drawings, Contractor will need to contact each discipline individually. Each discipline may have their own requirements in regards to file format, licensing agreement, and cost for such drawings.

## SECTION 01 3300 - SUBMITTALS

### 1.05 DAILY CONSTRUCTION REPORTS

- A. Prepare daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect at monthly intervals with Applications for Payment:
  - 1. List of subcontractors at the site.
  - 2. Approximate count of personnel at the site.
  - 3. High and low temperatures, general weather conditions.
  - 4. Accidents and unusual events.
  - 5. Meetings and significant decisions.
  - 6. Stoppages, delays, shortages, losses.
  - 7. Orders and requests of governing authorities.
  - 8. Change Orders received, implemented.
  - 9. Services connected, disconnected.
  - 10. Equipment or system tests and start-ups.

### 1.06 SPECIAL CONSTRUCTION REPORTS

- A. Prepare Owners monthly construction report, recording the following information concerning events at the site; and submit duplicate copy to the Architect at monthly intervals with Applications for Payment:
  - 1. Accidents and unusual events.
  - 2. Meetings and significant decisions.
  - 3. Stoppages, delays, shortages, losses.
  - 4. Orders and requests of governing authorities.
  - 5. Change Orders received, implemented.
  - 6. Services connected, disconnected.
  - 7. Equipment or system tests and start-ups.
  - 8. Construction Photos.

### 1.07 RECORDING CONTRACT DOCUMENT CHANGES

- A. Contract Drawings/Shop Drawings: Furnish and maintain, at the jobsite, a clean, undamaged set of xerographic Contract Drawings and one set of xerographic prints of Shop Drawings. Mark each to show the actual installed conditions where the installation varies from the work as originally shown. Mark whichever document is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
- B. CAD for Contract Document Changes: Digital CAD files are to be maintained throughout the life of the project and updated when any installation varies from the original contract drawings or shop drawings. No "redlines" or "markups" will be necessary within the CAD files as information will be changed within the CAD file itself to reflect any variation. At the completion of the project, final CAD files broken out by floor will be submitted.
  - 1. Final CAD files are defined as digital files in .dwg format in which information has been changed to reflect any and all variation that occurred during construction.

### 1.08 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction. Include the following information:
  - 1. Dimensions.

## SECTION 01 3300 - SUBMITTALS

2. Identification of products and materials included.
  3. Compliance with specified standards.
  4. Fabrication and installation drawings.
  5. Rough-in and setting diagrams.
  6. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
  7. Design calculations.
  8. Notation of coordination requirements.
  9. Notation of dimensions established by field measurement.
- C. Hard Copy Submittals: Unless directed otherwise, submit all shop drawings in electronic format.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal as follows:
1. Assemble complete submittal package into a single indexed PDF file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item within the submittal.
  2. Name file with submittal number, including revision identifier when applicable.
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Means of Transmittal for Electronic Submittals: Contractor shall use Architect's Centerline Info Exchange website. A link to the website will be provided to the Contractor at time of Pre-Construction Meeting.
  5. Electronic Submittal Limitations: Submittals must meet the requirements below to be accepted electronically. NOTE: Electronic submittals not meeting these requirements will automatically be rejected.
    - a. Page Size: No larger than 8.5" x 11". Drawing sheet sizes 11" x 17" desired.
    - b. Quality: Submittals must be clearly legible. Poor quality scans will be rejected.

### 1.09 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
    - a. Manufacturer's printed recommendations.
    - b. Compliance with recognized trade association and testing agency standards.
    - c. Notation of dimensions verified by field measurement.
      - 1) Notation of Coordination requirements.
  2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
  3. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
    - a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
    - b. Do not permit use of unmarked copies of Product Data in connection with construction.
- B. Hard Copy Submittals: Unless directed otherwise, submit all product data submittals in electronic format.
- C. Electronic Submittals: Identify and incorporate information in each electronic submittal as follows:

## SECTION 01 3300 - SUBMITTALS

1. Assemble complete submittal package into a single indexed PDF file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item within the submittal.
2. Name file with submittal number, including revision identifier when applicable.
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Means of Transmittal for Electronic Submittals: Contractor shall use Architect's Centerline Info Exchange website. A link to the website will be provided to the Contractor at time of Pre-Construction Meeting.
5. Electronic Submittal Limitations: Submittals must meet the requirements below to be accepted electronically. NOTE: Electronic submittals not meeting these requirements will automatically be rejected.
  - a. Page Size: No larger than 8.5" x 11". Drawing sheet sizes 11" x 17" desired.
6. Quality: Submittals must be clear and legible. Poor quality scans will be rejected.

### 1.10 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and actual swatches showing color, texture and pattern.
  1. Mount, display, or package Samples in the manner to facilitate review of qualities indicated. Include the following:
    - a. Generic description of the Sample.
    - b. Sample source.
    - c. Product name or name of manufacturer.
    - d. Compliance with recognized standards.
    - e. Availability and delivery time.
  2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
    - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
    - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
    - c. Regarding Samples to be returned to the Contractor for incorporation in the Work: Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
  3. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 2 sets; one will be returned marked with the action taken.
  4. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work.
  1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.

### 1.11 ARCHITECT AND ENGINEER REVIEW

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.

## SECTION 01 3300 - SUBMITTALS

1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Do not make "Mass" submittals (6 or more submittals) to Architect at one time. If Mass submittals are received, Architect's review time stated above will be extended as necessary to perform proper review. Architect will review Mass submittals based upon priority determined by Architect after consultation with Owner and Contractor.
- C. Informational submittals and other similar data are for Architect's information and do not require Architect's responsive action.
- D. Architect's review and approval of submittals does not relieve Contractor of responsibility for deviations from Contract Document requirements, unless Architect is informed in writing of deviations and approval is received in writing from Architect for such deviation.
- E. Architect's review and acceptance of submittals does not indicate acceptance of changes in Contract time or cost.
- F. Submittals made by Contractor which are not required by Contract Documents may be returned without action.
- G. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
  1. Final Unrestricted Release: Where submittals are marked "Approved," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
  2. Final-But-Restricted Release: When submittals are marked "Furnish as Corrected," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
  3. Returned for Resubmittal: When submittal is marked "Rejected, Revise and Submit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
    - a. Do not permit submittals marked "Rejected, Revise and Submit" to be used at the Project site, or elsewhere where Work is in progress.
  4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required".

### 1.12 INCOMPLETE AND PARTIAL SUBMITTALS

- A. Incomplete Submittal: Submittal not complying with specified submittal requirements.
- B. Partial Submittal: Submittal subdivided into components as indicated in submittal schedule and each component submitted separately, including content of prior submittals (with revisions) and any field changes reflected.
- C. Architect will not review incomplete submittals. Complete submittals for each item are required. Submittal will not be considered official until it is complete in every respect. Delays resulting from incomplete submittals are not responsibility of Architect.

### 1.13 RE-SUBMITTALS

- A. Make re-submittal under procedures specified for initial submittals; identify changes made since previous submittal.
- B. Architect will record time required to review re-submittals after original submittal and first re-submittal. Contractor shall reimburse Owner for charges of Architect and Architect's consultants for reviewing submittal more than 2 times.

### 1.14 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

## **SECTION 01 3300 - SUBMITTALS**

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittals: In addition to Shop Drawings, Product Data, and other required submittals, submit five copies of a statement, signed and sealed by the design professional responsible, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

### **PART 2 PRODUCTS**

**(NOT APPLICABLE)**

### **PART 3 EXECUTION**

**(NOT APPLICABLE)**

**END OF SECTION**

## SECTION 01 4000 - TESTING LABORATORY SERVICES

### PART 1 - GENERAL

#### 1.01 SCOPE

- A. A qualified independent testing laboratory and/or geotechnical engineering service, selected and paid by Owner and approved by Architect, will perform professional testing and laboratory services specified herein.
- B. Inspecting agency shall make and perform all inspections and tests in accordance with the rules and regulations of Building Code, local authorities, Specifications of ASTM, and these Contract Documents.
- C. Materials and workmanship not meeting required standards or performance obligations are to be removed and replaced. Replacement and subsequent testing shall be at Contractors' expense.
- D. Where terms "Inspector" and "Laboratory" are used, they mean and refer to an officially designated and accredited inspector of testing laboratory or geotechnical service engaged by Owner.
- E. Testing, inspection, and certifications specified in other sections of these Specifications shall be paid by Contractor, unless otherwise indicated, and shall be by agencies approved by Architect.
- F. Laboratory inspection shall not relieve Contractor or fabricator of his responsibility to furnish materials and workmanship in accordance with Contract Documents.

#### 1.02 QUALIFICATIONS

- A. Testing agencies shall meet requirements of ASTM E 329, "Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction" and ASTM E 543, "Determining the Qualification of Nondestructive Testing Agencies."
- B. Testing agencies shall be insured against errors and omissions by a professional liability insurance policy having a limit of liability not less than \$1,000,000.00.
- C. Inspection and testing services of testing agency shall be under the direction of an Engineer licensed in the State of Texas, charged with engineering managerial responsibility and having at least 10 years engineering experience in inspection and testing of construction materials. Reports shall bear the seal of said engineer.
- D. Inspecting personnel monitoring concrete work shall be ACI certified inspectors.
- E. Primary inspectors performing structural steel inspection shall be currently certified AWS Certified Welding Inspectors (CWI), in accordance with provisions of AWS QCI, "Standard and Guide for Qualification and Certification of Welding Inspectors." Inspector may be supported by assistant inspectors who may perform specific inspection functions under supervision of the inspector. Assistant inspectors shall be currently certified AWS Certified Associate Welding Inspectors (CAWI). Work of assistant inspectors shall be regularly monitored by the inspector, generally on a daily basis.

#### 1.03 RESPONSIBILITIES OF CONTRACTOR

- A. See respective technical sections for specific requirements.
- B. Deliver to the laboratory, without cost to Owner, adequate quantities of representative samples of materials proposed for use which are required to be tested.
- C. Advise laboratory and Architect sufficiently in advance of construction operations to allow laboratory to complete any required checks or tests and to assign personnel for field inspection and testing as specified.
- D. Provide adequate facilities for safe storage and proper curing of concrete test samples on project site for the first 24 hours and also for subsequent field curing, as required by ASTM C 31.

## SECTION 01 4000 - TESTING LABORATORY SERVICES

- E. Furnish such nominal labor and equipment as is required to assist laboratory personnel in obtaining and handling samples at the site and in accessing work for inspection.
- F. Furnish concrete mix designs, in accordance with ACI 301, Section 4.1, made by an independent testing laboratory or qualified concrete supplier. Where mix designs by an independent testing laboratory are required, laboratory shall be selected and paid by Contractor.
- G. Obtain required inspections or approvals of Building Official. All inspection requests and notifications required by Building Code are responsibility of Contractor.
- H. Provide welder certifications for each welder to be employed, no more than two years older than the date of submission.
- I. Schedule fabrication/erection inspection and testing of all welds in accordance with AWS D1.1, Chapter 6.
- J. Prequalification of all welding procedures to be used in executing the work.

### 1.04 AUTHORITY AND DUTIES OF LABORATORY PERSONNEL

- A. A representative of testing laboratory, who has reviewed and is familiar with the project and specifications, shall participate in all preconstruction conferences. He shall coordinate material testing and inspection requirements with Contractor and his subcontractors consistent with planned construction schedule. Laboratory representative shall attend, throughout the course of the project, such conferences as may be required or requested to address quality control issues.
- B. Laboratory personnel shall inspect and/or test materials, assemblies, specimens, and work performed including design mixes, methods, and techniques and report to Architect progress thereof.
- C. If material furnished and/or work performed fails to meet requirements of Contract Documents, laboratory inspector shall promptly notify both Contractor and Architect of such failure.
- D. Laboratory technicians do not act as foremen or perform other duties for Contractor. Work will be checked as it progresses, but failure to detect any defective work or materials shall not, in any way, prevent later rejection when such defect is discovered.
- E. Laboratory inspector is not authorized to revoke, alter, relax, enlarge, or release any requirement of the Contract Documents or to approve or accept any portion of work, except where such approval is specifically called for in Specifications.
- F. Comply with all Building Code requirements for "Special Inspection" whether or not such inspections are specified herein.

### 1.05 SUBMITTALS

- A. Submit Copies of Reports of Each and Every Inspection and Test as Follows: Owner -1, Contractor -2, Architect -1 and Engineer -1.
- B. State in report all details of each inspection and test. Indicate compliance or noncompliance with requirements of Contract Documents. Also state in report any and all unsatisfactory conditions.
- C. In addition to furnishing a written report, notify Contractor verbally of any uncorrected conditions or failures to comply with requirements of Contract Documents and immediately Fax corresponding report to Architect and Engineer.
- D. At completion of each trade or branch of work requiring inspecting and testing, submit a final certificate attesting to satisfactory completion of work and full compliance with requirements of Contract Documents.
- E. Submit copies of test results, sealed by a Licensed Engineer, to municipal authorities having jurisdiction, as required.

## SECTION 01 4000 - TESTING LABORATORY SERVICES

### 1.06 REFERENCED STANDARDS

- A. Latest adopted edition of all standards referenced in this Section shall apply, unless noted otherwise. In case of conflict between these Contract Documents and a referenced standard, Contract Documents shall govern. In case of conflict between these Contract Documents and the Building Code, the more stringent shall govern.

### PART 2 - PRODUCTS

(NOT APPLICABLE)

### PART 3 - EXECUTION

#### 3.01 PIER DRILLING OPERATION

- A. Inspect pier drilling operations in accordance with Section 31 6329, "Drilled Concrete Piers".

#### 3.02 CONCRETE REINFORCING STEEL AND EMBEDDED METAL ASSEMBLIES

- A. Inspect all concrete reinforcing steel prior to placing of concrete for compliance with Sections 03 1519, "Cast-In Anchors and Embeds", and 03 2000, "Concrete Reinforcing".
- B. Provide a qualified, experienced inspector to inspect reinforcing steel. Inspector shall have a minimum of 10 years experience inspecting reinforcing steel in projects of similar size.

#### 3.03 CONCRETE INSPECTION AND TESTING

- A. Inspect all concrete in accordance with Section 03 3100, "Structural Concrete".
- B. Observe placing of all concrete except sitework. Observe and report on placing method, consolidation, cold joints, length of drop, and displacement of reinforcement. Report deficiencies to Contractor immediately for corrective action. Inspections may be reduced to a periodic basis when all procedures have been deemed satisfactory by laboratory.
- C. Concrete Test Reports:
  - 1. Reports shall be made and distributed immediately after respective tests or inspections are made.
  - 2. Where reports indicate deviations from Contract Documents, they shall also include a determination of probable cause of deviation and, where applicable, a recommendation for corrective action.
  - 3. Whenever testing laboratory recognizes a trend of decreasing quality in concrete due to changing seasons, conditions of curing, or other cause, this shall be brought to Architects attention, along with a recommendation for corrective action to be taken before materials fall below requirements of Specifications.
- D. Comply with ACI 311, "Guide For Concrete Inspection" and "ACI Manual of Concrete Inspection" (SP-2).
- E. Inspect application of curing compound and monitor all curing conditions to assure compliance with specification requirements. Report curing deficiencies to Contractor immediately and submit a written report to Architect.

#### 3.04 TESTING NON-SHRINK GROUT

- A. Make 1 strength test for every 10 base plates grouted and for every 10 bags of grout used in joints between members.
- B. Each test shall consist of 4 cubes, 2 to be tested at 7 days and 2 at 28 days, made and tested in accordance with ASTM C 109, with the exception that grout shall be restrained from expansion by a top plate.

#### 3.05 MASONRY INSPECTION AND TESTING

- A. Inspect and test masonry in accordance with Section 04 2000, "Unit Masonry".

#### 3.06 STRUCTURAL STEEL

- A. Inspect structural steel during fabrication and during and after erection for conformance with Contract Documents, shop drawings, and Section 05 1200, "Structural Steel Framing".

## **SECTION 01 4000 - TESTING LABORATORY SERVICES**

### **3.07 METAL DECK**

- A. Inspect metal deck in accordance with Sections 05 3113, "Steel Composite Floor Decking", and 05 3123, "Steel Roof Decking".

**END OF SECTION**

## SECTION 01 4200 - REFERENCE STANDARDS AND DEFINITIONS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Indicated: The term "indicated" refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.
- C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Architect," "requested by the Architect," and similar phrases.
- D. Approved: The term "approved," where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.
- E. Regulations: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
- G. Install: The term "install" is used to describe operations at project site including the actual "unloading, temporary storage, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
- H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
- I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - 1. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
  - 2. The term experienced, when used with the term installer, means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
  - 3. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no choice or option. However, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
- J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the

## SECTION 01 4200 - REFERENCE STANDARDS AND DEFINITIONS

Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

- K. Testing Agencies: A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

### 1.03 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's MasterFormat 2004 Version numbering system.
- B. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
  - 1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated shall be interpolated as the sense required. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the context of the Contract Documents so indicates.
  - 2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
    - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

### 1.04 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels. Refer requirements that are different, but apparently equal, and uncertainties to the Architect for a decision before proceeding.
  - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-producing organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research's "Encyclopedia of Associations" or Columbia Books' "National Trade & Professional Associations of the U.S.," which are available in most libraries.

## **SECTION 01 4200 - REFERENCE STANDARDS AND DEFINITIONS**

### **1.05 GOVERNING REGULATIONS/AUTHORITIES**

- A. The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

### **1.06 SUBMITTALS**

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

### **PART 2 PRODUCTS**

**(NOT APPLICABLE)**

### **PART 3 EXECUTION**

**(NOT APPLICABLE)**

**END OF SECTION**

## SECTION 01 5000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

### PART - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Water service and distribution.
  - 2. Temporary electric power and light.
  - 3. Telephone service.
  - 4. Sanitary facilities, including drinking water.
  - 5. Storm and sanitary sewer.
- C. Support facilities include, but are not limited to, the following:
  - 1. Field offices and storage sheds.
  - 2. Temporary roads and paving.
  - 3. Dewatering facilities and drains.
  - 4. Temporary enclosures.
  - 5. Hoists.
  - 6. Temporary project identification signs and bulletin boards.
  - 7. Waste disposal services.
  - 8. Rodent and pest control.
  - 9. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Temporary fire protection.
  - 2. Barricades, warning signs, and lights.
  - 3. Temporary construction fencing.
  - 4. Environmental protection.

#### 1.03 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
  - 1. Building code requirements.
  - 2. Health and safety regulations.
  - 3. Utility company regulations.
  - 4. Police, fire department, and rescue squad rules.
  - 5. Environmental protection regulations.
- B. Standards: Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
  - 1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
  - 2. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code."
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

#### 1.04 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and

## SECTION 01 5000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

- B. Temporary Construction Fencing: All construction activities shall be confined within temporary construction fences. Such fencing shall be maintained intact and in first class condition at all times, including gates closed and latched.

### 1.05 SAFETY

- A. Contractor assumes responsibility for all jobsite safety.

## PART - PRODUCTS

### 2.01 MATERIALS

- A. General: Provide new materials. If acceptable to the Architect, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Temporary Construction Fencing: Minimum 6'-0" high chain link, with steel posts. Provide latchable and lockable gates constructed of like materials. Exact location and configuration is to be coordinated with Owner and Architect at the preconstruction meeting.
- C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mils minimum thickness, with flame-spread rating of 15 or less per ASTM E 84.
- D. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.
- E. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

### 2.02 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
  - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
  - 2. Conference room of sufficient size to accommodate meetings of a minimum of 16 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and a minimum of 4-foot-marker and tack boards.
  - 3. Drinking water and private toilet.
  - 4. Coffee machine and supplies.
  - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
  - 6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.

### 2.03 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Water Hoses: Provide heavy-duty, abrasion-resistant, flexible rubber hoses with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.

## SECTION 01 5000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- G. First Aid Supplies: Comply with governing regulations.
- H. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

### PART - EXECUTION

#### 3.01 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### 3.02 TEMPORARY UTILITIES

- A. General: Engage the appropriate local utility company to connect to existing service where required. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company requirements.
  - 1. Provide adequate capacity at each stage of construction.
  - 2. Use Charges: Cost or use charges for temporary utilities tied into the Owners existing services (electrical power, water, gas, except Contractor's telephone service) shall be paid for by the Owner, but will not be inconvenienced by the Contractor's use. Do not permit wasteful use of utilities.
- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use.
  - 1. Sterilization: Sterilize temporary water piping prior to use.
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switch gear as required.
  - 1. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed.

## SECTION 01 5000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

### 3.03 TEMPORARY SERVICES

- A. Temporary Lighting: When roof deck has been installed, provide temporary lighting with local switching.
  - 1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
- B. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open flame, or salamander heating units is prohibited.
- C. Temporary Telephones: Provide temporary telephone in common-use facilities for use by all construction personnel. Install one telephone line for each field office.
  - 1. Provide additional telephone lines for the following:
    - a. Provide a dedicated telephone line for each facsimile machine in each field office.
  - 2. At each telephone, post a list of important telephone numbers.
    - a. Police and fire departments.
    - b. Ambulance service.
    - c. Contractor's home office.
    - d. Contractor's emergency after-hours telephone number.
    - e. Architect's office.
    - f. Engineers' offices.
    - g. Owner's office.
    - h. Principal subcontractors' field and home offices.
  - 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
- D. Electronic Communication Service:
  - 1. Computer: Provide a desktop computer in the primary field office adequate for project electronic documents and to maintain electronic communications.
  - 2. Printer: Provide printer/copier/scanner of appropriate size and capability to meet project requirements.
  - 3. Internet Service: Provide broadband internet service with adequate speed to meet project requirements.
- E. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
  - 1. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy; coordinate location(s) with Owner.
  - 2. Drinking-Water Facilities: Provide containerized tap-dispenser, drinking-water units, including paper supply or bottled water.
  - 3. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- F. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

### 3.04 SUPPORT FACILITIES INSTALLATION

- A. Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
  - 1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Provide incombustible construction for offices, shops, and sheds located within the construction area or within 30 feet of building lines. Comply with requirements of NFPA 241.

## SECTION 01 5000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- C. Field Offices: Install field offices at locations acceptable to Owner and in accordance with City requirements. Keep the office clean and orderly.
- D. Storage and Fabrication Sheds: Install storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on-site.
- E. Temporary Paving: Construct and maintain temporary roads and paving to support the indicated loading adequately and to withstand exposure to traffic during the construction period. Locate temporary paving for roads, storage areas, and parking where the same permanent facilities will be located. Review proposed modifications to permanent paving with the Architect.
- F. Provide Construction Entrance Mats or similar to contain sediment/soil tracking outside of jobsite to Hwy 171 or other roadways. If Contractor fails to control soil tracking from jobsite, it is the responsibility of the Contractor to provide all necessary equipment and labor to clean roadways immediately at Contractors cost.
- G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
  - 1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  - 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 sq. ft. or less with plywood or similar materials.
  - 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  - 4. Where temporary wood or plywood enclosure exceeds 100 sq. ft. in area, use UL-labeled, fire-retardant-treated material for framing and main sheathing.
- H. Project Identification and Temporary Signs: Prepare project identification and other signs as required by local, state and federal regulations. Install signs to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
- I. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.
- J. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner or areas outside the construction zone.
  - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
  - 2. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints.
  - 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
  - 4. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
  - 5. Protect air-handling equipment.
  - 6. Provide walk-off mats at each entrance through temporary partition.
- K. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  - 2. Maintain access for fire-fighting equipment and access to fire hydrants.

## SECTION 01 5000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- L. Dewatering Facilities and Drains: Comply with authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
  - 1. Dispose of rainwater in a lawful manner that will not result in flooding project or adjoining properties nor endanger permanent Work or temporary facilities.
  - 2. Remove snow and ice as required to maintain accumulations.

