

SET NO: _____

SUWANNEE COUNTY SCHOOL BOARD
702 2nd Street N.W.
Live Oak, Florida 32064

SCHOOL BOARD MEMBERS

Jerry Taylor, Chairman	District 1
Catherine Cason	District 2
Julie B. Ulmer	District 3
Ed daSilva, Vice-Chairman	District 4
J.M. Holtzclaw	District 5

ADMINISTRATION

Jerry A. Scarborough, Superintendent

**SUWANNEE PRIMARY SCHOOL
COVERED PLAY STRUCTURE
and
TRANSPORTATION & I.T. BUILDING
SHELL STRUCTURE
PROJECT MANUAL**

**GENERAL CONDITIONS
AND
TECHNICAL SPECIFICATIONS**

A/E Project No. 2012.51A and 2013.46A

Issued for Bid: January 10, 2014

**SUWANNEE PRIMARY SCHOOL COVERED PLAYSTRUCTURE
and
TRANSPORTATION & I.T. BUILDING SHELL STRUCTURE
SUWANNEE COUNTY SCHOOLS
RZK# 2012.51A and 2013.46A**

SPECIFICATIONS - TABLE OF CONTENTS

SECTION NO.	TITLE	PAGES
<hr/>		
DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS		
<hr/>		
00 11 13	BID NOTICE	1
00 21 13	INSTRUCTIONS TO BIDDERS	1 - 5
00 30 00	AVAILABLE INFORMATION	1
00 42 00	BID PROPOSAL FORM	1 - 2
00 43 13	BID BOND	1
00 45 13	BIDDING CONTRACTOR QUALIFICATION STATEMENT	1
00 52 00	AGREEMENT BETWEEN OWNER AND CONTRACTOR	1
00 60 00	PROJECT FORMS	1
00 61 13	PERFORMANCE AND PAYMENT BOND	1
00 72 00	GENERAL CONDITIONS	1 - 2
00 73 00	SUPPLEMENTARY GENERAL CONDITIONS	1 - 11
00 90 10	PROJECT FORMS	1
DIVISION 01 GENERAL REQUIREMENTS		
<hr/>		
01 10 00	SUMMARY OF THE WORK	1
01 31 00	SCHEDULES, REPORTS, PAYMENTS	1 - 4
01 33 00	SHOP DRAWINGS, PRODUCT DATA AND SAMPLES	1 - 6
01 40 00	QUALITY CONTROL SERVICES	1 - 2
01 41 00	PROJECT COORDINATION	1 - 4
01 42 00	DEFINITIONS AND STANDARDS	1 - 9
01 50 00	TEMPORARY FACILITIES	1 - 3
01 60 00	PRODUCTS AND SUBSTITUTIONS	1 - 5
01 60 01	ZERO TOLERANCE HAZARDOUS MATERIALS STATEMENT	1 - 2
01 74 19	CONSTRUCTION WASTE MANAGEMENT	1 - 8
01 77 00	PROJECT CLOSEOUT	1 - 5
DIVISION 02 EXISTING CONDITIONS		
<hr/>		
02 28 00	TERMITE CONTROL	1 - 2
DIVISION 03 CONCRETE		
<hr/>		
03 30 00	CAST-IN-PLACE CONCRETE	1 - 23

DIVISION 04 MASONRY

04 22 00	UNIT MASONRY	1 - 12
----------	--------------	--------

DIVISION 05 METALS *NOT USED*

DIVISION 06 WOOD, PLASTICS, AND COMPOSITES

06 10 53	ROUGH CARPENTRY	1
----------	-----------------	---

DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 90 00	JOINT SEALERS	1 - 4
----------	---------------	-------

DIVISION 08 OPENINGS

08 10 00	HOLLOW METAL FRAMES	1 - 2
08 11 00	HOLLOW METAL DOORS	1 - 3
08 33 13	OVERHEAD COILING DOOR (EXTERIOR)	1 - 2
08 52 10	ALUMINUM WINDOWS	1 - 3
08 71 00	FINISH HARDWARE	1 - 8

DIVISION 09 FINISHES

09 91 00	PAINTING	1 - 4
----------	----------	-------

DIVISION 13 SPECIAL CONSTRUCTION

13 34 19	METAL BUILDING SYSTEMS	1 - 5
----------	------------------------	-------

DIVISION 23 – MECHANICAL *SEE DRAWINGS*

DIVISION 26 - ELECTRICAL *SEE DRAWINGS*

DIVISION 32 – EXTERIOR IMPROVEMENTS *SEE DRAWINGS*

DIVISION 33 – UTILITIES *SEE DRAWINGS*

SECTION 00 11 13 - BID NOTICE

PART I - GENERAL

Legal notice is hereby given that sealed bids will be received by the SCHOOL BOARD of SUWANNEE COUNTY, 702 2nd Street N.W., Live Oak, FL 32064 until 2:00 pm (local time) on February 11, 2014 for the SUWANNEE PRIMARY SCHOOL COVERED PLAY STRUCTURE and the TRANSPORTATION & I.T. SHELL STRUCTURE. Any bid received after the specified time and date will be rejected.