### 3.05 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

### 3.06 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect.
- B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
  - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
  - 2. Store combustible materials in containers in fire-safe locations.
  - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
  - 4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
  - 5. Take every possible precaution to guard against and to eliminate possible fire hazards to prevent damage to the building and adjacent buildings.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- E. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.
- F. Site Enclosure Fence: Before construction operations begin, install chain-link enclosure fence with lockable entrance gates. Enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.
  - 1. Set fence posts in compacted mixture of gravel and earth or driven into suitable soil to a depth required for proper support. Where portable fences are required, provide concrete or galvanized steel bases for supporting posts.
  - 2. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
  - 3. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.

## SECTION 01 5000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- G. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- H. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
  - 1. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established

### 3.07 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  - 2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
    - a. Replace air filters and clean inside of ductwork and housings if required.
    - b. Replace significantly worn parts and parts subject to unusual operating conditions.
    - c. Clean light fixtures and trim, and supply and return air devices of construction dust.

**END OF SECTION**

## SECTION 01 6000 - MATERIALS AND EQUIPMENT

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.
- C. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Substitution Procedures."

#### 1.03 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.
  - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
    - a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
    - b. "Foreign Products", as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside of the United States and its possessions; or produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of nor living within the United States and its possessions.
  - 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
  - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

#### 1.04 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
  - 1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.
  - 1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.
  - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is

## SECTION 01 6000 - MATERIALS AND EQUIPMENT

inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

- a. Name of product and manufacturer.
- b. Model and serial number.
- c. Capacity.
- d. Speed.
- e. Ratings.

### 1.05 PRODUCT DELIVERY AND HANDLING

- A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
  1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
  3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
  4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
  5. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.
  6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
  7. Store products subject to damage by the elements above ground, under cover, in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

### 1.06 INTEGRITY OF FIRE, SOUND, AND WEATHERPROOF ASSEMBLIES

- A. Spaces formed between fire or sound rated wall, floor, ceiling, or roof assemblies or penetrations through such assemblies by pipe, conduit, ductwork, any other item, or voids provided for possible use of any item shall be caulked, grouted, filled, or otherwise protected in a manner to maintain fire or sound ratings.
- B. Where openings or penetrations are subject to moisture or weather, seal openings and penetrations with non-shrink grouts and elastomeric sealants intended for specific application.
  1. Seal floor penetrations during construction to prevent water from flowing through building.
  2. Where safiing and batt insulation are used, protect from moisture. Remove damp material and install new material before enclosing.

## PART 2 PRODUCTS

### 2.01 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
  1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
  2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

## SECTION 01 6000 - MATERIALS AND EQUIPMENT

1. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
2. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
3. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
  - a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.
4. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
5. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
  - a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.
6. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.

### PART 3 EXECUTION

#### 3.01 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
  1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

**END OF SECTION**

## SECTION 01 7250 - FIELD ENGINEERING

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. General: This Section specifies administrative and procedural requirements for field engineering services, including, but not necessarily limited to, the following:
  - 1. Land survey work required for layout.

#### 1.03 SUBMITTALS

- A. Certificates: Submit a certificate signed by the Land Surveyor or Professional Engineer certifying that the location and elevation of improvements comply with the Contract Documents.
- B. Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of Sections "Submittals" and "Closeout Procedures".

#### 1.04 QUALITY CONTROL

- A. Employ a Land Surveyor registered in the State of Texas and acceptable to Owner to perform land surveying services required.
- B. Employ a Professional Engineer of the discipline required for specific service on Project, licensed in the State of Texas to perform required engineering services.
- C. Instrument Operators: Provide certified instrument operators for laying out work and establishing working points.

### PART 2 - PRODUCTS

(NOT APPLICABLE)

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. The Owner will identify existing control points and property line corner stakes.
- B. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.
  - 1. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.
  - 2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.
- C. Establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- D. Existing utilities and equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.
  - 1. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer and water service piping.

#### 3.02 PERFORMANCE

- A. Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

## **SECTION 01 7250 - FIELD ENGINEERING**

1. Advise entities engaged in construction activities, of marked lines and levels provided for their use.
  2. As construction proceeds, check every major element for line, level and plumb.
- B. Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.
- C. Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical Work.
- D. Existing Utilities: Furnish information necessary to adjust, move or relocate existing structures, utility poles, lines, services or other appurtenances located in, or affected by construction. Coordinate with local authorities having jurisdiction.

**END OF SECTION**

## SECTION 01 7300 - EXECUTION

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Installation of the Work.
  - 3. Cutting and patching.
  - 4. Coordination of Owner-installed products.
  - 5. Progress cleaning.
  - 6. Starting and adjusting.
  - 7. Protection of installed construction.
  - 8. Correction of the Work.
- B. Related Sections:
  - 1. Division 01 Section "Submittals" for submitting surveys.
  - 2. Division 07 Section "Firestopping" for patching penetrations in fire-rated construction.

#### 1.03 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### 1.04 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from the Architect before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
  - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that will result in increased maintenance or decreased operational life or safety. Operational elements may include the following:
    - a. Primary operational systems and equipment.
    - b. Fire separation assemblies.
    - c. Air or smoke barriers.
    - d. Fire-suppression systems.
    - e. Mechanical systems piping and ducts.
    - f. Control systems.
    - g. Communication systems.
    - h. Conveying systems.
    - i. Electrical wiring systems.
    - j. Operating systems of special construction.
  - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, reduce their capacity to perform as intended, or that will result in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

## SECTION 01 7300 - EXECUTION

- a. Water, moisture, or vapor barriers.
  - b. Membranes and flashings.
  - c. Exterior curtain-wall construction.
  - d. Equipment supports.
  - e. Piping, ductwork, vessels, and equipment.
  - f. Noise- and vibration-control elements and systems.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems and other construction affecting the Work.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

#### 3.02 PREPARATION

- A. Existing Utility Information: Furnish information to local utility company that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

## SECTION 01 7300 - EXECUTION

- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."
- D. Surface and Substrate Preparation: Comply with manufacturer's recommendations for preparation of substrates to receive subsequent work.

### 3.03 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3. Inform installers of lines and levels to which they must comply.
  - 4. Check the location, level and plumb, of every major element as the Work progresses.
  - 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
  - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Program Manager. Submit log at project completion for project records.

### 3.04 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
  - 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produces harmful noise levels.

## SECTION 01 7300 - EXECUTION

- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.05 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
  - 2. Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 01 Section "Project Management and Coordination."
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.

## SECTION 01 7300 - EXECUTION

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or re-hang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather-tight condition.
  6. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

### 3.06 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
  1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
  2. Pre-installation Conferences: Include Owner's construction personnel at pre-installation conferences covering portions of the Work that are to receive Owner's work. Attend pre-installation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

### 3.07 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  1. Provide necessary daily cleaning during construction to maintain premises and adjoining public properties free from construction waste, debris and rubbish, and dust caused by operations.
  2. At completion of each day, remove waste materials and rubbish; store tools, equipment, machinery and surplus materials; and clean all sight exposed surfaces.

## SECTION 01 7300 - EXECUTION

3. If Contractor fails to clean up each day and at the completion of his Work, the Owner may do so and charge the cost thereof to the Contractor. At his next pay application a deductive change order will be processed and there is no appeal for back charges due to clean up.
  4. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  5. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  6. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Utilize containers intended for holding waste materials of type to be stored.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Cleaning Materials: Use only cleaning materials recommended by manufacturer of the surface to be cleaned. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
- F. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- G. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- H. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, whether completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.
- L. During Construction:
  1. Oversee cleaning and ensure that building(s) and ground(s) are maintained free from accumulations of waste materials and rubbish.
  2. Sprinkle dusty debris with water.
  3. During progress of Work, clean-up site and access and dispose off waste materials, rubbish and debris at least once every week.
  4. Provide dump containers and locate on site for collection of waste materials, rubbish and debris on a daily basis.
  5. Do not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.
  6. Remove waste materials, rubbish and debris from site and legally dispose off at public or private dumping area.

## SECTION 01 7300 - EXECUTION

7. Lower waste materials in controlled manner with as few handlings as possible; do not drop or throw materials from heights.
8. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

### 3.08 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

### 3.09 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.10 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
  1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

**END OF SECTION**

## SECTION 01 7700 - CLOSEOUT PROCEDURES

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Divisions 00 and 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Project Record Documents.
  - 3. Operation and maintenance manuals.
  - 4. Warranties.
  - 5. Instruction of Owner's personnel.
  - 6. Final cleaning.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
  - 2. Division 01 Section "Construction Progress Documentation" for submitting Final Completion construction photographs and negatives.
  - 3. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for products of those Sections.

#### 1.03 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Advise Owner of pending insurance changeover requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, property surveys, and similar final record information.
  - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 8. Complete startup testing of systems.
  - 9. Submit test/adjust/balance records.
  - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 11. Advise Owner of changeover in heat and other utilities.
  - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  - 13. Complete final cleaning requirements, including touchup painting.
  - 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the

## SECTION 01 7700 - CLOSEOUT PROCEDURES

Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested and assured that the Work has been substantially completed.
2. Results of the completed inspection will form the basis of requirements for final acceptance.

### 1.04 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

### 1.05 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  2. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Page number.

### 1.06 REINSPECTION PROCEDURES

- A. The Architect will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.
1. Upon completion of reinspection, the Architect will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
  2. If necessary, if additional reinspections are required, the architect/engineer will be reimbursed at a rate of \$125.00 per hour, including travel time, for all repeated reinspections. The Contractor shall bear all costs related to such, and these costs shall be deducted from those amounts owed the Contractor for the Work.

### 1.07 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.
- B. Record Drawings: Furnish and maintain one set of blue- or black-line white prints of Contract Drawings and Shop Drawings for the duration of Construction.
1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record

## SECTION 01 7700 - CLOSEOUT PROCEDURES

Prints. The maintenance of these documents shall be set forth in Specification Section 01 3300 "Submittals".

- a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
  - b. Accurately record information in an understandable drawing technique.
  - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  - d. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
2. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
  3. At completion of project submit one hard copy "Project Record Drawing" and one CD of "Project Record Drawings" in (pdf) format.
- C. Record Specifications: Furnish and maintain one copy of Project's Specifications, including addenda, contract modifications, and standard contract forms indicated below for the duration of Construction. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. The maintenance of these documents shall be set forth in Specification Section 01 3300 "Submittals".
1. General:
    - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
    - d. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable
  2. Standard Contract Forms (reference Section "Schedule of Standard Contract Forms"):
    - a. Contractor's Affidavit of Payment of Debts and Claims, AIA Document G706.
    - b. Contractor's Affidavit of Release of Liens, AIA Document G706A.
    - c. Consent of Surety to Final Payment, AIA Document G707.
    - d. Certificate of Occupancy.
    - e. Health Permit.
    - f. List of subcontractors and major suppliers with addresses and telephone numbers.
    - g. Hazardous Materials Certification Statements.
    - h. Signed letter from Owner for receipt of all extra materials as set forth in the Specifications.
- D. Record Product Data (Shop Drawings): Furnish and maintain one copy of each Product Data submittal, for the duration of Construction. Mark set to indicate the actual product installation where installation varies substantially from that indicated in the Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
  4. At completion of project submit one hard copy "Record Project Data" and one CD of "Record Project Data" in (pdf) format.
- E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

## SECTION 01 7700 - CLOSEOUT PROCEDURES

### 1.08 OPERATION AND MAINTENANCE MANUAL

- A. Assemble one complete hard copy and one digital set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
1. Operation Data:
    - a. Emergency instructions and procedures.
    - b. System, subsystem, and equipment descriptions, including operating standards.
    - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
    - d. Description of controls and sequence of operations.
    - e. Piping diagrams.
  2. Maintenance Data:
    - a. Manufacturer's information, including list of spare parts.
    - b. Name, address, and telephone number of Installer or supplier.
    - c. Maintenance procedures.
    - d. Maintenance and service schedules for preventive and routine maintenance.
    - e. Maintenance record forms.
    - f. Sources of spare parts and maintenance materials.
    - g. Copies of maintenance service agreements.
- B. Digital Set:
1. Organizational Structure
    - a. Table of Contents (TOC)
      - 1) Each section of the TOC will be hyperlinked to the first page of each section in the body of the PDF.
    - b. Floor Plans
      - 1) Each level's overall floor plan will be included in section called "Floor Plans" and will be located directly after TOC.
    - c. Project Warranties
    - d. Substantial Completion Certificates
    - e. Subcontractor Directory
    - f. Completion Lists
    - g. Certificate/Temporary Certificate of Occupancy
    - h. RFIs
    - i. Contractor's Affidavit of Payment of Debts and Claims (AIA G706)
    - j. Contractor's Affidavit of Release of Liens (AIA G706A)
    - k. Consent of Surety Company to Release of Liens (G707)
    - l. Hazardous Materials Certification Statement(s)
    - m. Signed Receipt from Owner for Backstock Materials
    - n. Submittals
      - 1) All O&M Data are to be broken out by specification section.
  2. All Sections mentioned above to be bookmarked in descending order.
    - a. Bookmarked Specification sections to be named "Spec # Spec Title"
      - 1) Example: "22 1001 Plumbing Specialties"

### 1.09 RECORD CAD DRAWINGS

- A. Record CAD drawings are defined as digital CAD files (in .dwg format) which have been updated to reflect any and all changes that occurred during construction.
- B. Each file is to be broken out by floor and labeled accordingly.
- C. Layers within each CAD drawing will be labeled according to the lighting fixture schedule.
1. Example: Light Fixtures "BA" are to be on a layer named "Fixture BA" and each object named "BA".

## SECTION 01 7700 - CLOSEOUT PROCEDURES

### 1.10 WARRANTIES

- A. Submittals: Submit written warranties for portions of the Work per the Specifications and General Contractor's one year warranty for materials and workmanship.
- B. Organize two sets of warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

### 1.11 ADDITIONAL ARCHITECTURAL SERVICES

- A. TAS Inspection Items: If architectural services are required more than 90 calendar days after the date of the TDLR/TAS Inspection Report because of Contractor's delays, the Contractor shall bear all costs related to such delay, and these costs shall be deducted from those amounts owed the Contractor for the Work.
- B. All Other Items (Punch List Re-Inspections, Closeout Documents Submittals, etc.): If architectural services are required more than 60 calendar days after the date of Substantial Completion of the Work (as indicated on the Certificate of Substantial Completion) because of Contractor's delays, the Contractor shall bear all costs related to such delay, and these costs shall be deducted from those amounts owed the Contractor for the Work.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART 3 EXECUTION

### 3.01 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Provide instructors experienced in operation and maintenance procedures.
  - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
  - 3. Schedule training with Owner with at least seven days' advance notice.
  - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
  - 1. System design and operational philosophy.
  - 2. Review of documentation.
  - 3. Operations.
  - 4. Adjustments.
  - 5. Troubleshooting.
  - 6. Maintenance.
  - 7. Repair.

## SECTION 01 7700 - CLOSEOUT PROCEDURES

### 3.02 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - g. Sweep concrete floors broom clean in unoccupied spaces.
    - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
    - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - j. Remove labels that are not permanent.
    - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    - l. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
    - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    - n. Replace parts subject to unusual operating conditions.
    - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
    - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
    - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - 2. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - 3. Leave Project clean and ready for occupancy.

## **SECTION 01 7700 - CLOSEOUT PROCEDURES**

- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

**END OF SECTION**

## SECTION 03 1000 – CONCRETE FORMWORK

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

#### 1.2 RELATED SECTIONS

- A. Section 03 2000 - Concrete Reinforcement.
- B. Section 03 3000 - Cast-in-Place Concrete.

#### 1.3 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 318 - Building Code Requirements for Reinforced Concrete.
- C. ACI 347 - Recommended Practice For Concrete Formwork.
- D. ASME A17.1 - Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Walks
- E. PS 1 - Construction and Industrial Plywood.

#### 1.4 DESIGN REQUIREMENTS

- A. Design, engineer and construct formwork, shoring and bracing to conform to design and code requirements; resultant concrete to conform to required shape, line and dimension.

#### 1.5 SUBMITTALS FOR REVIEW

- A. Section 013000 - Submittals: Procedures for submittals.
- B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.
- C. Product Data: Provide data on void form materials and installation requirements.

#### 1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 347, 301, and 318.
- B. Design formwork under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the place where the Project is located.

#### 1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for design, fabrication, erection and removal of formwork.

#### 1.8 DELIVERY, STORAGE, AND PROTECTION

## SECTION 03 1000 – CONCRETE FORMWORK

- A. Section 016000 - Material and Equipment: Transport, handle, store, and protect products.
- B. Deliver void forms and installation instructions in manufacturer's packaging.
- C. Store off ground in ventilated and protected manner to prevent deterioration from moisture.

### PART 2 PRODUCTS

#### 2.1 WOOD FORM MATERIALS

- A. Plywood: Douglas Fir species; solid one side, tight face sheathing grade; sound undamaged sheets with clean, true edges.

#### 2.2 STEEL FORM MATERIALS

- A. Steel: Removable steel forms designed and fabricated for continuous reuse may be used for obtaining concrete sections indicated on the Construction Drawings.

#### 2.3 FORMWORK ACCESSORIES

- A. Form Ties: Removable or Snap-off type, galvanized metal.
- B. Form Release Agent: Colorless mineral oil which will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.
- C. Corners: Chamfered rigid plastic or wood strip type; maximum possible lengths.
- D. Dovetail Anchor Slot: Galvanized steel, 22 gage thick, foam filled, release tape sealed slots, anchors for securing to concrete formwork.
- E. Flashing Reglets: Galvanized steel 22 gage thick, longest possible lengths, with alignment splines for joints, foam filled, release tape sealed slots, anchors for securing to concrete formwork.
- F. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

#### 3.2 EARTH FORMS

- A. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.

#### 3.3 ERECTION - FORMWORK

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

## SECTION 03 1000 – CONCRETE FORMWORK

- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Obtain approval before framing openings in structural members which are not indicated on Drawings.
- F. Provide fillet and chamfer strips on external corners of all concrete members which are to remain exposed.
- G. Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.
- H. Coordinate this section with other sections of work which require attachment of components to formwork.
- I. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Architect/Engineer.

### 3.4 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are effected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### 3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items which will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.
- D. Position recessed reglets for brick veneer masonry anchors to spacing and intervals specified in Division 04-Masonry
- E. Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- F. Install waterstops in accordance with manufacturer's instructions continuous without displacing reinforcement.
- G. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- H. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

### 3.6 FORM CLEANING

## SECTION 03 1000 – CONCRETE FORMWORK

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
- D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

### 3.7 FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 301.
- B. Camber slabs and beams in accordance with ACI 301.

### 3.8 FIELD QUALITY CONTROL

- A. Section 014000 - Quality Control: Field inspection and testing.
- B. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
- C. Do not reuse formwork for concrete surfaces to be exposed to view, if such re-use will have an adverse effect on the appearance of the finished concrete. Do not patch formwork.

### 3.9 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

**END OF SECTION**

## SECTION 03 1000 – CONCRETE FORMWORK

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Reinforcing steel bars, wire fabric and accessories for cast-in-place concrete.

#### 1.2 RELATED SECTIONS

- A. Section 031000 - Concrete Formwork.
- B. Section 033000 - Cast-in-Place Concrete.
- C. Section 033460 - Concrete Floor Finishing: Reinforcement for concrete floor toppings.

#### 1.3 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 318 - Building Code Requirements For Reinforced Concrete.
- C. ACI SP-66 - American Concrete Institute - Detailing Manual.
- D. ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.
- E. ASTM A184 - Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
- F. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ASTM A496 - Deformed Steel Wire Fabric for Concrete Reinforcement.
- H. ASTM A497 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- I. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- J. ASTM A616 - Rail Steel Deformed and Plain Bars for Concrete Reinforcement.
- K. ASTM A617 - Axle Steel Deformed and Plain Bars for Concrete Reinforcement.
- L. ASTM A704 - Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
- M. ASTM A706 - Low-Alloy Steel Deformed Bars for Concrete Reinforcement.
- N. ASTM A767 - Zinc-Coated (Galvanized) Bars for Concrete Reinforcement.
- O. ASTM A775 - Epoxy-Coated Reinforcing Steel Bars.
- P. ASTM D3963 - Epoxy-Coated Reinforcing Steel.
- Q. AWS D1.4 - Structural Welding Code for Reinforcing Steel.
- R. AWS D12.1 - Welding Reinforcement Steel, Metal Inserts and Connections in Reinforced Concrete Construction.
- S. CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.
- T. CRSI 63 - Recommended Practice For Placing Reinforcing Bars.

## SECTION 03 1000 – CONCRETE FORMWORK

- U. CRSI 65 - Recommended Practice For Placing Bar Supports, Specifications and Nomenclature.

### 1.4 SUBMITTALS FOR REVIEW

- A. Section 013000 - Submittals: Procedures for submittals.
- B. Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.

### 1.5 SUBMITTALS FOR INFORMATION

- A. Section 013000 - Submittals: Procedures for submittals.
- B. Submit certified copies of mill test report of reinforcement materials analysis.

### 1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with CRSI 63, 65 and Manual of Practice, ACI 301.
- B. Provide Architect/Engineer with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.
- C. Design reinforcement under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the place where the Project is located.
- D. Welders' Certificates: Submit under provisions of Section 014000 Manufacturer's Certificates, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

## PART 2 PRODUCTS

### 2.1 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615, 60 ksi yield grade; deformed billet steel bars, unfinished.
- B. Reinforcing Steel Mat: ASTM A704, ASTM A615, 60 ksi yield grade; steel bars or rods, unfinished.
- C. Stirrup Steel: ASTM A82, unfinished.
- D. Welded Steel Wire Fabric: ASTM A185 Plain Type; in flat sheets or coiled rolls; unfinished.
- E. Reinforcing Bar Splice Couplers: Lenton A-2 splice couplers, sized per the Construction Drawings, manufactured by Erico Concrete Products, Inc., Cleveland, Ohio. Couplers shall meet the requirements of ACI 318-95 with a splice strength requirement of 125% of specified yield when using ASTM A 615 Grade 60, steel reinforcing bars.

### 2.2 ACCESSORIES

- A. Tie Wire: Minimum 16 gage annealed type.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.

## **SECTION 03 1000 – CONCRETE FORMWORK**

- C. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel type; size and shape as required.

### **2.3 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice ACI 318.
- B. Weld reinforcement in accordance with AWS D1.4.
- C. Locate reinforcing splices not indicated on drawings, at point of minimum stress. Review location of splices with Architect/Engineer.

## **PART 3 EXECUTION**

### **3.1 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Conform to applicable code for concrete cover over reinforcement.
- E. Bond and ground all reinforcement to requirements of Section 16170.

### **3.2 FIELD QUALITY CONTROL**

- A. Section 014000 - Quality Control: Field inspection and testing.
- B. Inspect for acceptability.

## **END OF SECTION**

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Cast-in-place concrete framing members, floors, slabs and/or walls as indicated on drawings.
- B. Grade beams and floor slabs on grade, topping slab for pre-cast deck system
- C. Control, expansion and contraction joint devices associated with concrete work.
- D. Equipment pads, pole bases, etc.

#### 1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Section 031000 - Concrete Formwork: Placement of devices and anchors in formwork.

#### 1.3 RELATED SECTIONS

- A. Section 031000 - Concrete Formwork: Formwork and accessories.
- B. Section 032000 - Concrete Reinforcement.
- C. Section 033700 - Concrete Curing.
- D. Section 034000 – Pre-Cast Concrete
- E. Section 150000: Mechanical items for casting into concrete.
- F. Section 160000: Electrical items for casting into concrete.

#### 1.4 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 302 - Guide for Concrete Floor and Slab Construction.
- C. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- D. ACI 305R - Hot Weather Concreting.
- E. ACI 306R - Cold Weather Concreting.
- F. ACI 308 - Standard Practice for Curing Concrete.
- G. ACI 318 - Building Code Requirements for Reinforced Concrete.
- H. ANSI/ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- I. ANSI/ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.
- J. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
- K. ANSI/ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

- L. ASTM B221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
- M. ASTM C33 - Concrete Aggregates.
- N. ASTM C94 - Ready-Mixed Concrete.
- O. ASTM C150 - Portland Cement.
- P. ASTM C260 - Air Entraining Admixtures for Concrete.
- Q. ASTM C330 - Light Weight Aggregates For Structural Concrete.
- R. ASTM C494 - Chemicals Admixtures for Concrete.
- S. ASTM C618 - Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.

### 1.5 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.
- B. Accurately record actual locations of embedded utilities and components which are concealed from view.

### 1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.
- B. Acquire cement and aggregate from same source for all work.
- C. Conform to ACI 305R when concreting during hot weather.
- D. Conform to ACI 306R when concreting during cold weather.

### 1.7 FIELD SAMPLES

- A. Provide under provisions of Section 014000. Coordinate with Section 031000.
- B. Construct and erect a field sample for architectural concrete surfaces receiving special treatment or finish as result of formwork.

### 1.8 COORDINATION

- A. Coordinate work under provisions of Section 010400.
- B. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

## PART 2 PRODUCTS

### 2.1 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I.
- B. Fine and Coarse Aggregates: ASTM C33.

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

- C. Water: Clean and not detrimental to concrete.
- D. Glass Fiber Reinforcement (IF REQUIRED): ASTM C948.

### 2.2 ADMIXTURES

- A. Air Entrainment: ASTM C260.
- B. Fly Ash: Fly Ash is not allowed.
- C. Super Plasticizers: Super Plasticizers “may” be used for all cast in place concrete. Admixture shall be mixed and installed in strict accordance with manufacturer’s instructions.

### 2.3 ACCESSORIES

- A. Bonding Agent: Polymer resin emulsion.
- B. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days. Non-Shrink grout associated with pre-cast concrete shall be in accordance with Section 340000.

### 2.4 JOINT DEVICES AND FILLER MATERIALS

- A. Joint Filler Type A: ASTM D1751; Asphalt impregnated fiberboard; tongue and groove profile.
- B. Construction Joint Devices: Integral galvanized steel formed to tongue and groove profile, knockout holes spaced at 6 inches, ribbed steel spikes with tongue to fit top screed edge.

### 2.5 CONCRETE MIX

- A. Mix and deliver concrete in accordance with ASTM C94, Alternative No. 2.
- B. Select proportions for normal weight concrete in accordance with ACI 301, Method 1.
- C. Concrete on this project shall have an ultimate compressive strength in 28 days as listed below. The mix design shall be prepared by an approved testing agency, based on strengths of approved materials. The mix design shall be submit to the Architect/Engineer for review of design specifications; however, it is the responsibility of the Contractor and testing agency for the proper proportions and materials used in obtaining the final design strengths.
  - 1. Exterior Walkways – Shall be composed of a “normal weight” concrete with density of 145 lbs. per cubic foot, possessing an ultimate compressive strength of 4000 psi in 28 days. Maximum slump 5”.
- D. Use accelerating admixtures in cold weather only when approved by Architect/Engineer. Use of admixtures will not relax cold weather placement requirements.
- E. Use calcium chloride only when approved by Architect/Engineer.
- F. Use set retarding admixtures during hot weather only when approved by Architect/Engineer.
- G. Add air entraining agent to normal weight concrete mix for work exposed to exterior.

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

- H. Ready-mixed concrete mixed and transported in accordance with ASTM C 94, with the exception that discharge from hauling containers shall be completed within seventy-five (75) minutes after the cement has been added to the aggregate and water in the mixer.

### 2.6 VAPOR BARRIER UNDER PAVING

- A. Where required, material shall conform to ASTM E 1745, Class C or better and shall have a water vapor permeance not to exceed 0.04 perms when tested in accordance with ASTM E96. Vapor barrier component no less than 10 mils thick, in accordance with ACI 302, 1R-96. Vapor barrier shall be installed around the elevator pit.

Products: Stego Wrap Vapor Barrier by Stego Industries  
Griffolyn T-85 by Reef Industries  
Soco-Shield VB-15

### 2.7 CONCRETE CURING COMPOUND

- A. Curing Compound: Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 010100.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

### 3.2 VAPOR BARRIER INSTALLATION

- A. Where required, provide vapor barrier as specified under all slabs on grade. Install vapor barrier in strict accordance with ASTM E 1643 and ASTM F 710 guidelines.

Start membrane under perimeter grade beam and over subgrade. All joints and seams, both lateral and butt, shall be overlapped 6 inches and taped using vapor barrier manufacture's recommended tape system. All penetrations must be sealed using specified vapor barrier tape. Any damaged area after installation of vapor barrier shall be repaired using manufacture's product and tape. Cover any damage by a minimum overlap of 6 inches in all directions and tape carefully around entire perimeter of repair. Electrical conduit shall be placed above membrane and encased in concrete unless otherwise noted on the drawings.

### 3.3 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

### 3.4 PLACING CONCRETE

- A. Prior to any placement of concrete in quantities greater than 12 cyd of concrete within 24 hours.
- B. Place concrete in accordance with applicable ACI requirements.
- C. Notify Architect/Engineer minimum 24 hours prior to commencement of concrete pouring operations; such that, field observations may be made. In this notification, the Contractor shall state the time of day in which the preparation work is 100% complete and ready for observation. **The Architect/Engineer will not observe partially completed works.** Should the Contractor chose to pour concrete in the dark, then all preparation works must be completed and reviewed by Architect/Engineer in the daylight hours with a minimum of 48 hours notice prior to the proposed pour time.

Prior to arrival at the site for observations by the Architect/Engineer, the Contractor shall assure that preparations are completed, including but not limited to proper elevation of the forms, proper thickness of the floor slab, proper reinforcing installation, proper anchor bolt installation, proper cleaning of trenches, etc.

All comments of Architect/Engineer requiring additional works shall be made immediately to the work area. If corrections cannot be made in a timely manner, the pour shall be postponed.

- D. Ensure reinforcement, inserts, embedded parts, and formed expansion and contraction joints are not disturbed during concrete placement.
- E. Separate slabs on grade with joint filler as indicated on the drawings.
- F. Place joint filler in floor slabs. Set top to required elevations. Secure to resist movement by wet concrete.
- G. Extend joint filler from bottom of slab to within 1” of finished slab surface. Conform to Section 07900 for finish joint sealer requirements.
- H. Install joint devices in accordance with manufacturer's instructions.
- I. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- J. Install joint device anchors. Maintain correct position to allow joint cover to be flush with finish.
- K. Install joint covers in longest practical length, when adjacent construction activity is complete.
- L. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- M. Place concrete continuously between predetermined expansion, control, and construction joints. For above grade slabs/members, provide bonding agents to the concrete in strict accordance with the manufacturer’s instructions prior to the second pour.
- N. Concrete shall be installed to the maximum slump indicated. The addition of water to the concrete in the field is not allowed.
- O. Pumping Concrete - To achieve a more flowable and pumpable concrete, with a slump greater than specified, a superplastizer may be used as an add mixture to the concrete. This admixture shall be installed in the truck at the job site prior to pour in strict accordance with the manufacture’s instructions.

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

- P. Screed floors and slabs on grade level, maintaining surface flatness of maximum 1/8 inch in 10 ft.
- Q. Do not over vibrate or use vibrators to transport concrete within forms.

### 3.5 CONCRETE FINISHING

- A. Provide formed concrete surfaces to be left exposed, including walls, columns, beams and joists with smooth rubbed finish.
- B. Finish concrete floor surfaces to requirements of Section 03346 and ACI 301.

### 3.6 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. For Building Interior Floor Slabs: “Wet cure” in accordance with ACI 308.

### 3.7 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed in accordance with ACI 301 and under provisions of Section 014000.
- B. Provide free access to Work and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.
- D. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.
- E. Concrete testing requirements shall be established by the testing agency, working with the Architect/Engineer.

### 3.8 PATCHING

- A. Allow Architect/Engineer to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Architect/Engineer upon discovery.
- C. Patch imperfections in accordance with ACI 301.

### 3.9 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The Owner will employ a testing agency to perform tests and to submit test reports.
- B. Sampling and testing for quality control during concrete placement may include the following, as directed by Architect.
- C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

Compressive-Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yd. plus additional sets for each 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

When total quantity of a given class of concrete is less than 50 cu. yd., Architect may waive strength testing if adequate evidence of satisfactory strength is provided.

- D. Test results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- E. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

### 3.10 TESTING OF SLABS CONTAINING MOISTURE VAPOR REDUCTION ADMIXTURE

- A. The moisture vapor reduction admixture (MVRA) manufacturer shall perform all moisture testing in accordance with this specification and will issue project specific warranties prior to installation of any slab finishes; no further field slab moisture nor pH testing shall be required. Failure to provide a product that meets or exceeds these requirements will result in all subsequent testing and slab remediation costs being borne by the Contractor.
- B. A representative or agent of the moisture vapor reduction admixture (MVRA) manufacturer must be present at the jobsite during placement of all MVRA treated concrete. Do not proceed without this representative being present.
- C. Field testing technician shall, at the expense of the MVRA Manufacturer, procure at least one 4 inch cylinder from every day of placement of MVRA dosed concrete for the purpose of subsequent hydraulic conductivity/coefficient of permeability testing.
- D. All cylinders shall be independently lab tested in accordance with ASTM D 5084 at the expense of the MVRA manufacturer.
- E. Test results must conform to specific limits.

## SECTION 03 3000 – CAST-IN-PLACE CONCRETE

Should any cylinder from any day of placement deliver results in excess of  $6.0 \text{ E-}08 \text{ cm/sec}$ , the concrete moisture vapor reduction admixture manufacturer shall procure, at their expense, a core (or cores) from that day of placement. This core (cores) shall be sent to an independent laboratory for hydraulic conductivity (coefficient or permeability) per ASTM D 5084.

Should any core deliver results in excess of  $6.0 \text{ E-}08 \text{ cm/sec}$  per ASTM D 5084, the concrete moisture vapor reduction admixture manufacturer shall provide, at their expense, a topical moisture mitigation system for all areas not meeting the stated limit.

- F. Proceeding with placement of concrete dosed with the MVRA without the required representation will result in the Contractor bearing the cost to core and ship appropriate material for testing per ASTM D 5084.

### 3.11 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the Architect/Engineer.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.
- D. Concrete which is installed after

**END OF SECTION**

## SECTION 05 5000 - METAL FABRICATIONS

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Shop fabricated steel and aluminum items, including:
  - 1. Steel framing and supports for applications where framing and supports are not specified in other Sections.
  - 2. Miscellaneous steel trim.
  - 3. Metal bollards.
  - 4. Metal downspout boots.
- B. Prefabricated fixed ladders.
- C. Products includes in this Section:
  - 1. Loose steel lintels.
  - 2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

#### 1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 05 2100 - Steel Joist Framing: Structural joist bearing plates, including anchorage.
- C. Section 05 3100 - Steel Decking: Bearing plates for metal deck bearing, including anchorage.
- D. Section 09 9000 - Painting and Coating: Paint finish.

#### 1.03 REFERENCE STANDARDS

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.
- B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- D. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2013.
- E. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.
- F. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- G. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.
- H. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.
- I. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; International Accreditation Service, Inc; 2011.
- J. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).
- K. SSPC-SP 2 - Hand Tool Cleaning; 1982 (Ed. 2004).

#### 1.04 SUBMITTALS

- A. See Section 01 3000 - Submittal Procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
  - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

## 1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

## PART 2 PRODUCTS

### 2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A500/A500M, Grade B cold-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- E. Fasteners: Select fasteners for type, grade, and class required to produce connections suitable for anchoring fabrications to other types of construction indicated.
- F. Bolts, Nuts, and Washers: ASTM A307, plain.
- G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

### 2.02 MATERIALS - ALUMINUM

### 2.03 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

### 2.04 FABRICATED ITEMS

- A. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.
- B. Lintels: As detailed; prime paint finish.

### 2.05 DOWNSPOUT BOOTS

- A. Downspout Boots: Smooth interior without boxed corners or choke points; include integral lug slots, integral cleanout, cleanout cover, and tamper proof fasteners.
  - 1. Configuration: As indicated in drawings.
  - 2. Location: Required at all downspouts.
  - 3. Material: Cast Aluminum, casting thickness 1/8" minimum
  - 4. Color: To be selected by Architect from manufacturer's full range.
  - 5. Accessories: Manufacturer's standard stainless steel fasteners, stainless steel building wall anchors, integral neoprene gaskets, and rubber coupling.
  - 6. Size as needed to receive downspouts.
  - 7. Manufacturers:
    - a. Barry Pattern & Foundry; [www.barrycraft.com](http://www.barrycraft.com)..
    - b. Kinetic Architectural Products; [www.kineticarch.com](http://www.kineticarch.com)..
    - c. Substitutions: See Section 01 6000 - Product Requirements.

### 2.06 FINISHES - STEEL

- A. Prime paint steel items.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.

## **2.07 FINISHES - ALUMINUM**

- A. High Performance Organic Coating System: AAMA 2604 multiple coat, thermally cured fluoropolymer system; color as indicated.

## **2.08 FABRICATION, GENERAL**

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips, flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
  - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

## **2.09 FABRICATION TOLERANCES**

- A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).
- C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).
- D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).
- E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

## **2.10 MISCELLANEOUS FRAMING AND SUPPORTS**

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Furnish inserts for units installed after concrete is placed.
- C. Galvanize miscellaneous framing and supports where indicated.

- D. Prime miscellaneous framing and supports with primer specified in Section 09 9000, or Section 09 9600 where indicated.

## **2.11 LOOSE STEEL LINTELS**

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches, unless otherwise indicated.
- C. Prime loose steel lintels located in exterior walls with primer specified in Section 09 9000 or Section 09 9600, as indicated.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

### **3.02 PREPARATION**

- A. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

### **3.03 INSTALLATION, GENERAL**

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation, with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
  - 1. Cast Aluminum: Heavy coat of bituminous paint.
  - 2. Extruded Aluminum: Two coats of clear lacquer.

### **3.04 INSTALLATION**

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

- C. Perform field welding in accordance with AWS D1.1/D1.1M.
- D. Obtain approval prior to site cutting or making adjustments not scheduled.
- E. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

**3.05 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).
- C. Maximum Out-of-Position: 1/4 inch (6 mm).

**END OF SECTION**

## SECTION 09 9000 - PAINTING AND COATING

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished
- D. Do Not Paint or Finish the Following Items:
  - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
  - 5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
  - 6. Marble, granite, slate, and other natural stones.
  - 7. Floors, unless specifically so indicated.
  - 8. Ceramic and other tiles.
  - 9. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
  - 10. Glass.
  - 11. Concealed pipes, ducts, and conduits.

#### 1.02 RELATED REQUIREMENTS

- A. Section 05 5000 - Metal Fabrications: Shop-primed items.

#### 1.03 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

#### 1.04 SUBMITTALS

- A. See Section 01 3000 - Submittal Procedures.
- B. Product Data: Provide data on all finishing products, including VOC content.
- C. Samples: Submit two paper chip samples, 12 X 12 inch (400 X 400 mm) in size illustrating range of colors and textures available for each surface finishing product scheduled.
  - 1. Where sheen is specified, submit samples in only that sheen.
  - 2. Where sheen is not specified, submit each color in each sheen available.
  - 3. Where sheen is not specified, discuss sheen options with Grace & Hebert Architects, APAC before preparing samples, to eliminate sheens definitely not required.
- D. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on tempered hardboard, 12 X 12 inch (400 x 400 mm) in size.
- E. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.
- F. Manufacturer's Instructions: Indicate special surface preparation procedures.
- G. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

#### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum seven years experience.

#### **1.06 MOCK-UP**

- A. Apply mock-ups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
    - b. Shower ceilings.
    - c. Other items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

#### **1.08 FIELD CONDITIONS**

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F (7 degrees C) for interiors; 50 degrees F (10 degrees C) for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F (18 degrees C) for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

#### **1.09 EXTRA MATERIALS**

- A. See Section 016000 - Product Requirements, for additional provisions.
- B. Supply 1 gallon of each color; store where directed.
- C. Label each container with color in addition to the manufacturer's label.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

- B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
- C. Paints:
  - 1. Basis of Design: Sherwin Williams Company: [www.sherwin-williams.com](http://www.sherwin-williams.com).
  - 2. Benjamin Moore & Co: [www.benjaminmoore.com/#sle](http://www.benjaminmoore.com/#sle).
  - 3. PPG Paints: [www.ppgpaints.com/#sle](http://www.ppgpaints.com/#sle).
- D. Primer Sealers: Same manufacturer as top coats.
- E. Block Fillers: Same manufacturer as top coats.
- F. Substitutions: Prior approved equal only.

## 2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
  - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  - 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
  - 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
  - 4. Supply each coating material in quantity required to complete entire project's work from a single production run.
  - 5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: As follows unless other primer is required or recommended by manufacturer of top coats; where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
  - 1. Gypsum Board: Interior Institutional Low Odor/VOC Primer Sealer.
  - 2. Concrete Masonry: Interior/Exterior Latex Block Filler.
  - 3. Fiber Cement Board: Interior/Exterior Latex Masonry Primer
    - a. Basis of Design: Sherwin Williams: A24w8300.
  - 4. Galvanized Steel: Interior Water Based Galvanized Primer.
- C. Volatile Organic Compound (VOC) Content:
  - 1. Provide coatings that comply with the most stringent requirements specified in the following:
    - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
      - 1) Flat Paints and Coatings: 0 g/L.
      - 2) Nonflat Paints and Coatings: 0 g/L.
      - 3) Industrial Maintenance Coatings: 250 g/L.
      - 4) Dry-Fog Coatings: 150 g/L.
      - 5) Primers, Sealers, and Undercoaters: 100 g/L.
      - 6) Anticorrosive and Antirust Paints Applied to Ferrous Metals: 100 g/L.
      - 7) Zinc-Rich Industrial Maintenance Primers: 340 g/L.
      - 8) Pretreatment Wash Primers: 420 g/L.
      - 9) Floor Coatings: 50 g/L.
      - 10) Shellacs Clear: 730 g/L.
      - 11) Shellacs, Pigmented: 550 g/L.
  - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Colors: As indicated on drawings, or as selected by Architect

1. Allow for minimum of twelve colors for each system, unless otherwise indicated, without additional cost to Owner. Refer to Finish Key and Interior Elevations for color selections.
2. Extend colors to surface edges; colors may change at any edge as directed by Architect.
3. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
4. In utility areas, finish equipment, piping, conduit, and exposed duct work in colors according to the color coding scheme indicated.

### **2.03 PAINT SYSTEMS - EXTERIOR**

- A. All Exterior Surfaces Indicated to be Painted, Unless Otherwise Indicated: Including concrete masonry and primed metal.
  1. Preparation as specified by manufacturer.
  2. Two top coats and one coat primer recommended by manufacturer.
  3. Primer(s): As recommended by manufacturer of top coats.
- B. Fiber Cement Board, Opaque, Latex, 3 Coat:
  1. Do not install on pre-finished fiber cement board elements. Install only on primed fiber cement board elements
  2. One coat masonry primer, as specified as part of this Section.
  3. Satin: Two coats exterior acrylic latex.
    - a. Basis of Design: Sherwin Williams - SW Emerald Exterior Acrylic Satin, A48 Series.
- C. Ferrous Metals, Unprimed, Latex, 3 Coat:
  1. One coat of latex primer.
  2. Gloss: Two coats of latex enamel.
- D. Galvanized Metals, Latex, 3 Coat:
  1. One coat galvanize primer.
  2. Gloss: Two coats of latex enamel.

### **2.04 PAINT SYSTEMS - INTERIOR**

- A. All Interior Surfaces Indicated to be Painted, Unless Otherwise Indicated: Including gypsum board, wood, uncoated steel, shop primed steel, and galvanized steel.
  1. Primer(s): As recommended by manufacturer of top coats.
- B. Concrete/Masonry, Opaque, Latex, 3 Coat:
  1. One coat of block filler.
  2. Semi-gloss: Two coats of latex enamel.
- C. Ferrous Metals, Primed, Latex, 2 Coat:
  1. Touch-up with latex primer.
  2. Semi-gloss: Two coats of latex enamel.
- D. Galvanized Metals, Latex, 3 Coat:
  1. One coat galvanize primer.
  2. Semi-gloss: Two coats of latex enamel; \_\_\_\_\_.
- E. Gypsum Board/Plaster, Latex, 3 Coat:
  1. One coat of latex primer sealer.
  2. Eggshell: Two coats of latex enamel; at areas specified.
  3. Flat: Two coats of latex enamel; Ceilings.
- F. Gypsum Board/Plaster, Epoxy System, 3 Coat:
  1. One coat interior latex primer/sealer.
  2. Semi-gloss: Two coats of waterbased epoxy gypsum board coating; at all wet areas - restrooms, locker rooms, shower areas, etc.

### **2.05 ACCESSORY MATERIALS**

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
  - 1. Gypsum Wallboard: 12 percent.
  - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
  - 3. Concrete Floors and Traffic Surfaces: 8 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

#### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- H. Concrete Floors and Traffic Surfaces to be Painted: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- J. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- K. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

#### **3.03 APPLICATION**

- A. Apply paints according to manufacturer's written instructions:
  - 1. Use applicators and techniques suited for paint and substrate indicated.

2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
  - C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color and appearance.
  - D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
  - E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
    1. Refer to Divisions 21, 22, 23, 26, 27 and 28 for painting requirements where indicated.

#### **3.04 CLEANING AND PROTECTION**

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

**END OF SECTION**

**PART 1 GENERAL**

## 1.1 SCOPE

- A. The work to be performed under these specifications shall include the furnishing of all labor, materials, equipment and services required for a complete electrical system as specified herein and as shown by the Drawings. A state of Louisiana licensed Electrical Contractor shall perform the work specified herein. The work includes but is not limited to:
1. Furnishing and installing underground empty conduits from BECI pad mounted transformer to the building as shown on the drawings.
  2. Furnishing and installing service entrance rated disconnect switches, wireway, and CT meter cabinet and demarc box.
  3. Furnishing conduit and wire to feed building panels 'MDP 1' and 'MDP 2' as shown on the drawings.
  4. Furnishing and installing building lighting fixtures, site lighting fixtures and lighting controls as shown on Drawings.
  5. Furnishing and installing electrical panel 'MCC' and 'LS' as shown on the drawings. Coordinate exact requirements with civil engineer prior to commencement of work.
  6. Installation of temporary construction power required by the General Contractor and Sub-Contractors during the construction period.

## 1.2 GENERAL CONDITIONS

- A. The General Conditions and Supplementary General Conditions are a part of this section of these Specifications. The Contractor is cautioned to read and be thoroughly familiar with all provisions of the General Conditions. These conditions shall be complied with in every aspect. The word "shall" where used, is to be understood, as mandatory and the word "should" as advisory. "May" is used in the permissive sense.

## 1.3 GENERAL REQUIREMENTS

- A. The Contractor is referred to all of the Drawings for building construction as well as the electrical Drawings.
- B. The Contractor shall examine the site and shall verify to his own satisfaction the location of all utilities, and shall adequately inform himself as to their relation to his work before entering into a Contract and he shall base his bid on any conditions, which may be encountered during the progress of the work.
- C. The Contractor shall furnish and install properly all materials, devices, equipment, supports, controls, appurtenances, etc., mentioned or required to make complete or satisfactory installations in working order whether shown or not. All electrical equipment shall be connected in accordance with manufacturer's instructions. All work shall be executed in a workmanlike manner and shall present a neat and mechanical appearance when completed.

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### 1.4 MINIMUM STANDARDS

- A. Applicable rules of the National Electrical Code apply as a minimum standard for this contract, but do not replace or reduce any specific requirement herein.