A pre-bid conference will be held at the FACILITIES DEPARTMENT, 1729 S.W. Walker Avenue, Live Oak, FL 32064 on January 30, 2014, starting at 10:30 am.

SECURING DOCUMENTS:

Plans and specifications may be downloaded from the SUWANNEE COUNTY SCHOOLS web site at <http://suwannee.schooldesk.net/Bids/tabid/7303/Default.aspx> under Bid #14-201.

Questions may be directed to Mark Carver, Director of Facilities at mark.carver@suwannee.k12.fl.us or John Zwick, Architect, LEED AP at john.zwick@architectsrzk.com.

BONDS:

Each bid shall be accompanied by a Bid Bond or Cashier's Check in the amount of 5% of the base bid payable to the SCHOOL BOARD OF SUWANNEE COUNTY as evidence of good faith and guaranteeing that the successful bidder will execute and furnish to Owner a Performance Bond meeting the standards outlined in the specifications for 100% of the contract price, within ten (10) days after being awarded the contract, said bond guaranteeing the performance payment of said contract, the premium of said bond to be paid by the said Contractor.

BIDS:

Each bid shall be made in strict accordance with the Instructions to Bidders, Section 00 21 13, and all applicable conditions and requirements specified in the project bid and contract documents.

The successful bidder, if any, will be notified after the client has awarded the contract. The Contractor will be required to complete said project within the time set forth in the contract document. The Owner reserves the right to reject any and all bids, to waive any informalities or irregularities of bids, or to accept any bid in part.

END OF SECTION 00 11 13

SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS

ARTICLE 1:

GENERAL:

DEFINITIONS:

Bidding Documents include the Advertisement or Invitation to Bid, Instructions to Bidders, the bid form, other sample bidding and contract forms and the proposed Contract Documents including any Addenda issued prior to receipt of bids.

All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the bidding documents by addition, deletions, clarifications, or corrections.

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.

Base Bid is the sum stated in the Bid for which the Bidder offers to perform Work described as the base, to which Work may be added or deducted for sums stated in Alternate Bids.

An **Alternate Bid** (or Alternate) is an amount stated in the Bid to be added to or deducted from 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.

A **Unit Price** is an amount stated in the Bid as a price per unit of measurement for materials or services as described in the Contract Documents. Such prices may be used in calculating additions or deletions to the project scope.

A **Bidder** is one who submits a Bid for a prime contract with the Owner for the Work described in the proposed Contract Documents.

A **Sub-bidder** is one who submits a bid to a Bidder for materials or labor for a portion of the Work.

ARTICLE 2:

BIDDER'S REPRESENTATION:

Each Bidder by making his bid represents that:

He has read and understands the Bidding Documents and his Bid is made in accordance therewith.

He has visited the site and existing structures and has familiarized himself with the local conditions under which the Work is to be performed. The "subsurface investigation" report, if applicable, is made a part of this specification and follows in another section.

His Bid is based upon the materials, systems and equipment described in the Bidding Documents without exceptions.

Bidder is advised that any additional changes over and above the Bid cost will not be considered based on the Bidder's lack of knowledge of the Bidding documents.

ARTICLE 3:

BIDDING DOCUMENTS:

Copies:

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.

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.

Interpretation or correction of bidding documents:

Bidders shall promptly notify the Architect of any ambiguity, inconsistency or error which they may discover upon examination of the Bidding Documents or of the site and local conditions.

Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Architect, to reach him at least ten (10) days prior to the date for receipt of bids.

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.

Substitutions:

The material, 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.

The Bidder shall be allowed to submit Bids on materials and equipment other than those which the specifications are based upon, within the constraints of the individual specifications sections and section 01 60 00.