### 1.5 DRAWINGS

- A. Plans and detail sketches are submitted to limit, explain, and define structural conditions, specified requirements, conduit sizes, and manner of erecting work. The Contractor is cautioned to field check and verify all existing conditions before bidding, as no extra compensation will be allowed for conditions found different than represented in the construction drawings and/or specifications. Written approval of the Architect shall be obtained prior to any alterations or additions to specified work.
- B. Structural or other conditions may require certain modifications from the manner of installation shown, and such deviations are permissible and shall be made as required, but specified sizes and requirements necessary for satisfactory operations shall remain unchanged.
- C. The drawings and these specifications are complementary to each other and what is called for by one shall be binding as if called for by both.
- D. General arrangement of work is indicated on plans. Due to the small scale of the drawings, offsets, fittings, and boxes required are not all indicated; provide fittings, boxes, etc., as needed in accordance with codes and accepted practices.

### 1.6 SUPERVISION

- A. The Contractor shall personally or through an authorized and competent representative, constantly supervise the work from beginning to completion and final acceptance. So far as possible, he shall keep the same foreman and workmen throughout the project duration.
- B. During its progress, the work shall be subject to inspection by representatives of the Architect, at which times the Contractor shall furnish required information.
- C. It is not the Architect's or Engineer's duty to direct or guarantee the work of the Contractor, but to assist the Owner in obtaining a complete building in accordance with plans, specifications and addenda and to furnish engineering services in accordance with recognized practices.

### 1.7 PRIOR APPROVALS

- A. The Contractor shall base his proposal on materials as specified herein. Any references to a specific manufacturer or trade name is made to establish a standard of quality and to define a type of product and in no way is intended to indicate a preference for a particular manufacturer. It is the intent of these specifications to allow all manufacturers of equipment, products, etc., judged equal to the specified product to bid on a competitive

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basis.

1.8 MEASUREMENTS

- A. The Contractor shall verify all measurements and shall be responsible for the correctness of same, before ordering any materials or doing any work. No extra charge or compensation will be allowed for any differences between the actual measurements and those indicated on the drawings.

1.9 LAWS, PERMITS AND FEES

- A. The entire electrical work shall comply with the rules and regulations of the City, Parish, and State, including the State Fire Marshal and State Board of Health, whether so shown on plans or not. The Contractor shall pay fees for permits, inspections, etc., and shall arrange with the inspecting authorities all required inspections.

1.10 SITE INSPECTION

- A. The Contractor shall visit the site and familiarize himself with difficulties attendant to the successful execution of the work before bidding. Failure to visit the site shall not relieve the Contractor of the extent or conditions of the work required of him.

**PART 2 PRODUCTS**

2.1 MATERIAL AND EQUIPMENT

- A. All materials, equipment, and accessories installed under this Contract, whether approved or not, shall be new and shall conform to all rules, codes, etc., as recommended or adopted by the National Association(s) governing the manufacture, rating and testing of such materials, equipment, and accessories.

2.2 SHOP DRAWINGS

- A. The Contractor shall submit to the Architect complete descriptive and dimensional data on the following items for review and approval:
  1. Panelboards
  2. Service Entrance Disconnect Switch
  3. Disconnect Switches
  4. Lighting Fixtures
  5. Lighting Control Photocells
  6. Conduit, Conduit Fittings, and Conduit Ground Bushings
  7. Conductors
  8. Ground Rods/Wells
  9. Surge Protection Devices
  10. Lift station electrical control panels
  11. Lift station electric motors

**PART 3 METHODS OF INSTALLATIONS**

3.1 CONTRACTOR COORDINATION

- A. The Drawings are diagrammatic in nature. Cooperate with other trades so the interferences of facilities and equipment will be avoided.

3.2 OPENINGS, CUTTING AND PATCHING

- A. Cut all openings as required for the electrical work. Patching will be done by the various crafts whose work is involved. Furnish and install all necessary sleeves, thimbles, hangers, inserts, etc., at such times and in such a manner as not to delay or interfere with the work of other Contractors. Caulk, flash or otherwise make weatherproof all penetrations through the roof and exterior walls.
- B. Where conduit, cable or other items that are provided for under this contract penetrate fire rated walls or floors, the Contractor is to seal around the item to maintain the integrity of the rated system.

3.3 PAINTING

- A. Painting shall be performed as described in the painting specifications. No painting will be required by the Contractor except for touch-up of factory finishes on equipment furnished under this contract.

3.4 APPLICABLE GENERAL CODES AND REGULATIONS

- A. All electrical work and equipment, in whole or in part, shall conform to the applicable portions of the following specifications, codes and regulations in effect on that date of invitation for bids, and shall form a part of this specification.
  1. National Electrical Code, Latest Edition as accepted by the State Fire Marshal
  2. National Electrical Manufacturers Association Standards
  3. National Fire Protection Association Recommended Practices
  4. Local, City and State Codes and Ordinances
  5. National Board of Fire Underwriter's Recommended Practices
  6. Life Safety Code, 2015 Edition
  7. International Building Codes
- B. Equipment that has been inspected and approved by the Underwriter's Laboratory shall bear its label or appear on its list of approved apparatus.

3.5 TESTS AND INSPECTIONS

- A. The Contractor shall assist in making periodic inspections or tests required by the Architect or Engineer. When requested, the Contractor shall provide the assistance of foremen and qualified craftsmen for reasonable duration of each test, etc.

3.6 SAFETY PRECAUTIONS DURING CONSTRUCTION

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- A. It shall be the Contractor's responsibility to furnish and install proper guards and instruction signs for prevention of accidents and to provide and maintain for the duration of construction any installations needed for safety of life and property.

### 3.7 HEATING AND AIR CONDITIONING SYSTEM

- A. This Contractor shall be responsible for providing electrical service to all devices of the heating and air conditioning system, and is referred to the mechanical plan for the exact location of the various devices.

### 3.8 EQUIPMENT NAMEPLATE

- A. Each item of electrical equipment installed by the Contractor shall be provided with an engraved nameplate noting the equipment's function or designation. Nameplates shall be engraved laminated plastic with black letters on a white background. Letters shall be 1/4" high, all caps.

### 3.9 PANELBOARD SCHEDULES

- A. The Contractor shall provide and affix typed panelboard schedules for each panelboard. Schedule will accurately list equipment served by each branch circuit, and not simply indicate "LIGHTING" or "RECEPTACLES", etc. Schedules shall indicate rooms served and device or devices connected to the circuit.
- B. Where new loads are connected to existing panels, and where loads are rearranged in existing panels as part of this project, the Contractor shall update the respective panel directory so as to provide a complete, accurate, and typewritten panel schedule. The new panel schedule shall incorporate all existing loads, including loads "existing to remain". Provide all required testing and investigations necessary to accomplish this work.

### 3.10 COMPLETION

- A. The Contractor shall leave all electrical equipment with proper connections, and in proper working order. He shall test the entire electrical system to show that it is properly installed. Contractor shall leave all panels and switches completely fused or complete with circuit breakers.

### 3.11 RECORD DRAWINGS

- A. The Contractor shall furnish one (1) complete set of drawings on which any changes in the work shall be shown. These drawings must be turned over to the Architect prior to final acceptance of the work.

### 3.12 GUARANTEE

- A. The Contractor shall guarantee to keep the entire electrical system as installed by him or his subcontractors in repair and in perfect working order for one (1) year from the date of

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the final Certification of Final Acceptance, and shall furnish free of cost to the Owner, all material and labor necessary to comply with the above guarantee; said guarantee shall be based upon defective material and workmanship. In any case where equipment has a factory warranty exceeding this one-year limit, the full extent of the warranty shall apply.

### 3.13 CLEANING

- A. When all work has been finally tested, the Contractor shall clean all fixtures, equipment, conduits, ducts, and all exposed work. All cover plates and other finished products shall be thoroughly cleaned.

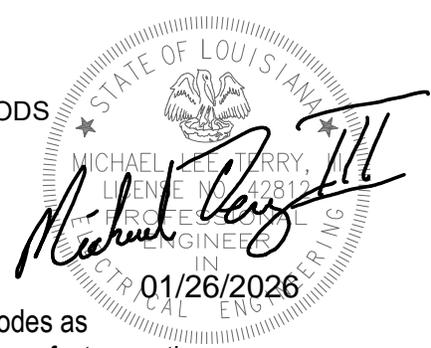
### 3.14 INSTRUCTION MANUALS

- A. The Contractor shall provide three (3) operating and maintenance instruction manuals on all systems and equipment installed in the electrical work.

### 3.15 CONTRACTOR SPECIAL NOTE

- A. The Contractor is again cautioned to refer to all parts of these Specifications and all Drawings, not just electrical sections, and the individual cross references made to other standard specifications or details describing any electrical work, which may be required under these other sections. The Contractor is cautioned to note carefully any other sections which may reference electrical work in order for this Contractor to fully understand the wiring requirements and electrical work that is required. Any conflicts found between the electrical sections of these Specifications or Drawings shall be immediately directed to the General Contractor for clarification.
- B. These Specifications and the electrical Drawings size equipment, wire, conduit, etc. based on the horsepower of motors and/or wattages of equipment as shown on the plans or specified herein. The Contractor shall install electrical raceways, conductors, fuses, safety switches, breakers, contactors, starters or any other electrical equipment with the capacities to suit the horsepower and/or wattages of the equipment actually furnished and installed. The Contractor shall not furnish or install any electrical raceways, conductors, safety switches, contactors or motor starters of sizes smaller than those shown on the Drawings or specified herein. The Contractor shall coordinate with the various sections of the Specifications and/or Drawings and with the various Sub-Contractors to provide the properly sized equipment without additional cost to the Owner.
- C. The Contractor shall be required to install electrical services underground. Existing underground utilities should be disconnected. Refer to the electrical and mechanical drawings for demolition plans. However, some existing underground utilities may remain in service at the site. Contractor is cautioned to exercise extreme care when digging to not damage any existing utilities or equipment. Contractor shall be required to repair any utilities or equipment he may damage during construction.

END OF SECTION

**PART 1 GENERAL****1.1 GENERAL REQUIREMENTS**

- A. All material furnished shall be new and shall conform to all rules and codes as recommended or adopted by the National Association governing the manufacture, rating and testing of the material. All electrical equipment shall be UL listed for the intended use.

**PART 2 PRODUCTS****2.1 RACEWAYS AND FITTINGS**

- A. Raceways permitted on this project shall be hot dipped galvanized rigid steel conduit; electrical metallic tubing (EMT); flexible metallic tubing; liquid-tight flexible metal conduit; and rigid polyvinyl chloride (PVC) conduit. All conduits shall be new and shall bear the inspection label of the Underwriter's Laboratories, Inc. The use of metal clad (MC) cable shall not be permitted.
- B. Metallic conduit shall be metalized, or hot-dipped galvanized. Non-metallic conduit shall be schedule 40 PVC.
- C. Fittings for conduit shall be an approved type specially designed and manufactured for their purpose. EMT fittings shall be watertight, compression type. Rigid metal conduit fittings, bushings, and other components shall be galvanized. All fittings for rigid steel or aluminum conduit shall be threaded and coupled unless specifically approved otherwise by the Engineer. The use of set screw fittings shall not be permitted.
- D. Where conduit connects to an outlet box, it shall have an insulated throat type connector.

**2.2 EXPOSED CONDUIT**

- A. Exposed conduit shall be firmly supported on galvanized hangers; on brackets, hangers, or pipe straps; or by beam clamps. Conduit installed exposed shall be neatly aligned and run at right angles to the building walls or walls of the rooms in which installed. All exposed conduit shall be located to avoid all conflicts with architectural or mechanical components.

**2.3 FLEXIBLE CONDUIT**

- A. Liquid-tight flexible metal conduit shall have a spiral wound, flexible, galvanized steel core and a tough extruded synthetic moisture-tight outer covering. All flexible conduits shall be UL listed.

**2.4 GALVANIZED CONDUIT**

- A. Galvanized conduit furnished in accordance with these specifications shall be of mild steel piping, galvanized inside and outside, and shall conform in all respects to the American Standard Association Rigid Steel Conduit Specification C80.1-1959 and Underwriter's

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### Laboratories Specifications.

- B. The galvanized coat of zinc shall be of uniform thickness applied by the hot-dipped process to not only the inside surfaces of the conduit, but also to the threads of the conduit. It shall be further dipped in a chromic acid bath to chemically form a corrosive resistant protective coating of zinc chromate over hot-dipped galvanized surface. Each piece of conduit shall be straight, free from blisters and other debris, cut square and taper reamed, and furnished with coupling in 10-foot length threaded each end. The interior threaded surface of each coupling shall be galvanized to insure 100% galvanic protection on all surfaces. The hot galvanized zinc chromate on the inside and outside surfaces shall be sufficiently elastic to prevent cracking or flaking when sample of finished conduit is bent 90° at a minimum temperature of 60°F, the inner edge of the bend having a radius of six (6) times the inside diameter of the conduit.

## 2.5 RACEWAYS

- A. Lay-in duct, JIC Wireway and troughs shall be NEMA 1 for indoor application and NEMA 3R for outdoor or applications exposed to weather or water. Raceways shall be sized as noted on Drawings and shall have hinged or screw covers with captive screws. Finish shall be gray enamel. All components shall be UL listed for steel enclosed wireway or auxiliary gutter.

## 2.6 OUTLET AND SWITCH BOXES

- A. Outlet boxes in concealed conduit systems shall be flush mounted. Boxes shall be galvanized steel of sufficient size to accommodate devices shown and shall have raised covers where required to meet requirements of NEC Article 314.
- B. All boxes shall be stamped, one-piece, galvanized steel, of proper size and shape for conduits entering them, and shall be UL listed and NEC approved for the intended use. Boxes shall be installed so that device and/or coverplates shall be tight and plumb with wall finish, have all unused openings closed with knock-out plugs, and be weatherproof for exterior locations.
- C. Boxes for lighting fixtures shall be 4 inches octagon, not less than 1-1/2 inches deep, with fixtures stud fastened through from back box. Where boxes are installed in a concrete slab, boxes designed for this application shall be used.
- D. Outlet boxes for switches in concealed work shall be standard switch boxes of required number of gangs. Outlet boxes for receptacles, telephone, and communication use in concealed work shall be 4-inch square, not less than 1-1/2 inches deep. Outlet boxes for switches and receptacles installed in exposed conduit system shall be cast type FS or FD, number of gangs as required. Outlet boxes for telephone and communication use in exposed systems to be cast, 4 inches square, not less than 1-1/2 inches deep.
- E. Boxes shall not to be installed back-to-back in walls. Offset with connecting conduit as

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specified. Do not use long, extended boxes that would effectively couple light and sound between adjoining spaces.

2.7 WIRE (600 VOLT AND BELOW)

- A. All conductors used in the work shall be of soft drawn annealed copper having a conductivity of not less than 98% of that of pure copper. Conductors shall be standard code gauge in size, insulated and shall have insulation rated for use at 600 volts.
- B. Unless noted otherwise or specified, insulation shall be type THW, THWN, or THHN for sizes up to and including No. 2 AWG. Insulation for wire sizes larger than No. 2 AWG shall be type THW, XHHW, or THHN. Lighting fixture wire shall be heat resistant type TF (150°C) with 300-volt insulation minimum. Wires shall be of the single conductor type. Sizes No.14 AWG and larger shall be stranded. No wire shall be single strand solid copper.
- C. Throughout the system, all conductors shall be identified as to the phase and voltage of the system by color-coding in accordance with NEC 210.5. Color-coding shall be continuous the full length of the wire with surface printing at regular intervals on all conductors and for neutral conductors.
- D. Color coding shall be as follows:

3phase, 480V System

Phase 1-Brown  
Phase 2-Orange  
Phase 3-Yellow  
Neutral-Gray  
Ground-Green

3phase, 208V System

Phase 1-Black  
Phase 2-Red  
Phase 3-Blue  
Neutral-White  
Ground-Green

1phase, 240V System

Phase 1-Black  
Phase 2-Red  
Neutral-White  
Ground-Green

2.8 WEATHERPROOF RECEPTACLES

- A. Weatherproof receptacles shall be GFCI duplex receptacles as specified under WIRING DEVICES, mounted in a cast iron type FD conduit box and fitted with gasketed metal cover with spring. Weatherproof receptacles shall be flush mounted in exterior walls.

2.9 WIRING DEVICES

- A. Wiring devices shall be as listed. The color of device shall match color of outlet cover plate. It shall be the responsibility of the Contractor to provide plugs, receptacles and fittings required for any equipment furnished or installed or connected under the contract.

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Color as selected by the Architect.

	Leviton	P & S	Hubbell
Toggle Switches: 20A 120/277V			
Single pole	1221-I	20AC1-I	1221-I
Three-way	1223-I	20AC3-I	1223-I
Duplex Receptacle: 20A, 125V, NEMA 5-20R	5362-I	5362-I	5363-I
Ground Fault Circuit Interrupter: 20A, 125V, Feed Through, NEMA 5-20R	6899-I	2091-S	GF-5362-I

- B. Quad receptacles shall be 20-amp, 125 volt rated, NEMA 5-20R, with two (2) duplex receptacles or single four-plex device.

2.10 OUTLET COVER PLATES

- A. Unless otherwise specified, all outlets shall be fitted with cover plates. Cover plates shall be standard size, uniform in design and finish for switches, receptacles and other outlets requiring cover plates. Plates shall be one piece of the required number of gangs. All cover plates shall be lexan unbreakable type. Architect shall select coverplate color.

2.11 SPECIAL PURPOSE RECEPTACLE

- A. Provide receptacles for special purpose devices as indicated on the plans. Refer to equipment specification for proper receptacle to be supplied. Provide stainless steel cover plate.

2.12 FIRESTOPPING PRODUCTS

- A. The Contractor shall provide and install at all fire-rated wall through-penetrations, a non-hardening, conformable firestop system. The system shall consist of a water insoluble putty and suitable damming materials (where required). The non-hardening putty shall be a two-staged intumescent and capable of expanding up to 8 times its original volume. This putty shall contain no asbestos, no fiberglass, no solvents nor corrosive mineral salts of any kind. It shall remain soft during its installed life and shall be capable of being removed and reinstalled to facilitate the addition of cables or pipes. The putty shall exhibit aggressive adhesion to all common building materials and penetrants and shall allow reasonable movement of penetrants without being displaced. The firestop system shall be tested to the time/temperature requirements of ASTM E119 and shall be tested to UL 1479 (ASTM E814) and classified for up to 3 hours.

2.13 GROUND ROD

- A. Ground rods shall be pure copper with a minimum diameter of  $\frac{3}{4}$ " and 10' long. Erico LPC711 or equivalent.

2.14 TRAFFIC RATED IN GRADE PULL BOXES

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- A. Pull boxes shall be heavy duty, traffic bearing type. Boxes shall be polymer concrete and fiber reinforced polyester construction. Boxes shall be furnished complete with bottom and cover with logo. All pull boxes shall be sized 30" wide x 48" long x 36" deep. Pull boxes shall include two-piece cover with stainless steel bolts, POWER legend, and pull slots for lifting. Boxes shall be Tier 15 traffic rated. Boxes shall be factory assembled.
- B. Boxes shall be Hubbell/CDR Systems Corporation Straight Wall Style (Stackable) Assembly, or Quazite Composites "PC" Style.

### 2.15 FLOOR BOXES

- A. Floor boxes shall meet UL 514A and 514B and be metallic (unless otherwise noted on the drawings). Floor boxes shall be selected with respect to the particular substrate (concrete or wood) and have all colors, trims, and coverplates approved by the Architect. Floor boxes shall be metallic and have separations for the installation of low voltage cabling in the same box as power receptacles where indicated by the drawings.
- B. Floor boxes for use with furniture systems shall be sized as per the furniture manufacturer's instructions and per the NEC for the number of splices and connections in the box. Provide all required coordination with the furniture manufacturer for correct rough-in locations, wiring convention, and final connections to the modular furniture.
- C. Floor box coverplates shall be flush mounted, metallic, and the style (carpet, tile, etc.) shall be approved by the architect prior to ordering.
- D. Floor boxes shall be able to accommodate a minimum of two (2) 2" incoming conduits, one for power conductors, and one for data/communications/low voltage cabling.
- E. The box shall meet or exceed the fire rating of the floor in which it is installed.

### 2.16 ALUMINUM CONDUCTOR OPTION

- A. Aluminum feeder conductors will be allowed as a replacement of copper conductors ONLY where shown on the drawings. Aluminum conductors shall meet the following product description.
- B. APPLICABLE STANDARDS: The following standards form a part of this specification to the extent specified herein: Underwriters Laboratories Standard 44 for Rubber Insulated Wires and Cables. ICEA Pub. No. S-95-658, NEMA Pub. No. WC70 for Nonshielded Power Cables Rated 2000 Volts or Less.
- C. CONDUCTORS: Conductors shall be Class B stranded annealed uncoated aluminum per UL Standard 44.
- D. SEPARATOR: A suitable separator over the conductor may be used at the option of the manufacturer.
- E. INSULATION: Each conductor shall be insulated with Rome FR-XLPE, a flame retardant

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crosslinked polyethylene complying with the physical and electrical requirements of UL Standard 44 for Type XHHW-2. In addition, the Rome FR-XLPE insulation shall comply with the For CT Use (sizes 1/0 AWG and larger) and VW-1 flame test ratings and the Gasoline and Oil Resistant II ratings of UL Standard 44. The insulation shall maintain a dielectric constant of 3.5 or less. The average thickness of insulation shall be as specified in UL Standard 44 for Type XHHW-2. The minimum thickness at any point shall be not less than 90% of the specified average thickness. The insulation shall be applied tightly to the conductor and shall be free-stripping.

- F. IDENTIFICATION: The wire shall be identified by surface marking indicating manufacturer's identification, conductor size and metal, voltage rating, UL symbol, VW-1, type designation, Gasoline and Oil Resistant II and Sunlight Resistant For CT Use (1/0 AWG and larger).
- G. TESTS: Wire shall be tested in accordance with the requirements of UL Standard 44 for Type XHHW-2.
- H. LABELS: The wire shall bear the Underwriters Laboratories label for Type XHHW-2.

### **PART 3 EXECUTION**

#### **3.1 WIRING - GENERAL**

- A. Unless otherwise specified, all wiring shall be installed in conduit. No wire shall be smaller than No. 12 unless noted otherwise. Wiring for low voltage control may be #14 AWG. Wire for each branch circuit shall be of single size and type from the branch circuit protective device the last outlet of the circuit. BX wiring shall not be allowed.
- B. Feeders, motor circuit conductors and main service entrance conductors shall run their entire length without joints or splices. Wiring for branch circuits shall run the entire length without splices, with splices and joints made only at outlets or in accessible junction boxes only when absolutely necessary and approved by the Engineer. Joints and splices in branch circuit wiring shall be made with compression type solderless connectors.
- C. Connectors of the non-metallic screw on type are not acceptable. Terminations or splices for conductors No. 6 AWG and larger shall utilize bolted connecting lugs. All splices and terminations shall be insulated in an approved manner by an integral or separate cover or by taping to provide insulating value equal to that of the conductors being joined.
- D. Type THW or THWN conductors may be connected directly to recessed fixtures only when the fixtures are equipped with outlet boxes listed by Underwriter's Laboratories, Inc. for use with wire having insulation rated for maximum operating temperatures of 75°C (167°F); otherwise, for fixtures not rated for 75°C directly connection, use 125°C insulated conductors from the fixture to an outlet box placed at least one (1) foot, but not more than four (4) feet from the fixture.

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- E. Branch circuit home run numbers shown on the drawings shall be used as a guide for connection of circuit wiring to similarly number protective devices in branch circuit panelboards. Requests for changes in the plans shall be directed to the Architect. No changes shall be made without approval from the Architect.
- F. Each circuit shall be furnished with its own neutral conductor. There shall be no sharing of neutral conductors.
- G. In instances where a junction box, wireway, etc. contains three (3) or more branch circuits, the feeders shall be labeled within the junction box, wireway, etc. with circuit location, including panel name and breaker number. Labeling shall be neatly typed and affixed to each feeder. Labeling shall meet all applicable Code requirements.
- H. No more than three (3) 20A/1P circuits may be installed in a single conduit. Circuits may not share grounds or neutrals. Conductors sharing raceways shall be derated per table 310.15(B)(3)(a) of the NEC.

### 3.2 ELECTRICAL SERVICE GROUNDING

- A. Main electrical service equipment, conduit work, motors, panelboards and all other electrical equipment shall be effectively and permanently grounded. Grounding connections and conductor sizes shall be in accordance with requirements of the National Electrical Code, Article 250 and local or State ordinances.
- B. Provide as part of the service grounding system an ufer ground in the building slab. The ufer ground shall be 20' long bare #4 copper wire and bonded to the main service ground lug with a grounding electrode cable of the size indicated on the drawings.
- C. The building foundation steel and structural steel (if applicable) shall be connected to the service entrance ground lug with a grounding electrode cable of the size indicated on the drawings.
- D. All ground lugs shall be properly torqued, as per the gear manufacturer's instructions and provide pictures of all ground connections to the architect and engineer for inspection before they are covered.
- E. All grounding connections shall be mechanically made. Cadwell style connections are not permitted.

### 3.3 EQUIPMENT GROUNDING

- A. All conduit entering panelboards shall be grounded to the panelboard by means of a grounding type locknut installed on the inside of the panelboard. Where the continuity of the metallic conduit system is interrupted by a section of non-metallic conduit, a separate grounding conductor, sized in accordance with NEC table 250.122 shall be installed in the conduit with the insulated conductors. A separate grounding conductor, as described

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above or as called for on the plans, shall be run in the conduit with the circuit conductors for all circuits serving multi-outlet assemblies.

- B. Conduit runs shall be increased in size where necessary to accommodate the grounding conductor in addition to circuit conductors. The grounding screw on all grounding type receptacles shall be securely grounded to the outlet box using a No. 12 green insulated conductor attached to the outlet box with lug screw.
- C. The grounding screw on all grounding type receptacles shall be security grounded to the outlet box using a No. 12 green insulated conductor attached to the outlet box with lug screw. Ground screws shall be green.
- D. All switch legs shall include a green ground conductor connected to the circuit ground conductor and terminated in the switch outlet box.

### 3.4 CONDUIT - MATERIALS AND METHODS

- A. Conduit shall be installed as per NEC and NEMA regulations and the manufacturer's recommendations. Conduit shall be as follows:
- B. Rigid Steel Conduit shall be used for all conduits exposed to the weather, and underground conduit except where non-metallic conduit is specified or approved. Underground and under slab runs are to be watertight. All horizontal runs of underground conduit shall utilize rigid steel elbows on vertical risers. Conduits used for receptacles and run under the building slab shall be hot dipped galvanized rigid steel and shall be 3/4" minimum size.
- C. All conduits routed underground shall not be placed in building slab. Conduits larger than 1" routed under building slab shall be routed below the vapor barrier. Minimum conduit size allowed to be routed underground shall be 3/4". Conduits routed under building slab may be PVC. All conduits rising vertically out of slab or out of ground shall be type RMC to 48" above finished floor.
- D. Electrical Metallic Tubing or metal clad cabling (if permitted) shall be used for all other feeders, branch circuit and communications and control wiring where rigid steel or non-metallic conduit is not specified.
- E. Non-metallic conduit, minimum schedule 40 PVC, shall be permitted to be installed underground. Non-metallic conduit shall not be used in any environmental air plenum. If PVC conduit is run, a full-sized grounding conductor shall be pulled with the circuit conductors. PVC conduit shall not be run exposed. Where PVC conduit is run underground, it shall be encased in concrete or run minimum 24" below grade, or at the depth below grade shown on the drawings.
- F. Flexible metallic tubing and EMT shall only be permitted in spaces above finished ceilings and within enclosed walls within the interior of buildings. Flexible metallic tubing shall only be permitted for the final four (4) feet of conduit runs to fixtures located above finished

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ceilings. No flexible metallic tubing or EMT will be permitted exposed. Also, EMT may not be installed in or below concrete slabs.

- G. Flexible metal conduit or liquid-tight flexible metal conduit shall be used for the final connection of runs to motors. Flexible conduit shall be at least twelve (12) inches, but not more than 48 inches long. Where used, an external grounding conductor shall be run with conduit unless conductor is made as a part of the conduit.
- H. Conduits installed underground and used for communications system wiring shall be reviewed with the communications contractor prior to installation. As an example, conduits below the vapor barrier may require moisture proof wiring to comply with the structured connectivity solution or conduits may need to be installed above the vapor barrier to maintain connectivity solution compliance. All conduit shall conform to the requirements of the data manufacturer's warranty and be accepted by the communications contractor.
- I. Set screw conduit fittings shall not be permitted.

### 3.5 CONDUIT - GENERAL

- A. Fittings for rigid steel conduits shall be hot-dipped galvanized steel and shall be of a type especially designed and manufactured for their purpose. Fittings for EMT shall be die cast zinc type. Rigid conduit joints for single conduit runs shall be made with threaded fittings made tight with at least five threads fully engaged. Fittings for rigid non-metallic conduit shall be solvent welded.
- B. All conduits shall be installed concealed or as indicated or scheduled on the drawings and shall be of sufficient size to accommodate the required number of insulated conductors including equipment grounding conductor where such grounding conductor is required or specified.
- C. Conduit runs shall be straight; elbows and bends shall be uniform, symmetrical and free from dents or flattening. Exposed conduit shall be firmly supported on galvanized hangers; on brackets, hangers, or pipe straps; or by beam clamps. Conduit installed exposed shall be neatly aligned and run at right angles to the building walls or walls of the rooms in which they are installed. All exposed conduit shall be located to avoid all conflicts with architectural or mechanical components.
- D. Pull boxes shall be installed as required to permit proper installation of conductors and expansion fittings installed where conduit runs cross building expansion joints.
- E. Conduit shall be run no closer than six (6) inches to covering of hot water or steam piping except where crossings are unavoidable. Conduit shall be kept at least one (1) inch from crossing steam and hot water piping.
- F. Conduit shall be held securely in place by hangers and fasteners of appropriate design and dimensions for the particular application. Support shall be such that no strain will be transmitted to outlet box and pull box supports. Wire shall not be used, with or without

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spring steel fasteners, clips or clamps, for the support of any conduit. Conduit shall not be supported by or attached to duct work unless specifically allowed otherwise.

- G. Hangers and other fasteners shall be supported on solid masonry with inserts or expansion sleeves and bolts, on wood with wood screws, hollow masonry with toggle bolts, on steel with machine screws or welded threaded studs. Fastenings shall be proof tested by the Contractor for secure mounting.
- H. All conduits shall be cut square and reamed at the ends. The conduit system shall be complete and cleaned before any conductors are installed. Open ends of all conduits shall be capped until conductors are installed. A non-metallic fish wire shall be installed in all empty conduits. Empty conduit shall remain capped.
- I. Contractor shall refer to National Electrical Code Appendix C, Conduit and Tubing Fill Tables for Conductors and Fixture Wire of the Same Size. Contractor shall refer to the appropriate table for the conduit and wire condition and shall install wiring in accordance with code requirements.
- J. Conduits entering buildings from exterior mounted equipment or devices shall be properly sealed per NEC Section 300.7 requirements to avoid condensation build up.
- K. Threaded hubs shall be utilized for conduits entering exterior mounted enclosures and shall be rated for outdoor installation.

### 3.6 FLEXIBLE CONDUIT

- A. Flexible metal conduit may be used for short final connections to equipment where permitted by governing codes. Flexible metal conduit shall be sized and supported in accordance with Article 350 of the NEC or more stringent local codes. A separate equipment-grounding conductor sized in accordance with NEC Table 250.122 shall be installed in flexible conduit unless exceptions are allowed by governing codes and if the fittings used are UL listed for the purpose.
- B. Liquid-tight flexible metal conduit shall be used where flexible conduit is permitted and desired and conditions of installation, operation, or maintenance require protection from liquids, vapors, or solids and in other hazardous locations where specifically approved. Flexible conduit for all exterior motor connections shall be liquid tight. Liquid-tight flexible conduit shall be used with terminal fittings approved for the purpose.

### 3.7 FIRE-RATED WALL AND FLOOR THROUGH-PENETRATIONS

- A. All fire-rated walls or floors penetrated by this Contractor shall be properly sealed with fire stopping materials. All floor through-penetrations shall be fire stopped with a light-weight mortar material. Wall through-penetrations shall be fire stopped with a non-hardening putty material. Contractor shall see that all penetrations are fire stopped and seals are inspected.

3.8 SUPPORTS AND FITTINGS

- A. The Contractor shall furnish and install all supports for equipment under this contract. Supports shall be spaced at intervals of eight (8) feet maximum for rigid conduit and five (5) feet maximum for EMT and as necessary to obtain rigid support. Perforated strap supports will not be permitted.
- B. All conduits shall be firmly secured with pipe clamps, conduit straps, or suspension hangers as appropriate. Fasten to steel with screws in tapped holes, to wood with wood screws, and to masonry with expansion anchors. Expansion anchors shall have a minimum pull out load of 1,200 pounds and an ultimate shear load of 1,950 pounds.
- C. All conduit, fixtures, and accessories shall be rigidly supported to form a firm, well-braced installation.
- D. Joints shall be made tight with standard galvanized or sheradized couplings; corners turned with fittings, elbows, or long radius bends.
- E. Low voltage wiring installed above accessible ceilings shall be supported on J-hooks. J-hooks installed for communications system wiring shall not be used for other low voltage system wiring (fire alarm, security, EMS controls, etc.).
- F. MC cable emanating vertically from electrical panels shall be supported via a Unistrut member installed 12" above the top of the panel. Additional Unistrut supports shall be provided every 10' above the panel until the MC cable runs turn 90 degrees above the ceiling.
- G. Multiple runs of MC cable installed horizontally shall be supported every 6' via unistrut members secured to the true ceiling above. Multiple runs (two or more) of MC cable sharing a path shall not be supported from building structural members, duct work, pipes, etc. Single runs of MC cable may be supported from the building structural members via metallic clips.

3.9 WEATHERPROOF EQUIPMENT

- A. All disconnect switches, starters, and other electrical equipment located on the exterior of the building or exposed to the outside shall be enclosed in a rain-tight enclosure.
- B. All lighting fixtures or other devices located on an exterior wall of the building shall be mounted on a flush-mounted, cast outlet box.

3.10 MOUNTING HEIGHTS

- A. Unless otherwise noted on the drawings or required by the Architect, the following mounting heights shall apply:

Receptacles	1'-6"
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Panelboards	6'-0" to top
Safety Switches	5'-0" to top
Motor Control Equipment	5'-0" to top

- B. Upon permission of the Architect, mounting heights may be adjusted to simplify cutting of masonry units or to facilitate furniture and cabinet arrangements. Dimensions above refer to the centerline of the device unless noted otherwise.

3.11 HOUSE KEEPING PADS

- A. All floor and ground mounted electrical equipment - panels, switchboards, motor control centers, transformers, etc. shall be installed with a reinforced concrete housekeeping pad, whether shown on the drawings or not. The pad shall extend 4" above either the finished floor or final grade (as applicable), have 45-degree chamfered edges, and be constructed of 3000psi concrete. The pad shall extend 3" beyond the edge of the respective electrical equipment.

END OF SECTION

SECTION 26 0572 – OVERCURRENT PROTECTIVE DEVICE SHORT-CIRCUIT STUDY



**PART 1 GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes a computer-based, fault-current study to determine the minimum interrupting capacity of circuit protective devices.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- D. SCCR: Short-circuit current rating.
- E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Other Action Submittals: Submit the following after the approval of system protective devices submittals. Submittals shall be in digital form.
  - 1. Short-circuit study input data, including completed computer program input data sheets.
  - 2. Short-circuit study and equipment evaluation report; signed, dated, and sealed by a qualified professional engineer.
    - a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.
    - b. Revised single-line diagram, reflecting field investigation results and results of short-circuit study.

SECTION 26 0572 – OVERCURRENT PROTECTIVE DEVICE SHORT-  
CIRCUIT STUDY

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Short-Circuit Study Specialist and Field Adjusting Agency.
- B. Product Certificates: For short-circuit study software, certifying compliance with IEEE 399.

1.6 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.
- B. Short-Circuit Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
  - 1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- C. Short-Circuit Study Specialist Qualifications: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- D. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

**PART 2 PRODUCTS**

2.1 COMPUTER SOFTWARE

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. SKM Systems Analysis, Inc.
  - 2. ETAP
- B. Comply with IEEE 399 and IEEE 551.
- C. Analytical features of fault-current-study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

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- D. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output.

2.2 SHORT-CIRCUIT STUDY REPORT CONTENTS

- A. Executive summary.
- B. Study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpretation of the computer printout.
- C. One-line diagram, showing the following:
  - 1. Protective device designations and ampere ratings.
  - 2. Cable size and lengths.
  - 3. Transformer kilovolt ampere (kVA) and voltage ratings.
  - 4. Motor and generator designations and kVA ratings.
  - 5. Switchgear, switchboard, motor-control center, and panelboard designations.
- D. Comments and recommendations for system improvements, where needed.
- E. Protective Device Evaluation:
  - 1. Evaluate equipment and protective devices and compare to short-circuit ratings.
  - 2. Tabulations of circuit breaker, fuse, and other protective device ratings versus calculated short-circuit duties.
  - 3. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
  - 4. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.
  - 5. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
- F. Short-Circuit Study Input Data: As described in "Power System Data" Article in the Evaluations.
- G. Short-Circuit Study Output:
  - 1. Low-Voltage Fault Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
    - a. Voltage.
    - b. Calculated fault-current magnitude and angle.
    - c. Fault-point X/R ratio.
    - d. Equivalent impedance.
  - 2. Momentary Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
    - a. Voltage.
    - b. Calculated symmetrical fault-current magnitude and angle.

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- c. Fault-point X/R ratio.
- d. Calculated asymmetrical fault currents:
  - 1) Based on fault-point X/R ratio.
  - 2) Based on calculated symmetrical value multiplied by 1.6.
  - 3) Based on calculated symmetrical value multiplied by 2.7.
- 3. Interrupting Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
  - a. Voltage.
  - b. Calculated symmetrical fault-current magnitude and angle.
  - c. Fault-point X/R ratio.
  - d. No AC Decrement (NACD) ratio.
  - e. Equivalent impedance.
  - f. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a symmetrical basis.
  - g. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a total basis.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Obtain all data necessary for the conduct of the study.
  - 1. Verify completeness of data supplied on the one-line diagram. Call any discrepancies to the attention of Engineer.
  - 2. For equipment provided that is Work of this Project, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
  - 3. For relocated equipment and that which is existing to remain, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. The qualifications of technicians and engineers shall be qualified as defined by NFPA 70E.
  - 4. Obtain all arc flash information from the local utility in a timely manner. No extension of the contract time shall be permitted due to coordination with the local utility.
- B. Gather and tabulate the following input data to support the short-circuit study. Comply with recommendations in IEEE 551 as to the amount of detail that is required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
  - 1. Product Data for Project's overcurrent protective devices involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
  - 2. Obtain electrical power utility impedance at the service.
  - 3. Power sources and ties.

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4. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
5. For reactors, provide manufacturer and model designation, voltage rating, and impedance.
6. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip, SCCR, current rating, and breaker settings.
7. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
8. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.
9. Motor horsepower and NEMA MG 1 code letter designation.
10. Cable sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).

3.2 SHORT-CIRCUIT STUDY

- A. Perform study following the general study procedures contained in IEEE 399.
- B. Calculate short-circuit currents according to IEEE 551.
- C. Base study on the device characteristics supplied by device manufacturer.
- D. The extent of the electrical power system to be studied is indicated on Drawings.
- E. Begin short-circuit current analysis at the service, extending down to the system overcurrent protective devices as follows:
  1. To normal system low-voltage load buses where fault current is 10 kA or less.
  2. Exclude equipment rated 240-V ac or less when supplied by a single transformer rated less than 125 kVA.
- F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.
- G. The calculations shall include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and shall apply to low- and medium-voltage, three-phase ac systems. The calculations shall also account for the fault-current dc decrement, to address the asymmetrical requirements of the interrupting equipment.
  1. For grounded systems, provide a bolted line-to-ground fault-current study for areas as defined for the three-phase bolted fault short-circuit study.
- H. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault at each of the following:
  1. Electric utility's supply termination point.
  2. Incoming switchgear.
  3. Unit substation primary and secondary terminals.
  4. Low-voltage switchgear.

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5. Motor-control centers.
6. Control panels.
7. Standby generators and automatic transfer switches.
8. Branch circuit panelboards.
9. Disconnect switches.

3.3 ADJUSTING

- A. Make minor modifications to equipment as required to accomplish compliance with short-circuit study.

3.4 DEMONSTRATION

- A. Train Owner's operating and maintenance personnel in the use of study results.

END OF SECTION

SECTION 26 0573 – OVERCURRENT PROTECTIVE DEVICE  
COORDINATION STUDY



**PART 1 GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes computer-based, overcurrent protective device coordination studies to determine overcurrent protective devices and to determine overcurrent protective device settings for selective tripping.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- D. SCCR: Short-circuit current rating.
- E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Other Action Submittals: Submit the following after the approval of system protective devices submittals. Submittals shall be in digital form.
  - 1. Coordination-study input data, including completed computer program input data sheets.
  - 2. Study and equipment evaluation reports.
  - 3. Overcurrent protective device coordination study report; signed, dated, and sealed by a qualified professional engineer.
    - a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect

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for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Coordination Study Specialist and Field Adjusting Agency.
- B. Product Certificates: For overcurrent protective device coordination study software, certifying compliance with IEEE 399.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For the overcurrent protective devices to include in emergency, operation, and maintenance manuals.
  - 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
    - a. The following parts from the Protective Device Coordination Study Report:
      - 1) One-line diagram.
      - 2) Protective device coordination study.
      - 3) Time-current coordination curves.
    - b. Power system data.

1.7 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.
- B. Coordination Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
  - 1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- C. Coordination Study Specialist Qualifications: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- D. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

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COORDINATION STUDY

**PART 2        PRODUCTS**

**2.1        COMPUTER SOFTWARE DEVELOPERS**

- A.        Software Developers:
  - 1        Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a.        SKM Systems Analysis, Inc.
    - b.        ETAP
- B.        Comply with IEEE 242 and IEEE 399.
- C.        Analytical features of device coordination study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.
- D.        Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.
  - 1.        Optional Features:
    - a.        Arcing faults.
    - b.        Simultaneous faults.
    - c.        Explicit negative sequence.
    - d.        Mutual coupling in zero sequence.

**2.2        PROTECTIVE DEVICE COORDINATION STUDY REPORT CONTENTS**

- A.        Executive summary.
- B.        Study descriptions, purpose, basis and scope. Include case descriptions, definition of terms and guide for interpretation of the computer printout.
- C.        One-line diagram, showing the following:
  - 1.        Protective device designations and ampere ratings.
  - 2.        Cable size and lengths.
  - 3.        Transformer kilovolt ampere (kVA) and voltage ratings.
  - 4.        Motor and generator designations and kVA ratings.
  - 5.        Switchgear, switchboard, motor-control center, and panelboard designations.
- D.        Study Input Data: As described in "Power System Data" Article.
- E.        Short-Circuit Study Output: As specified in "Short-Circuit Study Output" Paragraph in "Short-Circuit Study Report Contents" Article in Section 260572 "Overcurrent Protective Device Short-Circuit Study."

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- F. Protective Device Coordination Study:
1. Report recommended settings of protective devices, ready to be applied in the field. Use manufacturer's data sheets for recording the recommended setting of overcurrent protective devices when available.
    - a. Phase and Ground Relays:
      - 1) Device tag.
      - 2) Relay current transformer ratio and tap, time dial, and instantaneous pickup value
      - 3) Recommendations on improved relaying systems, if applicable.
    - e. Circuit Breakers:
      - 1) Adjustable pickups and time delays (long time, short time, ground).
      - 2) Adjustable time-current characteristic.
      - 3) Adjustable instantaneous pickup.
      - 4) Recommendations on improved trip systems, if applicable.
    - f. Fuses: Show current rating, voltage, and class.
- G. Time-Current Coordination Curves: Determine settings of overcurrent protective devices to achieve selective coordination. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:
1. Device tag and title, one-line diagram with legend identifying the portion of the system covered.
  2. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.
  3. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.
  4. Plot the following listed characteristic curves, as applicable:
    - a. Power utility's overcurrent protective device.
    - b. Medium-voltage equipment overcurrent relays.
    - c. Medium- and low-voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands.
    - d. Low-voltage equipment circuit-breaker trip devices, including manufacturer's tolerance bands.
    - e. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves.
    - f. Cables and conductors damage curves.
    - g. Ground-fault protective devices.
    - h. Motor-starting characteristics and motor damage points.
    - i. Generator short-circuit decrement curve and generator damage point.
    - j. The largest feeder circuit breaker in each motor-control center and panelboard.
  5. Series rating on equipment allows the application of two series interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Both devices share in the interruption of the

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fault and selectivity is sacrificed at high fault levels. Maintain selectivity for tripping currents caused by overloads.

6. Provide adequate time margins between device characteristics such that selective operation is achieved.
7. Comments and recommendations for system improvements.

**PART 3 EXECUTION**

3.1 EXAMINATION

- A. Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance. Devices to be coordinated are indicated on Drawings.
  1. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

3.2 PROTECTIVE DEVICE COORDINATION STUDY

- A. Comply with IEEE 242 for calculating short-circuit currents and determining coordination time intervals.
- B. Comply with IEEE 399 for general study procedures.
- C. The study shall be based on the device characteristics supplied by device manufacturer.
- D. The extent of the electrical power system to be studied is indicated on Drawings.
- E. Begin analysis at the service, extending down to the system overcurrent protective devices as follows:
  1. To normal system low-voltage load buses where fault current is 10 kA or less.
  2. Exclude equipment rated 240-V ac or less when supplied by a single transformer rated less than 125 kVA.
- F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.
- G. Transformer Primary Overcurrent Protective Devices:
  1. Device shall not operate in response to the following:
    - a. Inrush current when first energized.
    - b. Self-cooled, full-load current or forced-air-cooled, full-load current, whichever is specified for that transformer.
    - c. Permissible transformer overloads according to IEEE C57.96 if required by unusual loading or emergency conditions.

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2. Device settings shall protect transformers according to IEEE C57.12.00, for fault currents.
- H. Motor Protection:
1. Select protection for low-voltage motors according to IEEE 242 and NFPA 70.
  2. Select protection for motors served at voltages more than 600 V according to IEEE 620.
- I. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and protection recommendations in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.
- J. Generator Protection: Select protection according to manufacturer's written recommendations and to IEEE 242.
- K. The calculations shall include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and shall apply to low- and medium-voltage, three-phase ac systems. The calculations shall also account for the fault-current dc decrement, to address the asymmetrical requirements of the interrupting equipment.
1. For grounded systems, provide a bolted line-to-ground fault-current study for areas as defined for the three-phase bolted fault short-circuit study.
- L. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault and single line-to-ground fault at each of the following:
1. Electric utility's supply termination point.
  2. Switchgear.
  3. Unit substation primary and secondary terminals.
  4. Low-voltage switchgear.
  5. Motor-control centers.
  6. Standby generators and automatic transfer switches.
  7. Branch circuit panelboards.
- M. Protective Device Evaluation:
1. Evaluate equipment and protective devices and compare to short-circuit ratings.
  2. Adequacy of switchgear, motor-control centers, and panelboard bus bars to withstand short-circuit stresses.

### 3.3 LOAD-FLOW AND VOLTAGE-DROP STUDY

- A. Perform a load-flow and voltage-drop study to determine the steady-state loading profile of the system. Analyze power system performance two times as follows:
1. Determine load-flow and voltage drop based on full-load currents obtained in "Power System Data" Article.