"Relevant Product Data" shall name the specific substitute product or equipment item by model, type, size, etc., along with product/equipment performance data; appearance, photos and samples; add drawn information to indicated approximate fabrication, location and installation information. The Contractor shall be responsible for installing all substitute products of equipment in a manner consistent with the general design of the facility as interpreted by the Architect/Engineer. Furthermore, the Contractor shall be responsible to interface all substitute products or equipment in a complete and finished manner with no additional cost to the Owner.

Addenda:

Addenda will be mailed or delivered to all general contractors and plan rooms who are known by the Architect to have received a complete set of Bidding Documents.

Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

Typically, no Addenda will be issued later than Five (5) calendar days prior to the date for receipt of bids except an Addendum, if necessary, postponing the date for receipt of bids or withdrawing the request for bids. To maintain a bid date, faxed or emailed addenda may be issued up to the day prior to receiving bids.

Each bidder shall ascertain prior to submitting his bid that he has received all Addenda issued, and he shall acknowledge their receipt on his price proposal document.

ARTICLE 4:

BIDDING PROCEDURE:

Form and Style of Bids:

Bids shall be submitted in duplicate (2) on the forms provided by herein.

All blanks on the bid form shall be filled in.

Where so indicated by the makeup of the bid form, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the written amount shall govern.

Any interlineation, alteration or erasure must be initialed by the signer of the Bid.

All requested alternates shall be bid.

Bidder shall make no additional stipulations on the bid form nor qualify his bid in any other manner.

Each copy of the Bid shall include the legal name of Bidder and a statement whether Bidder is a sole proprietor, a partnership, a corporation, or any other legal entity, and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the State of Incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached certifying agent's authority to bind Bidder.

Bid Security:

Each bid shall be accompanied by a bid security in the amount of at least 5% of the bid in the form of a Cashier's Check made payable to the Owner or a Bid Bond executed by the bidder pledging that the Bidder will enter into a contract with the Owner on the terms stated in his Bid and will, furnish bonds as described hereunder in Article 8 covering the faithful performance of the Contract and the payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds, if required, the amount of the bid security shall be forfeited to the owner as liquidated damages, not as penalty.

The Owner will have the right to retain the bid security of Bidders until either (a), the Contract has been executed and bonds, if required, have been furnished or (b) the sixty (60) days has elapsed so that Bids may be withdrawn, or (c), all Bids have been rejected.

Submission of Bids:

All copies of the bid, and the bid security shall be enclosed in sealed, separate, opaque envelopes, the envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and the portion of the project or category of work for which the Bid is submitted. If the bid is sent by mail, the sealed envelopes shall be enclosed in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof.

Bids shall be deposited at the designated location prior to the time and date for receipt of bids indicated in the Advertisement or Invitation to Bid, or any extension thereof made by Addendum.

Bidder shall assume full responsibility for timely delivery at location designated for receipt of Bids.

Oral, telephonic or telegraphic Bids are invalid and will not receive consideration.

Modification of Withdrawal of Bid:

A Bid may not be modified, withdrawn or canceled by the Bidder for sixty (60) days following the time and date designated for the receipt of Bids, and Bidder so agrees in submitting his Bid.

Prior to the time and date designated for receipt of Bids, Bids submitted early may be modified or withdrawn only by notice to the party receiving Bids at the place and prior to the time designated for receipt of Bids.

Such notice shall be in writing over the signature of the Bidder or be by telegram; if by telegram, written confirmation over the signature of Bidder must have been mailed and postmarked on or before the date and time set for receipt of Bids; it shall be so worded as not to reveal the amount of the original Bid.

Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

Bid security, shall be in an amount sufficient for the Bid as modified or resubmitted.

List of Subcontractors:

The Bidder shall submit a list of names of Subcontractors, other persons or organizations (including those who are to furnish materials or fabricate equipment) proposed for the principal portions of the Work at the time of the Bid; or, within 24 hours of the bid receipt time.

The Bidder shall use AIA Document G805, "List of Subcontractors" for this submittal. The Bidder shall not list himself as a material supplier or subcontractor unless A.I.A. Doc. 305 "Contractor: Qualification Statement" clearly identifies a capability for the work. The Bidder must identify a subcontractor for each section of work or risk rejection of his bid. The Bidder, if awarded this contract, may not change the subcontractor without first submitting a written request to the Architect and receiving written acknowledgment in reply.

ARTICLE 5:

CONSIDERATION OF BIDS:

Opening of Bids:

Unless stated otherwise in the Advertisement or Invitation to Bid, the properly identified Bids received on time may or may not be opened publicly or made public at the discretion of the Owner.

Rejection of Bids:

The Owner shall have the right to reject any or all Bids and in particular to reject a Bid not accompanied by any required bid security or data required by the Bidding Documents or a Bid in any way incomplete or irregular.

Acceptance of Bid (Award):

The Owner shall have the right to waive any informality or irregularity in any Bid received.

It is the intent of the Owner, if he accepts any Alternates, to accept them in any order or combination to determine the low Bidder.

ARTICLE 6:

QUALIFICATION OF CONTRACTORS:

Prospective Contractors shall execute and submit A.I.A. Document A305, "Contractor's Qualification Statement" a minimum of 10 days prior to the bid date in order to qualify to bid this work.

ARTICLE 7:

POST-BID INFORMATION:

Submissions:

The Bidder will be required to establish to the satisfaction of the Architect and the Owner 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 Subcontractors' respective trades.

Prior to the award of the Contract, the Architect will notify the Bidder in writing if either the Owner or the Architect, after due investigation, has reasonable and substantial objection to any person or organization on such list. If the Owner or Architect has a reasonable and substantial objection to any person or organization on such list, and refuses to accept such person or organization, the Bidder may, at his option, (1) withdraw his bid, or (2) submit an acceptable substitute Subcontractor. In the event of either withdrawal or disqualification under this Subparagraph, bid security will not be forfeited.

Subcontractors and other persons and organizations proposed in writing by the Bidder and accepted by the Owner and the Architect must be used on the Work for which they were proposed and accepted; and, shall not be changed except with the written acknowledgment of the Owner and the Architect.

ARTICLE 8:

PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND:

Owner's Right to Require Bonds:

The Owner shall require the Bidder to furnish bonds covering the faithful performance of the Contract and the payment of all obligations arising thereunder in such form and amount as the Owner has prescribed in the Supplementary General Conditions, and with such sureties secured through the Bidder's usual sources as may be agreeable to the parties. The furnishing of such bonds shall be paid by the Contractor.

Time of Delivery and Form of Bonds:

The Bidder shall deliver the required bonds to the Owner not later than ten working days (10) from the Award of the Contract and prior to commencement of the Work.

Unless otherwise specified in the Bidding Documents, the bonds shall be written in the form of A.I.A. Document A311, Performance Bond and Labor and Material Payment Bond, meeting the current laws and regulations in the State of Florida including Florida State Statute 255.05 or 713.23 whichever may apply.

The Bidder shall require the Attorney-In-Fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his Power of Attorney.

ARTICLE 9:

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR:

Form To Be Used:

Unless otherwise provided in the Bidding Documents, the Agreement for the Work will be written on the Standard Form of Agreement between Owner and Contractor where the basis of payment is a Stipulated Sum. A.I.A. Document A101.

END OF SECTION 00 21 13

SECTION 00 30 00 – AVAILABLE INFORMATION

PART 1 GENERAL

This section includes references to:

- Geotechnical Data

PART 2 – DATA

GEOTECHNICAL DATA:

If applicable, a subsurface soils and geotechnical report with soils stabilization and foundation recommends will be included with the construction documents for the benefit of bidders and contractors working on the project.

The geotechnical work has been undertaken and prepared by: To be included later.

If there are questions regarding results and recommendations, inquiries shall be made directly to the geotechnical engineer. The geotechnical report for this work, if applicable, is included with this Specifications Book.

END OF SECTION 00 30 00

SECTION 00 42 00 - BID PROPOSAL FORM

PART 1 - GENERAL

FROM: (Bidder's Name) _____

hereinafter called "Bidder"

TO: SUWANNEE COUNTY SCHOOL BOARD
702 2nd Street, N.W.
Live Oak, FL 32064

hereinafter called "Owner"

PROJECT:

Pursuant to and in compliance with the invitation to bid and the proposed Contract Documents relating to SUWANNEE PRIMARY SCHOOL COVERED PLAY STRUCTURE and TRANSPORTATION & I.T. SHELL STRUCTURE.

hereinafter called the "Work"

PROPOSAL:

The undersigned, as bidder, declares that he has examined the site of the Work and informed himself fully in regard to all conditions pertaining to the places where work is to be done, exclusive of destructive investigation; that he has examined the plans and specifications for work and contractual documents relative thereto; that he has read all special provisions furnished prior to the opening of bids; and, that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees, if this proposal is accepted, to contract with the Owner in the form of the Work in full and complete accordance with the shown, described, and reasonable intended requirements of the plans and specifications and contract documents to the full and entire satisfaction of the Owner, with a definite understanding that no money will be allowed for extra work except as set forth in the attached General Conditions and Contract Documents.