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2. Determine load-flow and voltage drop based on 80 percent of the design capacity of the load buses.
3. Prepare the load-flow and voltage-drop analysis and report to show power system components that are overloaded, or might become overloaded; show bus voltages that are less than as prescribed by NFPA 70.

3.4 MOTOR-STARTING STUDY

- A. Perform a motor-starting study to analyze the transient effect of the system's voltage profile during motor starting. Calculate significant motor-starting voltage profiles and analyze the effects of the motor starting on the power system stability.
- B. Prepare the motor-starting study report, noting light flicker for limits proposed by IEEE 141 and voltage sags so as not to affect the operation of other utilization equipment on the system supplying the motor.

3.5 POWER SYSTEM DATA

- A. Obtain all data necessary for the conduct of the overcurrent protective device study.
  1. Verify completeness of data supplied in the one-line diagram on Drawings. Call discrepancies to the attention of Engineer.
  2. For new equipment, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
  3. For existing equipment, whether or not relocated obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. The qualifications of technicians and engineers shall be qualified as defined by NFPA 70E.
- B. Gather and tabulate the following input data to support coordination study. The list below is a guide. Comply with recommendations in IEEE 551 for the amount of detail required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
  1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
  2. Electrical power utility impedance at the service.
  3. Power sources and ties.
  4. Short-circuit current at each system bus, three phase and line-to-ground.
  5. Full-load current of all loads.
  6. Voltage level at each bus.
  7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.

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8. For reactors, provide manufacturer and model designation, voltage rating, and impedance.
9. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
10. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
11. For relays, provide manufacturer and model designation, current transformer ratios, potential transformer ratios, and relay settings.
12. Maximum demands from service meters.
13. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.
14. Motor horsepower and NEMA MG 1 code letter designation.
15. Low-voltage cable sizes, lengths, number, conductor material, and conduit material (magnetic or nonmagnetic).
16. Medium-voltage cable sizes, lengths, conductor material, and cable construction and metallic shield performance parameters.
- 17.. Data sheets to supplement electrical distribution system diagram, cross-referenced with tag numbers on diagram, showing the following:
  - a. Special load considerations, including starting inrush currents and frequent starting and stopping.
  - b. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
  - c. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.
  - d. Generator thermal-damage curve.
  - e. Ratings, types, and settings of utility company's overcurrent protective devices.
  - f. Special overcurrent protective device settings or types stipulated by utility company.
  - g. Time-current-characteristic curves of devices indicated to be coordinated.
  - h. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.
  - i. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.
  - j. Panelboards, switchboards, motor-control center ampacity, and SCCR in amperes rms symmetrical.
  - k. Identify series-rated interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Obtain device data details to allow verification that series application of these devices complies with NFPA 70 and UL 489 requirements.

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3.6 FIELD ADJUSTING

- A. Adjust relay and protective device settings according to the recommended settings provided by the coordination study. Field adjustments shall be completed by the engineering service division of the equipment manufacturer under the Startup and Acceptance Testing contract portion.
- B. Make minor modifications to equipment as required to accomplish compliance with short-circuit and protective device coordination studies.
- C. Testing and adjusting shall be by a full-time employee of the Field Adjusting Agency, who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
  - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters. Perform NETA tests and inspections for all adjustable overcurrent protective devices.

3.7 DEMONSTRATION

- A. Engage the Coordination Study Specialist to train Owner's maintenance personnel in the following:
  - 1. Acquaint personnel in the fundamentals of operating the power system in normal and emergency modes.
  - 2. Hand-out and explain the objectives of the coordination study, study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpreting the time-current coordination curves.
  - 3. Adjust, operate, and maintain overcurrent protective device settings.

END OF SECTION

SECTION 26 0574 – OVERCURRENT PROTECTIVE DEVICE  
ARC-FLASH STUDY



**PART 1 GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes a computer-based, arc-flash study to determine the arc-flash hazard distance and the incident energy to which personnel could be exposed during work on or near electrical equipment.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- D. SCCR: Short-circuit current rating.
- E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Other Action Submittals: Submit the following submittals after the approval of system protective devices submittals. Submittals shall be in digital form.
  - 1. Arc-flash study input data, including completed computer program input data sheets.
  - 2. Arc-flash study report; signed, dated, and sealed by a qualified professional engineer.
    - a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.

1.5 INFORMATIONAL SUBMITTALS

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- A. Qualification Data: For Arc-Flash Study Specialist and Field Adjusting Agency.
- B. Product Certificates: For arc-flash hazard analysis software, certifying compliance with IEEE 1584 and NFPA 70E.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance procedures according to requirements in NFPA 70E shall be provided in the equipment manuals.
- B. Operation and Maintenance Procedures: In addition to items specified in Section 017823 "Operation and Maintenance Data," provide maintenance procedures for use by Owner's personnel that comply with requirements in NFPA 70E.

1.7 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.
- B. Arc-Flash Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
  - 1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- C. Arc-Flash Study Specialist Qualifications: Professional engineer in charge of performing the study, analyzing the arc flash, and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- D. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

**PART 2 PRODUCTS**

2.1 COMPUTER SOFTWARE DEVELOPERS

- A. Software Developers:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. SKM Systems Analysis, Inc.

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- b. ETAP
- B. Comply with IEEE 1584 and NFPA 70E.
- C. Analytical features of device coordination study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

2.2 ARC-FLASH STUDY REPORT CONTENT

- A. Executive summary.
- B. Study descriptions, purpose, basis and scope.
- C. One-line diagram, showing the following:
  - 1. Protective device designations and ampere ratings.
  - 2. Cable size and lengths.
  - 3. Transformer kilovolt ampere (kVA) and voltage ratings.
  - 4. Motor and generator designations and kVA ratings.
  - 5. Switchgear, switchboard, motor-control center and panelboard designations.
- D. Study Input Data: As described in "Power System Data" Article.
- E. Short-Circuit Study Output: As specified in "Short Circuit Study Output" Paragraph in "Short-Circuit Study Report Contents" Article in Section 260572 "Overcurrent Protective Device Short-Circuit Study."
- F. Protective Device Coordination Study Report Contents: As specified in "Protective Device Coordination Study Report Contents" Article in Section 260573 "Overcurrent Protective Device Coordination Study."
- G. Arc-Flash Study Output:
  - 1. Interrupting Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
    - a. Voltage.
    - b. Calculated symmetrical fault-current magnitude and angle.
    - c. Fault-point X/R ratio.
    - d. No AC Decrement (NACD) ratio.
    - e. Equivalent impedance.
    - f. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a symmetrical basis.
    - g. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a total basis
- H. Incident Energy and Flash Protection Boundary Calculations:
  - 1. Arcing fault magnitude with and without required Arc Energy Reduction methods.
  - 2. Protective device clearing time.
  - 3. Duration of arc.

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4. Arc-flash boundary.
  5. Working distance.
  6. Incident energy.
  7. Hazard risk category.
  8. Recommendations for arc-flash energy reduction.
- I. Fault study input data, case descriptions, and fault-current calculations including a definition of terms and guide for interpretation of the computer printout.

**2.3 ARC-FLASH WARNING LABELS**

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems." Produce a 3.5-by-5-inch thermal transfer label of high-adhesion polyester for each work location included in the analysis.
- B. The label shall have an orange header with the wording, "WARNING, ARC-FLASH HAZARD," and shall include the following information taken directly from the arc-flash hazard analysis:
1. Location designation.
  2. Nominal voltage.
  3. Flash protection boundary.
  4. Hazard risk category.
  5. Incident energy.
  6. Working distance.
  7. Engineering report number, revision number, and issue date.
- C. Labels shall be machine printed, with no field-applied markings.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Examine Project overcurrent protective device submittals. Proceed with arc-flash study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to arc-flash study may not be used in study.

**3.2 ARC-FLASH HAZARD ANALYSIS**

- A. Comply with NFPA 70E and its Annex D for hazard analysis study.
- B. Preparatory Studies:
1. Protective Device Coordination Study Report Contents: As specified in "Protective Device Coordination Study Report Contents" Article in Section 16402 "Overcurrent Protective Device Coordination Study."
- C. Calculate maximum and minimum contributions of fault-current size.

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1. The minimum calculation shall assume that the utility contribution is at a minimum and shall assume no motor load.
  2. The maximum calculation shall assume a maximum contribution from the utility and shall assume motors to be operating under full-load conditions.
- D. Calculate the arc-flash protection boundary and incident energy at locations in the electrical distribution system where personnel could perform work on energized parts.
- E. Include medium- and low-voltage equipment locations, except equipment rated 240-V ac or less fed from transformers less than 125 kVA.
- F. Safe working distances shall be specified for calculated fault locations based on the calculated arc-flash boundary, considering incident energy of 1.2 cal/sq.cm.
- G. Incident energy calculations shall consider the accumulation of energy over time when performing arc-flash calculations on buses with multiple sources. Iterative calculations shall take into account the changing current contributions, as the sources are interrupted or decremented with time. Fault contribution from motors and generators shall be decremented as follows:
1. Fault contribution from induction motors should not be considered beyond three to five cycles.
  2. Fault contribution from synchronous motors and generators should be decayed to match the actual decrement of each as closely as possible (e.g., contributions from permanent magnet generators will typically decay from 10 per unit to three per unit after 10 cycles).
- H. Arc-flash computation shall include both line and load side of a circuit breaker as follows:
1. When the circuit breaker is in a separate enclosure.
  2. When the line terminals of the circuit breaker are separate from the work location.
- I. Base arc-flash calculations on actual overcurrent protective device clearing time. Cap maximum clearing time at two seconds based on IEEE 1584, Section B.1.2.

### 3.3 POWER SYSTEM DATA

- A. Obtain all data necessary for the conduct of the arc-flash hazard analysis.
1. Verify completeness of data supplied on the one-line diagram on Drawings and under "Preparatory Studies" Paragraph in "Arc-Flash Hazard Analysis" Article. Call discrepancies to the attention of Engineer.
  2. For new equipment, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
  3. For existing equipment, whether or not relocated, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers.
- B. Electrical Survey Data: Gather and tabulate the following input data to support study. Comply with recommendations in IEEE 1584 and NFPA 70E as to the amount of detail that

SECTION 26 0574 – OVERCURRENT PROTECTIVE DEVICE  
ARC-FLASH STUDY

is required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.

1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
2. Obtain electrical power utility impedance at the service.
3. Power sources and ties.
4. Short-circuit current at each system bus, three phase and line-to-ground.
5. Full-load current of all loads.
6. Voltage level at each bus.
7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in per cent, and phase shift.
8. For reactors, provide manufacturer and model designation, voltage rating and impedance.
9. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
10. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
11. For relays, provide manufacturer and model designation, current transformer ratios, potential transformer ratios, and relay settings.
12. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.
13. Motor horsepower and NEMA MG 1 code letter designation.
14. Low-voltage cable sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).
15. Medium-voltage cable sizes, lengths, conductor material, and cable construction and metallic shield performance parameters.

### 3.4 LABELING

- A. Apply one arc-flash label for 600-V ac, 480-V ac, and applicable 208-V ac panelboards and disconnects and for each of the following locations:
  1. Motor-control center.
  2. Low-voltage switchboard.
  3. Switchgear.
  4. Medium-voltage switch.
  5. Control panel.

### 3.5 APPLICATION OF WARNING LABELS

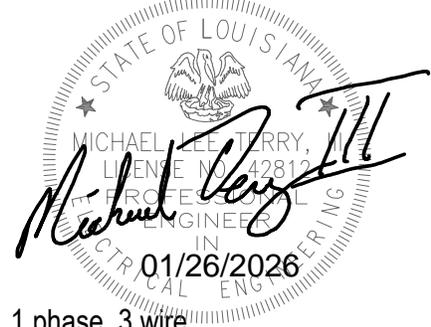
- A. Install the arc-fault warning labels under the direct supervision and control of the Arc-Flash Study Specialist.

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3.6 DEMONSTRATION

- A. Engage the Arc-Flash Study Specialist to train Owner's maintenance personnel in the potential arc-flash hazards associated with working on energized equipment and the significance of the arc-flash warning labels.

**END OF SECTION**

**PART 1 GENERAL**

## 1.1 SYSTEM VOLTAGE

- A. The building service from the service entrance rack shall be 120/240V, 1 phase, 3 wire.

## 1.2 TERMINATIONS

- A. All wiring shall be sized based on 75°C rated conductors. All connectors shall be rated for 75°C in accordance with N.E.C. Article 110-14 requirements.

**PART 2 PRODUCTS**

## 2.1 SAFETY SWITCHES

- A. Furnish and install safety switches as shown on the Drawings. All switches shall be fused NEMA Heavy Duty Type HD and Underwriter's Laboratories listed. All switches shall have blades that are fully visible in the "OFF" position with the door open. Switches shall be dead-front construction with permanently attached arc suppressers. Lugs shall be UL listed for copper and aluminum conductor and front removable. All current carrying parts shall be plated to resist corrosion. Switches shall be quick-make, quick-break type. During operation of the switch, the movable contacts shall not be able to be restrained by the handle once the closing or the opening action of the contacts has been initiated. Switches shall have cover interlocks to prevent opening of the switch door while the switch is in the "ON" position or closing the switch with the door open. Switch shall have padlocking capabilities in the "OFF" position.
- B. Safety switches shall be rated 600 volts for 480 volt service and rated 240 volts for 208 volt service. Switches shall be motor rated when used for motor loads. Switches shall be NEMA 1 enclosed for indoor applications and NEMA 3R for outdoor or wet area locations.
- C. Switches used for service entrance shall be service entrance rated. Safety switches shall be furnished complete with fuses.
- D. Safety switches shall be Square D Heavy Duty Class 3110 type, Eaton Heavy Duty type, or prior approved equal.

## 2.2 FUSES

- A. All fuse holders shall be provided with dual-element, time-lag fuses as scheduled on the Drawings or as recommended by the equipment manufacturer. Fuses shall be rated 200,000 AIC. Fuses shall be Buss Fusetron, Economy Econ, or Gould Shawmut Tri-Onic for component protection and Buss Limitron, Economy Econolin, or Gould Shawmut Amp-Trap for circuit protection.

## 2.3 CIRCUIT BREAKER PANELBOARDS

## SECTION 26 2000 – SERVICE AND DISTRIBUTION

- A. Panelboards shall be sized as shown on the drawings and schedules, and shall be the bolted breaker panelboard type. Panelboards shall have copper bussing. Panelboards shall have door-in-door trim.
- B. All branch breakers are to be quick-make, quick-break (over center toggle device) with trip indication and common trip on all multiple breakers. Trip indication shall be clearly shown by breaker handle taking a position between "ON" and "OFF" position. Breakers shall be ambient compensated to carry full NEC load in 120 degree F room temperature. Panelboards shall have distributed phase bussing throughout. Any two adjacent single pole breakers shall be replaceable by a two pole breaker, and any three adjacent single pole breakers shall be replaceable by a three pole breaker. All breakers shall be bolt on type.
- C. Minimum interrupting capacity of breakers shall be as shown on panel schedules. No breakers shall be rated less than 10,000 RMS symmetrical amperes.
- D. Branch breakers shall be numbered 1, 3, 5, etc. from top to bottom beginning at the top of the left hand column so that #1 shall be on phase A, and #3 on phase B.
- E. Panelboards for 120/208 volt or 120/240 volt service shall be Square D type NQ, Eaton Pow-R-Line series, or prior approved equal. Panelboards for 480/277 volt service shall be Square D type NEHB, Eaton Pow-R-Line series, or prior approved equal.
- F. Replacement breakers to be installed in existing panels shall be fully compatible with the existing panel and shall be sized as shown on the Drawings. Breakers shall be bolt-on breaker type to match existing breakers or plug-on breaker type if plug-on breakers are utilized in the panel. If both bolt-on and plug-on breakers exist in the panel, bolt-on breakers shall be installed.

### **PART 3 EXECUTION**

#### 3.1 COORDINATION

- A. Contractor shall coordinate all service and distribution work with other crafts on the project.

#### 3.2 TEST AND BALANCING

- A. At such times as the Architect directs, the Contractor shall conduct in the Architect's presence operating tests to demonstrate the electrical systems are installed and will operate properly and in accordance with the requirements of the specifications. The Contractor shall furnish instruments and personnel required for such tests. Any work that is found to be defective, or material that are found to vary from the requirements of the drawings or specifications shall be replaced by the Contractor without additional cost of the Owner.

#### 3.3 EMERGENCY CIRCUITS

## SECTION 26 2000 – SERVICE AND DISTRIBUTION

- A. All wiring for emergency power and lighting circuits shall be run in conduits independent of all other circuits or conductors. Emergency circuit installations shall be made in accordance with National Electrical Code Article 700.9.

### 3.4 EQUIPMENT FUSING

- A. All equipment shall be furnished complete with fuses as described herein and/or as shown on the Drawings. Contractor shall furnish one set of spare fuses for each size fuse furnished on the project. Fuses shall be delivered to Owner prior to acceptance of project.
- B. Fusing for protective equipment shall be of the type specifically designed for the intended application. Fuses for service entrance rated equipment shall be Class L. Fuses for branch circuit protection shall be Class RK5 unless specified otherwise. Provide protective fuses as specifically required by the equipment manufacturer.

### 3.5 INSTALLATION

- A. Disconnecting means shall be provided for each motor and motor controller, and shall be located within site from the controller and motor locations in accordance with National Electrical Code Article 430.102 requirements.

**END OF SECTION**



**PART 1.00 GENERAL**

1.01 SCOPE

- A. The requirements of the contract, Division 26 applies to work in this section. Motor Control Centers as specified and as shown on the contract drawings shall be furnished and installed by the contractor.

1.02 RELATED DOCUMENTS

- A. Related sections include the following:
  - 1. Section 264313 – Surge Protection Devices for Low Voltage Electrical Power Circuits.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's printed product data.
- B. Drawings: Submit shop drawings for approval. Drawings shall include all dimensions, weights, electrical ratings, wiring diagrams and required clearances.

1.04 RELATED STANDARDS

- A. The Motor Control Center shall be manufactured and tested according to the latest applicable standards of the following agencies:
  - 1. UL 845 – Motor Control Centers
  - 2. UL 489 – Molded Case Circuit Breakers
  - 3. NEMA ICS 18-2001 – Motor Control Centers
  - 4. NEMA ICS 2-322
  - 5. NEMA ICS 1-2001 – Industrial Control and Systems: General Requirements
  - 6. NFPA 70
  - 7. National Electrical Code

1.05 QUALITY ASSURANCE

- A. Manufacturer: For equipment required for the work of this section, provide products which are the responsibility of one manufacturer. Manufacturer shall have had produced similar electrical equipment for a minimum of 5 years.
- B. Manufacturer shall be ISO 9001 certified.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Handle and store equipment in accordance with manufacturer's Installation and Maintenance Manual. One (1) copy of this document shall be provided with the equipment at the time of shipment.

**PART 2.00 PRODUCTS**

## SECTION 26 2419 – LOW VOLTAGE MOTOR CONTROL CENTERS

### 2.01 MANUFACTURERS

- A. The motor control centers shall be Eaton Freedom+ 2100 series, or pre-approved equal.

### 2.02 GENERAL REQUIREMENTS

#### A. Structures

1. The enclosure shall be NEMA Type 1. Vertical sections shall be constructed with steel divider sheet assemblies formed or otherwise fabricated to eliminate open framework between adjacent sections, and full-length bolted-on side sheet assemblies at the ends of the MCC(s).
2. Vertical sections shall be 90" high excluding mounting sills, 24" wide and 21" deep for front mounting of units. The width of the vertical section may be increased for special oversize units that cannot be accommodated in the standard 21" side structure.
3. Vertical structures shall be divided into six (6) 12" space factors and shall accommodate six (6) full size NEMA size 1 or 2 Full Voltage Non Reversing FVNR combination starters. MCC unit sizes shall be multiples of 1/2 space factor (6"). The vertical structures shall accommodate 6" high density and dual mounted units.
4. Back-to-back, front and rear unit mounting, structures shall be 21" deep maximum and shall accommodate 12 full size NEMA size 1 or 2 Full Voltage Non Reversing FVNR combination starters per section.
5. Each standard 20" and 24" wide structure shall be supplied with a vertical wireway. 4" wide wireways shall be installed on 20" wide structures and 8" wide wireways on 24" wide structures. Wireways shall be completely isolated from all power busses. The rear surface of the vertical wireway shall be painted white. A minimum of three (3) formed wire cable supports, extending the full depth of the vertical wireway shall be supplied in each vertical section. A separate hinged door shall cover the vertical wireway.
6. Each standard structure shall be supplied with a 12 inch top and six (6) inch bottom horizontal wireway that are continuous for the entire length of the MCC. The minimum horizontal wireway opening between sections is 40 square inches for the top and 30 square inches for the bottom horizontal wireway. A hinged door shall be supplied to cover the top horizontal wireway.
7. Doors are to be hinged in a manner that allows for the removal of individual doors without the removal of any door above or below. Unit doors shall be hinged on the left and vertical wireway doors on the right for unobstructed access to the units and associated vertical wireway. All doors shall be mounted on removable pin-type hinges and secured with steel quarter-turn, indicating type fasteners.
8. Wireways shall be completely isolated from bus compartments by suitable barriers. Sliding barriers between the horizontal bus and top horizontal wireway are not acceptable.
9. Removable top cover plates shall be provided for conduit entry to the top horizontal wireway and shall provide a minimum of 116 square inches of area for conduit location. Top cover plates shall be fabricated from 13 gauge steel.
10. All MCC structures shall be supplied with 1-1/8" high X 3" wide base channel sills that are continuous for the entire length of the shipping split. The base channel

## SECTION 26 2419 – LOW VOLTAGE MOTOR CONTROL CENTERS

sills shall be fabricated of 7 gauge steel and shall be suitable for grouting the base channel sills in place, welding to leveling plates or securing to the floor with 1/2" anchor bolts. MCC structures shall be supplied with reversible bottom end cover plates to cover the bottom horizontal wireway and ends of the base channel sills. The bottom end cover plates shall be factory installed to cover the ends of the base channel sills to prevent entrance of dirt and rodents into the MCC when installed flush on the floor and shall be removable to expose the ends of the base channel sills if they are to be grouted into the floor.

11. A removable, full length lifting angle shall be provided for each shipping split of each MCC. The lifting angle shall be bolted to each side sheet or divider sheet of the shipping split to evenly distribute the weight of the MCC during lifting.
12. MCC's shall be assembled in such a manner that it is not necessary to have rear accessibility to remove any internal devices or components.

### B. Bussing

1. The main horizontal bus shall be:
  - a. Silver plated copper rated amperage as shown on the drawings with a conductivity rating of 100% AICS. The horizontal bus bars shall be fully sized to carry 100% of the rated current the entire length of the MCC. Horizontal bus bars shall be mounted edge wise and located at the top of the MCC. Tapered horizontal bus is not acceptable. All power bus shall be braced to withstand a fault current of 65,000 RMS symmetrical amperes.
  - b. The entire horizontal bus assembly must be located behind the top horizontal wireway at any amperage. Horizontal bus bars located behind usable unit space are not acceptable.
  - c. The horizontal bus shall be isolated from the top horizontal wireway by a clear, flexible, polycarbonate, Lexan®, barrier allowing visual inspection of the horizontal bus without removing any hardware.
2. The vertical bus shall be:
  - a. Shall be rated 600 amperes. Vertical bus bars shall be fabricated of silver plated solid copper bars with a conductivity rating of 100% AICS.
  - b. The vertical bus barrier support shall be designed as to effectively enclose each vertical bus bar. Provisions shall be made to close off unused unit stab openings in the vertical bus barrier with removable covers.
3. All bus ratings are to be based on a maximum temperature rise of 50°C over a 40°C ambient temperature.
4. Horizontal to vertical bus and horizontal bus splice connections shall be made with two (2) 3/8" grade 5 bolts and Belleville-type conical washers at each connection point. All connecting hardware shall be designed to be tightened from the front of the MCC without applying any tools to the rear of the connection.
5. The horizontal ground bus shall be rated 300 amp copper.