The proposal amounts, whether base bid or alternate, shall include all overhead, profit, state sales tax, building permit cost, utility fees and any other such costs as required for the work.

BASE BID:

All labor, material, services, and equipment necessary for completion of the work shown on the Drawings and in the Specifications, except for the items described as an "Alternate".

For the lump Sum of

_____ Dollars (\$ _____ .00)

For the purpose of accounting, separate the bid into two prices, one for each building location as follows:

A. Transportation/IT Building Cost: _____

_____ Dollars (\$ _____ .00).

B. Covered Play Structure Cost: _____

_____ Dollars (\$) _____ .00 _____).

ADDENDUM RECEIPT:

Bidders shall acknowledge below the receipt of any and all addenda, if any, to the plans and specifications listing and addenda by number and date.

Addendum No.	Date
Addendum No.	Date
Addendum No.	Date
Addendum No.	Date

FURTHERMORE:

The undersigned, as bidder, hereby declares that the only person or persons interested in the proposal as Principal or Principals is, or are, named herein and that no other person that herein mentioned has any interest in this proposal or in the contract to be entered into, that this proposal is made without connections with any other person, company or parties making a bid.

The Bidder understands that the Owner reserves the right to reject this bid, but that this bid shall remain open and shall not be withdrawn for a period of forty-five (45) days from the date prescribed its opening.

The Bidder further proposes and agrees to commence work under its contract within seven (7) days from the date of written notice to proceed, and shall substantially complete all work under the contract in **one hundred twenty (120) calendar days** from the date of the written notice to proceed.

The Bidder understands and agrees that no contractual relationship exists, or is created between the Owner and the Bidder by the tendering of this bid proposal.

RESPECTFULLY SUBMITTED,

Name of Firm

BY: _____

TITLE: _____

END OF SECTION 00 42 00

SECTION 00 43 13 - BID BOND

DESCRIPTION:

The Bidder shall provide a Bid Guaranty in accordance with Section 00010 and 00100, in the amount of at least 5% of the bid in the form of a cashier's check made payable to the Owner or a bid bond executed by the bidder, as principal, and having a surety thereon of a Surety company meeting the standard outlined in the Supplementary General Conditions.

EXECUTION:

The Bid Bond, AIA Document A310 shall be executed and accompany the Bidders Bid with method prescribed in Section 00100.

END OF SECTION 00 43 13

SECTION 00 45 13 – BIDDING CONTRACTOR QUALIFICATION STATEMENT

DESCRIPTION:

Prospective Contractors (Bidders) shall execute and submit per specification Section 00 21 13 AIA Document A305, "Contractor's Qualification Statement," a copy of which is available at the Architect's office at the cost of printing only.

END OF SECTION 00 45 13

SECTION 00 52 00 - AGREEMENT BETWEEN OWNER AND CONTRACTOR

DESCRIPTION:

The following AIA Document A101, "Standard Form of Agreement Between Owner and Contractor - Stipulated Sum" shall be the format between the successful Bidder for this work and the Owner.

PROVISIONS:

Article 3 of AIA Document A101 will identify liquidated damages as follows:

"It is specifically agreed by and between the Owner and Contractor that the Owner may retain a sum in the amount as scheduled below from the amount of compensation to be paid the Contractor, herein above, Sundays and Holidays included that the work remains substantially incomplete.

<u>CONTRACT AMOUNT</u>	<u>FIRST 15 DAYS</u>	<u>SECOND 15 DAYS</u>	<u>31ST DAY & THEREAFTER</u>
Under \$50,000	\$50.00	\$100.00	\$200.00
\$50,000 to \$99,999	\$100.00	\$200.00	\$500.00
\$100,000 to \$5,000,000	\$200.00	\$400.00	\$1,000.00
\$5,000,000 and up	\$1,000.00	\$2,000.00	\$3,000.00

This amount as scheduled, is agreed upon as a proper measure of Liquidated Damages which the Owner will sustain per day by failure of the Contractor to complete the work by the item stipulated in this Contract and is not to be construed in any sense as a penalty provision.

The Contractor shall take into account all contingent work which has to be done by other parties, and shall not plead his want of knowledge of said contingent work as an excuse for delay in his work, or for non-performance."

EXECUTION:

The Agreement shall be executed by legal representatives of the Owner and the Contractor.