### C. Units

1. Plug-in units shall connect to the vertical bus by means of self-aligning, tin plated copper stab-on connectors provided with spring steel back-up springs to insure positive connection to the vertical bus.

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2. When vertical ground bus is specified, plug-in units shall include a ground stab which engages the vertical ground bus before the power stabs engage the vertical bus when the unit is inserted into the structure. When the plug-in unit is withdrawn from the vertical bus, the vertical ground stab shall release after the power stabs.
3. The interior of all MCC units shall be painted white, including unit top and bottom plates or isolation barriers.
4. All plug-in units 12" tall and larger will include two (2) auxiliary handles to aid in installation, removal and transporting plug-in units.
5. All plug-in units will include a racking mechanism to assure full engagement with the stab-on connectors with the vertical bus.
6. Plug-in units shall be provided with interference type draw-out to prevent complete removal of the plug-in unit from the structure in one motion. The interference mechanism shall also provide clear indication when the plug-in unit has been withdrawn to the "TEST" position.
7. A mechanical interlock shall be supplied on all plug-in units to prevent insertion or removal of a unit from the structure when the unit operator handle is in the ON position. This interlock may not be defeated.
8. Each 12" tall and larger plug-in unit shall be secured in the structure by two (2) readily accessible devices, one of which is tool operated. These devices shall be located at the front of the unit.
9. Plug-in units with NEMA Type B or C wiring shall be supplied with unit terminal block mounted on the right hand side of the unit, adjacent to the vertical wireway. The terminal blocks shall be mounted on a movable bracket that maintains the terminals inside the unit structure for normal operation and pivots into the vertical wireway exposing the terminals for wiring, test and maintenance.
10. All plug-in units shall include a positive means of grounding the unit to the structure at all times.
11. The MCC unit disconnect operator for 800 ampere maximum units shall operate in a vertical, up-down, plane. High density units shall have horizontal motion. All unit disconnects shall remain engaged with the disconnect device at all times, regardless of the unit door position. The operating handles shall be interlocked with the unit door so that the door can neither be opened with the disconnect device in the ON position, nor can the disconnect device be turned ON with the unit door open except by operation of a defeater mechanism. Indication of the disconnect device shall be clearly indicated by the position of the operating handle. When applied with circuit breaker devices, the handle shall also provide clear indication of a circuit breaker trip.
12. When pilot lights, push buttons or sector switches are specified, the devices shall be mounted in a formed metal device panel that is capable of accepting four (4) such devices in any combination. The device panel shall be secured to the unit door for normal operation, or mounted on the plug-in unit as required for unit removal and bench testing.
13. Pilot devices shall be heavy duty, oil tight 30mm devices with a NEMA 4 rating. Pilot device contacts shall be rated at 10A, 600 VAC (NEMA A600). The pilot device bodies shall be fabricated from metal.
14. Unit identification nameplate shall be provided for each unit. Nameplates shall be a black surface with white core. Engraving shall cut through the gray surface exposing white lettering of the unit designation. Nameplates shall be 1" tall by 3

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1/2" wide. Adhesives or glues are not an acceptable means of mounting unit nameplates.

- D. Wiring
  - 1. The wiring shall be NEMA Class 1, Type B.
- E. Feeders
  - 1. Feeder disconnects shall be Eaton J250H breakers as specifically shown on drawings.

2.03 SURGE PROTECTIVE DEVICES

- A. Motor Control Center shall include surge protective device as shown on the drawings. Refer to specification section 264313 for SPD specifications.

**PART 3.00 EXECUTION**

3.01 INSTALLATION

- A. Install per manufacturer's recommendations and contract documents. Coordinate installation with adjacent work to ensure proper sequence of construction, clearances and support.

3.02 TESTING

- A. Perform factory and installation tests in accordance with applicable NEC, NEMA and UL requirements.

3.03 WARRANTY

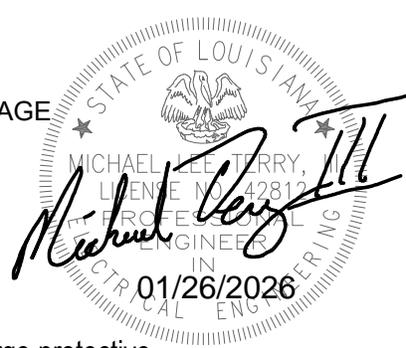
- A. Equipment manufacturer warrants that all goods supplied are free of non-conformities in workmanship and materials for one year from date of initial operation.

3.04 FIELD TESTS

- A. Check tightness of all accessible mechanical and electrical connections to assure they are torqued to the minimum acceptable manufacturer's recommendations.

END OF SECTION

SECTION 26 4313 – SURGE PROTECTION DEVICES FOR LOW-VOLTAGE  
ELECTRICAL POWER CIRCUITS



**PART 1 GENERAL**

1.1 SCOPE

- A. This section describes the materials and installation requirements for surge protective devices (SPD) for the protection of all AC electrical circuits.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section. Other sections that may relate to the work in this section include, but are not limited to, the following:
1. Section 260500 – Basic Electrical Materials and Methods

1.3 SUBMITTALS

- A. Submit shop drawings and product information for approval and final documentation in the quantities listed according to the Conditions of the Contract. Customer name, customer location, and customer order number shall identify all transmittals.
- B. Submittals shall include UL 1449 3rd Edition Listing documentation verifiable by visiting [www.UL.com](http://www.UL.com), clicking "Certifications" link, searching using UL Category Code: VZCA.
1. Short Circuit Current Rating (SCCR)
  2. Voltage Protection Ratings (VPRs) for all modes
  3. Maximum Continuous Operating Voltage rating (MCOV)
  4. I-nominal rating (I-n)
  5. SPD shall be Type 1 UL listed and labeled
- C. Upon request, an unencapsulated but complete SPD formally known as TVSS shall be presented for visual inspection.
- D. Minimum of ten (10) year warranty

1.4 RELATED STANDARDS

- A. The following codes and standards shall be referenced:
1. IEEE C62.41.1, IEEE Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits,
  2. IEEE C62.41.2, IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits,
  3. IEEE C62.45, IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits.
  4. National Electrical Code: Article 285
  5. UL 1283 - Electromagnetic Interference Filters
  6. UL 1449, Third Edition, effective September 29, 2009 – Surge Protective Devices

1.5 LISTING REQUIREMENTS

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- A. SPD shall bear the UL Mark and shall be Listed to most recent editions of UL 1449 and UL 1283. “Manufactured in accordance with” is not equivalent to UL listing and does not meet the intent of this specification.
- B. SPD and performance parameters shall be posted at [www.UL.com](http://www.UL.com) under Category Code: VZCA. Products or parameters without posting at [UL.com](http://UL.com) shall not be approved.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Engage a firm with at least ten (10) years’ experience in manufacturing transient voltage surge suppressors.
- B. Manufacturer shall be ISO 9001 or 9002 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (10) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- D. The SPD shall be compliant with the Restriction of Hazardous Substances (RoHS) Directive 2002/95/EC.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Handle and store equipment in accordance with manufacturer’s Installation and Maintenance Manuals. One (1) copy of this document to be provided with the equipment at time of shipment.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

- A. Provide internally mounted transient voltage suppressors as described herein.
- B. Manufacturer and/or manufacturer's model number listed in this Specification are used to establish general style, type, character, and quality of product desired. Similar items manufactured by manufacturers other than those listed will be considered, providing submittals are made according to Pre-Bid Approval requirements of Instructions to Bidders.
- C. Where no manufacturer or model number are given, any product meeting performance or design criteria, or referenced trade association standard may be used and Pre-Bid Approval is not required.

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- D. Subject to compliance with the specified requirements, provide products by one of the following manufacturers:  
Advanced Protection Technologies  
Eaton

2.2 SURGE PROTECTIVE DEVICE FEATURES

- A. SPD shall be UL 1449 labeled with 200kA Short Circuit Current Rating (SCCR). Fuse ratings shall not be considered in lieu of demonstrated withstand testing of SPD, per NEC 285.6.
- B. SPD shall be UL 1449 labeled as Type 1 intended for use without need for external or supplemental overcurrent controls. Internal overcurrent and thermal overtemperature controls shall protect every suppression component of every mode, including N-G. SPDs relying upon external or supplementary installed safety disconnectors do not meet the intent of this specification.
- C. SPD shall be UL 1449 labeled with 20kA I-nominal (I-n) (verifiable at UL.com) for compliance to UL 96A Lightning Protection Master Label and NFPA 780.
- D. Suppression components shall be heavy duty 'large block' MOVs, each exceeding 30mm diameter.
- E. Standard 7 Mode Protection paths: SPD shall provide surge current paths for all modes of protection: L-N, L-G, L-L, and N-G for Wye systems; L-L, L-G in Delta and impedance grounded Wye systems.
- F. If a dedicated breaker for the SPD is not provided in the switchboard, the service entrance SPD shall include an integral UL Recognized disconnect switch. A dedicated breaker shall serve as a means of disconnect for distribution SPD's.
- G. SPD shall meet or exceed the following criteria:
1. Minimum surge current capability (single pulse rated) per phase shall be:
    - a. Service Entrance applications:  
Eaton Model SPD300 Series with Maximum surge current capability of 300kA per phase.  
Siemens TPS3 01 series with Maximum surge current capability of 300kA per phase.
    - b. Distribution applications:  
Eaton Model SPD200 Series with Maximum surge current capability of 200kA per phase.  
Siemens TPS3 01 series with Maximum surge current capability of 200kA per phase.
    - c. Branch Panel applications:  
Eaton Model SPD100 Series with Maximum surge current capability of 100kA per phase.

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Siemens TPS3 01 series with Maximum surge current capability of 100kA per phase.

2. UL 1449 Listed Voltage Protection Ratings (VPRs) shall not exceed the following:

VOLTAGE	L-N	L-G	N-G
208Y/120V	700V	700V	700V
240S/120V	700V	700V	700V
480Y/277V	1500V	1500V	1500V

- H. UL 1449 Listed Maximum Continuous Operating Voltage (MCOV) (verifiable at UL.com):

System Voltage	Allowable System Voltage Fluctuation (%)	MCOV
208Y/120	25%	150V
240S/120	25%	150V
480Y/277V	20%	320V

- I. SPD shall include a serviceable, replaceable module (excluding Distribution).
- J. Service Entrance SPD shall have UL 1283 EMI/RFI filtering with minimum attenuation of -50dB at 100kHz.
- K. SPD shall have a warranty for a period of ten (10) years, incorporating unlimited replacements of suppressor parts if they are destroyed by transients during the warranty period.
- L. Service Entrance SPDs shall be equipped with the following diagnostics:
1. Visual LED diagnostics including a minimum of one green LED indicator per phase, and one red service LED.
  2. Audible alarm with on/off silence function and diagnostic test function (excluding branch).
  3. Form C dry contacts
  4. Surge Counter
  5. No other test equipment shall be required for SPD monitoring or testing before or after installation.
- M. Distribution Panels and Branch Panels SPDs shall be equipped with the following diagnostics:
1. Visual LED diagnostics including a minimum of one green LED indicator per phase, and one red service LED.
  2. No other test equipment shall be required for SPD monitoring or testing before or after installation.
- N. Surge protection devices installed for individual equipment items shall meet or exceed the following criteria:
1. Minimum surge current capability (single pulse rated) per phase shall be:
    - a. ASCO 420 series with dry contact and surge current capability shall be 50kA per phase.
  2. UL 1449 Listed Voltage Protection Ratings (VPRs) shall not exceed the following:

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VOLTAGE	L-N	L-G	N-G
208Y/120V	700V	1200V	600V
240S/120V	700V	1200V	600V
480Y/277V	1200V	1800V	1000V

3. UL 1449 Listed Maximum Continuous Operating Voltage (MCOV) (verifiable at UL.com):

System Voltage	Allowable System Voltage Fluctuation (%)	MCOV
208Y/120	25%	150V
240S/120	25%	150V
480Y/277V	20%	320V

4. Furnished with NEMA 4X Polycarbonate enclosure.

**PART 3 EXECUTION**

**3.1 INSTALLATION**

- A. The installation shall meet the following criteria:
1. Install per manufacturer's recommendations and contract documents.
  2. Install units plumb, level and rigid without distortion
  3. One primary suppressor shall be installed internal to the service entrance in accordance with manufacturer instructions.
  4. Service Entrance SPD shall be installed on the line or load side of the main service disconnect.
  5. Service Entrance SPD ground shall be bonded to the service entrance ground.
  6. At Service Entrance or Transfer Switch, a UL approved disconnect switch shall be provided as a means of servicing disconnect if a 60A breaker is not available.
  7. One SPD shall be installed internal to each designated distribution panelboard.
  8. At Distribution, MCC and Branch, TVSS shall have an independent means of servicing disconnect such that the protected panel remains energized. A 60A breaker (or larger) may serve this function.
  9. SPD shall be installed per manufacturer's installation instructions with lead lengths as short (less than 24") and straight as possible. Gently twist conductors together.
  10. Installer may reasonably rearrange breaker locations to ensure short & straightest possible leads to SPDs.
  11. Before energizing, installer shall verify service and separately derived system Neutral to Ground bonding jumpers per NEC.

**3.2 ADJUSTMENTS AND CLEANING**

- A. Remove debris from SPD and wipe dust and dirt from all components.
- B. Repaint marred and scratched surfaces with touch up paint to match original finish.

**3.3 TESTING**

SECTION 26 4313 – SURGE PROTECTION DEVICES FOR LOW-VOLTAGE  
ELECTRICAL POWER CIRCUITS

- A. Check tightness of all accessible mechanical and electrical connections to assure they are torqued to the minimum acceptable manufacture's recommendations.
- B. Check all installed panels for proper grounding, fastening and alignment.

3.4 WARRANTY

- A. Equipment manufacturer warrants that all goods supplied are free of non-conformities in workmanship and materials for one year from date of initial operation, but not more than eighteen months from date of shipment.

**END OF SECTION**

**PART 1 GENERAL**

## 1.1 LIGHTING SCHEDULE

- A. The Contractor shall install lighting fixtures and accessories as shown on the drawings and/or described herein. The Contractor shall also install lamps for all fixtures.

**PART 2 PRODUCTS**

## 2.1 LED LIGHTING

- A. Lighting fixtures with LED light sources shall meet the following fixture and light source requirements:
1. LED Color Temperature – Cool White (CW), 5800K nom., CRI > 70
  2. Line Voltage – Universal Voltage 120-277 volts
  3. Governmental Standards – LM79 and LM80 Compliant
  4. Expected Lamp Life – LED Life Rating ( $L_{70} B_{10}$ ) to be 60,000 hours to 100,000 hours; Defined as time of operation (in hours) to 30% lumen depreciation (i.e. 70% lumen maintenance), derived from Luminaire in-situ temperature measurement testing (i.e. LED chip package temperature ( $T_s$ ) measurement obtained with the LED chip package operating in given luminaire and in a given stabilized ambient environment) under UL1598 environments and directly correlated to LED package manufacturers IESNA LM-80-08 data. Predicted ( $L_{70} B_{10}$ ) Limits (@ 25°C luminaire ambient operating environment): Greater than 60,000 hours @ 350mA Drive Current
  5. Driver – Components must be fully encased in potting material for moisture resistance, and must comply with IEC and FCC standards
  6. Surge Protection – Surge protection must be provided including separate surge protection built into electronic driver
  7. Mechanical – Luminaire LED system components to be low copper aluminum, with high performance heat sink(s) designed specifically for LED luminaires. No active cooling features (Fans, etc.). Luminaire configuration must allow for modular upgradability and/or field repair of all electrical components (i.e. LED modules, Driver(s), etc.). Drivers and vertical light bars must be all mounted to a twist-lock tool-less assembly for ease of installation and trouble-shooting.

## 2.2 OCCUPANCY SENSORS

- A. Sensor shall be a self-contained dual voltage ceiling mounted device capable of directly switching loads upon detection of human activity. Sensor must be circular, and mount to either a single gang enclosure, or surface mount to a round pancake box.
- B. Sensor must be rated for 120 through 277 VAC and be capable of switching zero to 1200 watts of electronic ballast loads. Sensors must be capable of parallel wiring for multi-sensor applications.
- C. Sensor time delay shall be factory set for typical applications, and field adjustable from 30

## SECTION 26 5000 – LIGHTING

seconds to 20 minutes. Sensor must provide a green LED motion indicator. Red LED denoting life safety shall not be permitted.

- D. PIR sensing must utilize a high density Fresnel domed lens, providing a circular view pattern of at least 360 degrees by 56 degrees.
- E. Passive Dual Technology (PDT) sensing must incorporate PIR with Microphonics, which utilizes a passive microphone with automatic gain control (AGC) to sense both occupants moving and sounds. The PIR must be used to initiate an on condition, once on the PIR or Microphonics shall keep the load on. After the time delay expires and the load goes off, the Microphonics shall remain active up to 10 seconds as a back-up grace period.
- F. Wall box mounted occupancy sensors shall mount in a standard utility box. Sensor shall have self-contained relay (no power pack required), utilize PIR and microphonics detection, and include auto sensitivity adjustment. Wall box sensor shall be intrinsically grounded and include ON/OFF switch and adjustable time delay.
- G. Occupancy Sensor:
  - 1. Ceiling mount for offices and restrooms – Lutron #LOS-CUS-1000-WH / PP-DV; Wattstopper UT-305-2/BZ-50; Sensor Switch CM PDT9
  - 2. Wall mount for offices, storage rooms, etc. – Lutron #MS+OPS6M-DV-color; Wattstopper WD-170-FINISH; Sensor Switch WSX
  - 3. Ceiling mount in large rooms – Lutron #LOS-CDT-2000WH, with #PP-DV universal power pack; Wattstopper DT-205 / BZ-50; Sensor Switch CM PDT10 with PP16
  - 4. Wall/ceiling mount at end of corridors – Lutron #LOS-WIR-WH / PP-DV 1600'ft coverage; Wattstopper CX-105 / BZ-50; Sensor Switch WV16 with PP16
  - 5. Wall/ceiling mount at center of corridors – Watt Stopper #CX-100-3 series, with #BZ-50 universal power pack; Sensor Switch WV16 with PP16
  - 6. Room controllers – Wattstopper #LMRC-101; nLight #nPP 16

### 2.3 FIXTURES

- A. Fixtures as described in the Fixture Schedule on the drawings shall be furnished by the Contractor and shall be properly installed.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Unless otherwise specified, lighting fixtures shall be permanently installed and connected to the wiring system.
- B. The Contractor shall support each fixture, independently from the building structure. Ceiling framing members shall not be used to support fixtures except in specified areas where ceiling supports for this purpose have been specified elsewhere in these

## SECTION 26 5000 – LIGHTING

specifications. Each fixture shall have at least two fixture supports.

- C. Flexible conduit used for fixture whips shall be at least twelve (12) inches, but not more than 48 inches long.

### 3.2 CEILING COMPATIBILITY

- A. Catalog numbers shown on the drawings or descriptions of lighting fixtures contained herein may indicate fixture compatibility with certain types of ceiling construction. Contractor shall determine exact type of ceiling actually to be furnished in each area and shall obtain fixtures to suit, deviation from specified catalogue numbers or descriptions only where necessary and only to the extent necessary to insure fixture/ceiling compatibility.

### 3.3 LIGHT LEAKS

- A. The Contractor shall, at the end of this project, adjust all recessed lighting fixtures so that there will be no light leaks between the fixture trim and the ceiling. Contractor shall also adjust recessed fluorescent fixtures to eliminate any light leaks between fixture trim and ceiling grid member.

### 3.4 LAMPS

- A. The Contractor shall install lamps in all fixtures and shall obtain replacement lamps should any not properly operate or become damaged during construction.

### 3.5 EXIT FIXTURES

- A. Exit fixtures shall be installed according to Life Safety Code requirements, with face(s) plainly visible and directional arrows indicating the proper direction of egress.

**END OF SECTION**

## SECTION 32 1500 – AGGREGATE MATERIALS

### PART 1 GENERAL

#### 1.1 SECTION SUMMARY

- A. This work consists of providing all labor and materials to furnish, in place, all surface course on the project site as designated on the plans or ordered by the engineer.

### PART 2 PRODUCTS

#### 2.1 MATERIAL PROPERTIES

- A. Aggregate materials shall be 100% crushed limestone:

Crushed Limestone: This material shall be 100% crushed limestone shall show not more than 45% less when tested in accordance with AASHTO Designation: T 96; shall show not more than 15% loss when tested in accordance with AASHTO Designation: T 104; and shall meet the following requirements.

<u>U. S. Sieve</u>	<u>% Passing (By Weight)</u>
1"	100
1/2"	62 to 90
No. 4	40 to 70
No. 40	12 to 32

### PART 3 EXECUTION

#### 3.1 MATERIAL INSTALLATION

- A. Blending of limestone aggregate in stockpiles or on the roadway to obtain the required gradation will not be permitted.
- B. Aggregate surface course shall be placed in lifts not to exceed 3". Each lift shall be compacted by blading and rolling.

#### 3.2 MEASUREMENT

- A. Surface course material will be measured by the ton in approved hauling vehicles at the point of delivery.
- B. The accepted quantity of aggregate surface course delivered, spread, and bladed in place will be paid for at the contract unit price per ton.

### END OF SECTION

## SECTION 32 1723.13 - PAVEMENT MARKINGS

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Parking lot markings, including wheelstops, parking bays, handicapped symbols, curb markings, and parking sign bollards.
- B. Parking Garage Columns

#### 1.02 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings: Indicate pavement markings, lane separations, and defined parking spaces. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 - Product Requirements, for additional provisions.
  - 2. Extra Paint: One container, 1 gallon (4 liter) size, of each type and color.

#### 1.03 QUALITY ASSURANCE

- A. Install a mockup of line striping to demonstrate adhesion to pedestrian coating system and aesthetic intent. Mockup may remain in place if approved by Architect.

#### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

#### 1.05 FIELD CONDITIONS

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. Line and Zone Marking Paint: Acrylic/Latex Traffic Marking Paint; color(s) as indicated.
  - 1. Parking Lots: White, 4" wide in configuration shown in Drawings.
  - 2. Standard Parking Striping: White, 4" wide in configuration shown in Drawings.
  - 3. Arrows: White, in configuration shown in Drawings.
  - 4. Handicapped Striping and Symbols: Blue, 4" wide striping in configuration shown in Drawings.
    - a. "VAN" lettering: Blue, 2'-0" high letters.
  - 5. Existing Curbs: Yellow.
  - 6. Wheelstops: Yellow.
  - 7. Bollard Posts: Yellow.
  - 8. Parking Garage Columns: Yellow.
  - 9. Manufacturers
    - a. Aexcel
    - b. Benjamin Moore
    - c. Porter Coatings
    - d. PPG
    - e. Sherwin-Williams
    - f. Substitutions: See Section 01 6000 - Product Requirements.

## SECTION 32 1723.13 - PAVEMENT MARKINGS

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### 3.02 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Clean surfaces thoroughly prior to installation.
  - 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
  - 2. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement, by scraping, wire brushing, sandblasting, mechanical abrasion, or approved chemicals.
- D. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- E. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

#### 3.03 INSTALLATION

- A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.
- B. Do not apply if temperature of surface to be marked or the atmosphere is less than 50 degrees F (10 degrees C) or more than 95 degrees F (35 degrees C).
- C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- D. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- E. Apply uniformly painted markings of color(s), lengths, and widths as indicated on drawings true, sharp edges and ends.
  - 1. Apply paint in one coat only.
  - 2. Wet Film Thickness: 0.015 inch (0.4 mm), minimum.
  - 3. Width Tolerance: Plus or minus 1/8 inch (3 mm).
- F. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.
  - 1. Mark the International Handicapped Symbol at indicated parking spaces.
  - 2. Hand application by pneumatic spray is acceptable.
- G. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

#### 3.04 DRYING, PROTECTION, AND REPLACEMENT

- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly installed markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.

## **SECTION 32 1723.13 - PAVEMENT MARKINGS**

- D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.
- F. Replace removed markings at no additional cost to Owner.

**END OF SECTION**

## SECTION 32 2050 – SOIL MATERIALS

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Subsoil and topsoil materials.

#### 1.2 RELATED SECTIONS

- A. Section 014000 - Quality Control 014100 - Testing Laboratory Services: Testing soil fill materials.
- B. Section 322110 - Rough Grading.
- C. Section 322230 - Backfilling.
- D. Section 322250 - Trenching.

#### 1.3 REFERENCES

- A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb (4.54 kg) Rammer and an 18-in. (457 mm) Drop.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
- C. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
- E. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- F. ASTM D2487 - Classification of Soils for Engineering Purposes.
- G. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- H. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 013000.
- B. Materials Source: Submit name of imported materials suppliers. Provide materials from same source throughout the work. Change of source requires Architect/Engineer approval.

### PART 2 PRODUCTS

#### 2.1 SOIL MATERIALS

## SECTION 32 2050 – SOIL MATERIALS

Soil materials shall be as identified as stated within the Geotechnical Investigation prepared by Mr. Dan Holder, PE. If specific information is not identified within the report, the contractor shall follow the requirements listed below.

- A. Backfill material brought onto the site for building, paving and walkway pads, shall consist of a clean, select, non-expansive fill, free from excessive silt, clay balls or other deleterious materials as follows:
  - A.1) Clay Material – A low plasticity clay classified as “CL” under the Unified Soil Classified System (ASTM D 2487), shall be used as fill material. Acceptable material shall be free of organic matter or other deleterious materials, having a maximum particle size less than 2”. This material shall have a Plasticity Index (PI) within the range of 12-22 and a Liquid Limit (LL) of 30-42. Silts (soils which classify as ML) shall not be used as structural fill. Soils which classify as sand (less than 50% passing a number 200 sieve) shall not be used as structural fill.
- B. Granular fill used as a capillary barrier under floor slabs shall consist of a “washed gravel” with less than 10% passing the No.3 screen (1/4 inch) or crushed limestone No. 57. Crushed limestone (#610) road base aggregate or river silt are not acceptable for use underneath the slab as a capillary barrier. Coarse sands will be acceptable upon review of the proposed gradation by the project engineer.
- C. Paving Slab Base Material: Material shall consist “Crushed Limestone”- ASTM D1241 Type 1 Graduation A #610) unless otherwise indicated
- D. Topsoil Materials: Provide friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life, and reasonably free from subsoil, roots, heavy or stiff clay, stones larger than 2" in greatest dimension, noxious weeds, sticks, brush, litter, and other deleterious matter. Obtain topsoil from sources within the project limits, or provide imported topsoil obtained from sources outside the project, or from both sources.

### 2.2 SOURCE QUALITY CONTROL

- A. Inspection and testing will be performed under provisions of Section 014000.
- B. Tests and analysis of soil material will be performed in accordance with the applicable test requirements established by the Geotechnical report.
- C. If tests indicate materials do not meet specified requirements, change material and retest at no cost to Owner.

## PART 3 EXECUTION

### 3.1 STOCKPILING

- A. Stockpile materials on site at locations designated by Architect/Engineer.
- B. Stockpile in sufficient quantities to meet project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

## **SECTION 32 2050 – SOIL MATERIALS**

### **3.2 STOCKPILE CLEANUP**

- A. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.
- B. If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

**END OF SECTION**

## SECTION 32 2230 BACKFILLING

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Building perimeter and site structure backfilling to subgrade elevations.
- B. Site filling and backfilling.
- C. Fill under slabs-on-grade and paving.
- D. Consolidation and compaction as scheduled.
- E. Fill for over-excavation.

#### 1.2 RELATED SECTIONS

- A. Geotechnical report: bore hole locations and findings of subsurface materials.
- B. Section 014000 - Testing Laboratory Services: Compaction testing.
- C. Section 322050 - Soil Materials.
- D. Section 322220 - Excavating.
- E. Section 322250 - Trenching: Backfilling of utility trenches.

#### 1.3 REFERENCES

- A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb (4.54 kg) Rammer and an 18-in. (457 mm) Drop.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
- C. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
- E. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- F. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- G. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

### PART 2 PRODUCTS

#### 2.1 FILL MATERIALS

- A. As specified in Section 322050.

### PART 3 EXECUTION

## SECTION 32 2230 BACKFILLING

### 3.1 EXAMINATION

- A. Verify subdrainage, damproofing or waterproofing installation has been inspected.

### 3.2 PREPARATION

- A. Contractor shall refer to the geotechnical report on file in the office of the Architect/Owner to familiarize himself with geotechnical concerns with work as specified under this section.
- B. Compact subgrade to density requirements for subsequent backfill materials.
- C. Contractor shall demolish/remove existing buildings, paving, concrete, debris or other systems as indicated on the construction drawings, to the limits of building development, plus other areas required in paving and piping systems prior to backfilling operations. Proper drainage away from work areas shall be established to avoid over saturation of existing base materials.
- D. Backfill Limits – Building Area Slab On Grade:

For an area extending 5'-0" from the outside face of the building lines, Contractor shall perform the following:

- 1.0 Backfilling operations shall commence immediately after excavations are completed.
- 2.0 Contractor shall attempt to complete backfilling to open areas in the same day during periods of good weather. Should backfilling to an area take longer than anticipated and inclement weather is forecast for some duration, Contractor shall fill in site with material and crown the site for drainage. Filled site shall be re-excavated down to position of "approved" past backfilled soils and the backfilling process continued.
- 3.0 Contractor shall have adequate pumping systems available to immediately remove and water that may accumulate.
- 4.0 Contractor shall proof roll, scarify and compact subgrade prior to backfilling operations. Proof rolling of the excavated area shall be made with a "sheeps foot (pad foot) roller". A small access ramp shall be constructed for the equipment access into the excavation. Contractor shall excavate, backfill and compact all areas observed to rut or deflect excessively under the moving load. Backfill and compaction shall be carried out to the requirements as specified herein.
- 5.0 Contractor shall import structural backfill and compact per specifications to elevations detailed.
- 6.0 Contractor shall coordinate earthwork activities with the geotechnical representative employed by the Owner.

- E. Backfill Limits Paving/Walks Areas:

For an area extending 2'-0" from the outside the perimeter of the finished paving, Contractor shall perform the following:

- 1.0 Backfilling operations, if required, shall commence immediately after excavation activities are completed.
- 2.0 Paving areas shall be scarified and proof rolled to the existing sub-grade surface to identify soft spots and pumping areas. Proof rolling shall be accomplished with a loaded tandem axle dump truck or similar heavy rubber-tied vehicle

## SECTION 32 2230 BACKFILLING

weighing approximately 12 to 15 tons. Contractor shall excavate, backfill and compact all areas observed to rut or deflect excessively under the moving load. Backfill and compaction shall be carried out to the requirements as specified herein.

- 3.0 Contractor shall import structural backfill, if required, and compact per specifications to elevations detailed.
  - 4.0 Contractor shall coordinate earthwork activities with the geotechnical representative employed by the Owner.
- F. Depending upon the current rainfall and natural moisture content, these surface clayey silty soils may lose their strength if they become saturated and softened or the highly plastic clays may be negatively affected. The Contractor shall take note that the ability to access the site and perform suitable earthwork could be difficult during and following periods of precipitation. Such a situation will place a high premium on improved drainage of the site during construction. The Contractor's bid shall include all labor and material to construct and maintain access construction swales, ditches, sumps, pumps, etc. as required for the proper drainage of this site for construction activities.

### 3.3 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Soil Fill as specified in Section 322050.
- D. Employ a placement method that does not disturb or damage other work.
- E. Maintain optimum moisture content of backfill materials to attain required compaction density. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- F. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- G. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise.
- H. Make gradual grade changes. Blend slope into level areas.
- I. Remove surplus backfill materials from site.
- J. Leave fill material stockpile areas free of excess fill materials.
- K. Leave site with positive slope away from backfilled areas to avoid water collection.

### 3.4 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

### 3.5 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014000.

## SECTION 32 2230 BACKFILLING

- B. Compaction testing will be performed in accordance with ASTM D-698, Standard Proctor Testing.
- C. Structural backfill shall be placed in loose lifts of 6" to 8" and each lift compacted at optimum moisture content as follows:
  - c.1) Clay Material – 95% of the maximum dry density as determined by the standard proctor compaction test ASTM D 698.
  - c.2) Granular Capillary Barrier – 95% of the maximum dry density as determined by the standard proctor compaction test ASTM D 698.
- D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- E. Frequency of Tests: As established by on site geotechnical inspector.
- F. Proof roll compacted fill surfaces under slabs-on-grade and/or paving.

### 3.6 PROTECTION OF FINISHED WORK

- A. Protect finished Work from traffic, weather, etc. as may be required.
- B. Reshape and re-compact fills subjected to vehicular traffic.

**END OF SECTION**

## SECTION 32 2250 TRENCHING

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Excavating trenches for utilities from 5 feet outside building to utility mains, unless otherwise indicated.
- B. Compacted fill from top of utility bedding to subgrade elevations.
- C. Backfilling and compaction.

#### 1.2 RELATED SECTIONS

- A. Geotechnical report; bore hole locations and findings of subsurface materials.
- B. Section 014000 - Testing Laboratory Services: Testing fill compaction.
- C. Section 322050 - Soil Materials.
- D. Section 322110 - Rough Grading: Topsoil and subsoil removal from site surface.
- E. Section 322220 - Excavating: General building excavation.
- F. Section 322230 - Backfilling: General backfilling.
- G. Section 033000 - Cast-in-Place Concrete: Concrete materials.

#### 1.3 REFERENCES

- A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb (4.54 kg) Rammer and an 18-in. (457 mm) Drop.
- B. ANSI/ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- C. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
- D. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- E. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
- F. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- G. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- H. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

#### 1.4 DEFINITIONS

- A. Utility: Any buried pipe, conduit, or cable.

#### 1.5 FIELD MEASUREMENTS

## SECTION 32 2250 TRENCHING

- A. Verify that survey bench mark and intended elevations for the Work are as shown on drawings.

### 1.6 COORDINATION

- A. Coordinate work under provisions of Section 010400.
- B. Verify work associated with lower elevation utilities are complete before placing higher elevation utilities.

## PART 2 PRODUCTS

### 2.1 FILL MATERIALS

- A. As specified in Section 322050.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Protect plant life, lawns, and other features remaining as a portion of final landscaping
- C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.
- D. Maintain and protect above and below grade utilities which are to remain.
- E. Cut out soft areas of subgrade not capable of in situ compaction. Backfill and compact to density equal to or greater than requirements for subsequent backfill material.

### 3.2 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicate gradients, lines, depths, and elevations.
- B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.
- C. Clearances: Minimum of 6" on each side of pipe or conduit unless otherwise indicated.
- D. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade. For pipes and conduit up to 8 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.  
For pipes and conduit 10 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand or limestone backfill.  
Excavate trenches 6 inches (150 mm) deeper than elevation required in yielding bearing material to allow for bedding course.

### 3.3 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen materials.

## SECTION 32 2250 TRENCHING

- B. Systematically backfill to allow maximum time for natural settlement.
- C. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- D. Compaction testing shall meet the following:

Located outside of building or paving limits – 92% standard proctor density +/-2% optimum moisture content in accordance with ASTM  
Located inside of building or paving limits – 95% standard proctor density +/-2% optimum moisture content in accordance with ASTM D698

### 3.4 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

### 3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Testing agency will test compaction of soils in place according to ASTM D1556, ASTM D2167, ASTM D2922 and ASTM D2937, as applicable. Tests will be performed at the following locations and frequencies.
- D. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 5,000 sq ft. or less of paved area or building slab, but in no case fewer than three tests.
- E. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than three tests on each trip (may be combined with other testing).
- F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained. All retesting shall be at the Contractor's expense.

### 3.6 PROTECTION OF FINISHED WORK

- A. Protect finished Work from traffic, weather, etc. as required.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

**END OF SECTION**

**SECTION 33 0533 – CULVERTS AND STORM DRAINS**

PART 1 GENERAL

1.1 SECTION SUMMARY

- A. This work consists of furnishing, installing, and cleaning pipe, pipe arch, storm drains and sewers, also referred to as culvers or conduit, in accordance with these specifications and in conformity with lines and grades shown on the plans or established.
- B.

PART 2 PRODUCTS

2.1 MATERIAL PROPERTIES

Materials comply with the following sections and subsections of the latest ed. of the DOTD standards and specifications manual:

Usable Soil-----	203.06(a)
Selected Soil-----	203.06(b)
Plastic Soil Blanket-----	203.10
Flowable Fill-----	710
Mortar-----	702.02
Portland Cement Concrete-----	901
Stone-----	1003.03(b)
Recycled Portland Cement Concrete-----	1003.03(c)
Granular Material-----	1003.07
Bedding Material-----	1003.08
Concrete Sewer Pipe-----	1006.02
Reinforced Concrete Pipe-----	1006.03
Reinforced Concrete Pipe Arch-----	1006.04
Gasket Materials-----	1006.06
Plastic Pipe-----	1006.07
Split Coupling Bands-----	1006.07(d)(4)
Plastic Yard Drain Pipe-----	1006.09
Bituminous Coated Corrugated Steel Pipe and Pipe Arch-----	1007.02
Structural Plate for Pipe, Pipe Arch and Arch-----	1007.04
Corrugated Aluminum Pipe and Pipe Arch-----	1007.05
Coupling Bands-----	1007.09
Reinforcing Steel-----	1009
Geo-textile Fabric-----	1019

**MATERIAL TYPE ABBREVIATIONS:**

**1) REINFORCED CONCRETE PIPE:**

- RCP Reinforced Concrete Pipe
- RCPA Reinforced Concrete Pipe Arch

**2) CORRUGATED METAL PIPE:**

- CAP Corrugated Aluminum Pipe
- CAPA Corrugated Aluminum Pipe Arch
- CMP Corrugated Metal Pipe
- CMPA Corrugated Metal Pipe Arch

## SECTION 33 0533 – CULVERTS AND STORM DRAINS

CSP Corrugated Steel Pipe  
CSPA Corrugated Steel Pipe Arch  
BCCSP Bituminous Coated Corrugated Steel Pipe  
BCCSPA Bituminous Coated Corrugated Steel Pipe Arch

### 3) PLASTIC PIPE:

PP Plastic Pipe  
PVC Polyvinyl Chloride Pipe  
RPVCP Ribbed Polyvinyl Chloride Pipe  
CPEPDW Corrugated Polyethylene Pipe Double Wall

## PART 3 EXECUTION

### 3.1 EXCAVATION

- A. The bottom of the trench shall be excavated to a minimum width of 18 inches on each side for all pipes. Surplus material or excavated material that does not conform to the requirements of Subsection 203.06(a) of the DOTD MANUAL shall be satisfactorily disposed of in accordance with subsection 202.02 of the DOTD MANUAL.

### 3.2 FORMING PIPE BED

- A. When the rock is encountered, it shall be removed below grade and replaced with material complying with Subsection 203.06. This replacement material shall be compacted to at least the density of the surrounding soil. The compacted earth cushion shall have a thickness under the pipe of at least ½ inch per foot of fill height over the top of the pipe with a minimum thickness of 8 inches.
- B. When pipe is not laid in a trench, a uniformly firm bed shall be made as specified for the bottom of a trench.
- C. When bedding material is specified, additional excavation shall be performed below established grade and bedding material placed.
- D. When a suitable foundation cannot be obtained, unstable soil below established grade shall be removed and replaced with granular material or bedding material constructed in accordance with Section 726 of the DOTD MANUAL. When stone or recycled Portland cement concrete is used as backfill, unstable soil below established grade shall be removed and replaced

### 3.3 LAYING PIPE

- A. Pipe laying shall begin at the downstream end of the line. The pipe shall be in contact with the foundation throughout its length. Bell or groove ends of pipe and outside circumferential laps of riveted metal pipe shall be placed facing upstream. Riveted seam metal pipe shall be placed with longitudinal laps at sides. Pipes in each continuous line shall have the same wall thickness. Metal pipes provided with lifting lugs shall be handled only by these lugs.
- B. After pipe has been laid and before backfill is placed, the Engineer will inspect the pipe for alignment, grade, integrity of joints, and coating damage.

### 3.4 JOINING PIPE

## SECTION 33 0533 – CULVERTS AND STORM DRAINS

- A. Type 1 (T1) joints shall be used for side drains under grass or walking areas and similar installations.
- B. Type 2 (T2) joints shall be used for cross drains under paving, including turnouts.
- C. Type 3 (T3) joints shall be used for closed storm drain systems, flumes and siphons.

### 3.5 BACKFILLING

- A. Prior to backfilling, pipes found to be damaged or out of alignment or grade shall be removed and reinstalled, or replaced.
- B. Type A backfill material shall be stone, recycled Portland cement concrete, or flowable fill.
- C. Type B backfill material shall be stone, recycled Portland cement concrete, flowable fill, selected soils, or granular material.
- D. When Type A backfill material is used; geo-textile fabric shall be placed in accordance with plan details prior to placing backfill material. Care shall be taken to prevent damage to geo-textile fabric during placement of backfill material.
- E. Adjacent rolls of fabric shall be overlapped or sewn. When rolls are overlapped, the overlap shall be a minimum of 18 inches, including the ends of rolls. The top layer of the fabric shall be parallel with adjacent rolls and in the direction of backfill materials placement. When rolls are sewn, the contractor shall join adjacent rolls by sewing with polyester, or with the two pieces of geo-textile fabric mated together, turned in order to sew through 4 layers of fabric and sewn with 2 rows of Type 401, two-threaded locking chain stitch. Factory seams other than specified shall be submitted to the Materials and Testing Section of the DOTD MANUAL for approval.

### 3.6 BACKFILL APPLICATIONS

- A. **PAVED AREAS:** Paved area subject to traffic loads such as roadway travel lanes, shoulders, and turnouts shall be backfilled with Type A material. Type B backfill material shall be used in all other paved areas including driveways, detour roads and similar installations. Selected soils will not be allowed as backfill material.
- B. **NONPAVED AREAS:** Pipe backfill material, except for plastic pipe, shall be Type B backfill material placed by approved methods and compacted to the density of surrounding soil. Plastic pipe shall be backfilled with granular material or Type A backfill Material.
- C. **PLACEMENT AND COMPACTION:** When corrugated metal pipe is used, the backfill material shall be tested and shall have a resistivity greater than 1500 ohm-cm and pH greater than 5 when tested in accordance with DOTD TR 429 and DOTD 430 respectively.
- D. If the top of pipe is even with or below the top of the trench, backfill material shall be brought up evenly on both sides of pipe for its full length to material shall be brought up evenly on both sides of pipe for its full length to an elevation of 12 inches above the top of pipe [or to sub grade if less than 12 inches] or to natural ground elevation, whichever is greater.
- E. When the top of the pipe is above the top of the trench, backfill material shall be brought up evenly on both sides of pipe for its full length to 12 inches above the tip of pipe or to sub grade if less than 12 inches. Material in the trench and above the top of the trench for

## SECTION 33 0533 – CULVERTS AND STORM DRAINS

a distance on metal or plastic pipe and 18 inches for concrete pipe, and to 12 inches above the tip of pipe or to sub grade if less than 12 inches shall be backfill material.

- F. The embankment shall be constructed to a minimum of 24 inches over the pipe before heavy construction equipment is allowed to cross the installation. Where practical, installations with less than 24 inches of cover over the top of the pipe shall be constructed after heavy hauling is completed over the pipe location. After completion of hauling and backfilling operations shall be removed and reinstalled, or replaced, at no direct pay.

### 3.7 BACKFILL METHODS

- A. **GENERAL:** Compaction by flooding will not be allowed.
- B. **SELECTED FILL:** Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418 in layers not exceeding 8 inches compacted thickness. Backfill material shall be thoroughly compacted under the haunches of the pipe. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density prior to placement of a subsequent layer.
- C. **GRANULAR MATERIAL:** Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418. Backfill material shall be thoroughly compacted under the haunches of the pipe and then compacted in layers not exceeding 12 inches compacted thickness. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density to prior placement of subsequent layer. Exposed slopes at the pipe ends shall be covered by at least 12 inches compacted thickness of plastic soil blanket.
- D. **FLOWABLE FILL:** Flowable fill shall be in accordance with Section 710 of the DOTD MANUAL.
- E. **STONE OR RECYCLED PORTLAND CEMENT CONCRETE:** Backfill shall be placed at or near optimum moisture content determined in accordance with DOTD TR 415 or TR 418. Back fill material shall be thoroughly compacted under the pipe haunches and then compacted in layers not exceeding 8 inches compacted thickness. With approval of the Engineer, layer thickness may be increased to 12 inches with verification of satisfactory installation and performance. Each layer shall be compacted by approved methods to at least 95 percent of maximum dry density prior to placement of a subsequent layer. The contractor shall control placement operations so as not to damage protective coatings on metal pipes. The contractor shall repair damaged coatings at no additional pay.
- A. **DENSITY REQUIREMENTS:** Maximum dry density will be determined in accordance with DOTD TR 415 and DOTD 418 and in-place density determined in accordance with DOTD TR 401.

### 3.8 INSPECTION OF PIPES

- A. After completion of embankment and prior to roadway surfacing, the engineer shall inspect pipes for proper alignment and integrity of joints. Any misaligned pipe or defective joints shall be corrected by the contractor at no direct pay.
- B. **PLASTIC PIPE:** Installed plastic pipe shall be tested to ensure that vertical deflections do not exceed 5.0 percent. Maximum allowable deflections shall be 3 governed by the mandrel requirements stated herein.

## SECTION 33 0533 – CULVERTS AND STORM DRAINS

- C. Deflection tests shall be performed no sooner than 30 calendar days after installation and compaction of backfill. The pipe shall be cleaned and inspected for offsets and obstructions prior to testing
- D. For pipe 36 inches and less in diameter, a mandrel shall be pulled through the pipe by hand to ensure that maximum allowable deflections to use. Use of an unapproved mandrel or a mandrel altered or modified after approval will invalidate the test. If the mandrel fails to pass, the pipe is over deflected.
- E. Unless otherwise permitted, over deflected pipe shall be uncovered and, if not damaged, reinstalled. Damaged pipe shall not be reinstalled, but shall be removed and replaced with new pipe. Any pipe subjected to any method or process other than removal, which attempts, even successfully, to reduce or cure any over deflection, shall be removed and replaced with new pipe.
- F. The mandrel shall be a rigid, nonadjustable, odd-numbered legged (minimum 9 legs) mandrel having a length not less than its nominal diameter or 24 inches, whichever is less. The minimum diameter at any point shall be 5.0 percent less than the base inside diameter of the pipe being tested. The mandrel shall be fabricated of steel, aluminum or other approved material fitted with pulling rings at each end. The nominal pipe size and outside diameter of the mandrel shall be stamped or engraved on some segment other than a runner. A suitable carrying case shall be furnished.
- G. For pipe larger than 36 inches in diameter, deflection shall be determined by a method approved by the Engineer. If a mandrel is selected, the minimum diameter, length, and other requirements shall conform to the above requirements.
- H. Mandrel testing shall be conducted by the contractor in the presence of the Engineer.
- I. Prior to final acceptance, pipes shall be cleaned of all debris and soil to the invert of the pipe at no direct pay. Removed soil, debris, and other materials shall be disposed of in accordance with Subsection 202.02 or as otherwise approved in writing.

**END OF SECTION**



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