END OF SECTION 00 52 00

SECTION 00 60 00- PROJECT FORMS

INSTRUCTIONS:

The forms and certificates listed below are to be used by the Contractor for submissions for contractual and administrative requirements specified herein.

Requirements and instructions on the forms may constitute extensions of, or additions to, the contractual conditions of the contract and the general requirements of the specifications.

Prepare all forms as required with all blank spaces filled in, in ink or typewritten.

PROJECT FORM LISTING:

TITLE	DOCUMENT NUMBER
Certificate of Insurance	AIA Doc. G-705
List of Subcontractors	AIA Doc. G-805
Application & Certificate for Payment	AIA Doc. G-702
Application & Certificate for Payment	AIA Doc. G-703
Architect's Field Order	AIA Doc. G-708
Proposal Request	AIA Doc. G-709
Change Order	AIA Doc. G-701
Certificate of Substantial Completion	AIA Doc. G-704
Consent of Surety Company to Final Payment	AIA DOC. G-707
Contractor's Affidavit for Payment of Debts and Claims	AIA Doc. G-706
Contractor's Affidavit of Release of Liens (Final Release)	AIA Doc. G-706A

END OF SECTION 00 60 00

SECTION 00 61 13 - PERFORMANCE AND PAYMENT BOND

DESCRIPTION:

The successful bidder shall provide a "Performance Bond" and "Labor and Material Payment Bond" AIA Documents, A311, copies which follow in accordance with the Owner-Contractor Agreement (Section 00500) and in compliance with current laws and regulations in the State of Florida, including Florida State Statute 255.05 or 713.23 whichever may apply in the amount equal to 100% of the contract price.

EXECUTION:

Within ten (10) calendar days of the award of the contract, and prior to the commencement of construction the Contractor shall submit the Performance and Payment Bond to the Owner fully completed and executed in the manner specified. See Section 00 73 00, Supplementary General Conditions, for additional provision regarding these Bonds.

The Contractor shall provide the name and address of his bonding agent and surety company to all subcontractors and agencies supplying materials or work on this contracted project.

END OF SECTION 00 61 13

SECTION 00 72 00 - GENERAL CONDITIONS

REFERENCE:

The general conditions of this contract are the American Institute of Architects Document A201, "General Conditions of the Contract for Construction", 2007, Fourteenth Edition, hereinafter referred to as the "General Conditions".

A copy of the General Conditions may be obtained from the Architects office at cost. Additional copies may be purchased from the American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C. 20006.

The General Conditions shall apply to each and every section of the Work as though written in full therein.

DEFINITIONS:

The following definitions shall amend the General Conditions in a manner to specifically apply to this project.

Contract Documents: The Contract Documents, as referred to herein, consist of the Contract, the Legal Advertisements covering Opening of Bids, the Performance Bond, the Labor, and Material Payment Bond, the Instruction to Bidders and General Conditions, the Special Conditions, Technical Specifications, Contract Drawings, and Addenda, all incorporated into the contract before its execution. These documents apply to each and every division and section of the specifications, the plans and working drawings and all modifications issued after the execution of the contract, as if written in full therein. All plans and drawings, general requirements, and technical specifications, modifications, and all other items included as a part of the Summary of Work Section 01 10 00 are also a full and effective portion of the Contract Documents.

Owner: As herein used shall mean: SUWANNEE COUNTY SCHOOL BOARD

Architect: As herein referred to shall mean Architects RZK, Inc., 600 Florida Avenue, Suite 202, Cocoa, Florida 32922.

Contractor: As used herein refers to the person, firm, or corporation authorized to do business in the State of Florida with whom a contract has been made directly or through accredited representatives that have entered into a contract with the Owner for the performance of the work described by these documents.

Other Contractors: As used herein shall mean any person, firm or corporation with whom a contract has been made by the Owner for the performance of any work on the site of this building, which work is not a portion of the work covered by this contract.

Inspector: As used herein shall mean any authorized representative of the Owner.

Subcontractor: As used herein refers to and shall include all those performing labor or furnishing materials under the supervision and control of the Contractor and not in privity of contract with the Owner.

Superintendent: As used herein refers to the executive representative of the Contractor who is present on the work at all times during progress, authorized to receive and fulfill instructions from the Architect, and capable of superintending work efficiently.

Surety: As used herein shall mean the firm, corporation, or individual which is bound by the Performance Bond, Labor and Material Payment Bond, with and for the Contractor, and which

engages to be responsible for the Contractor's acceptable Performance, Labor and Material Payment of the work and for payment of all debts pertaining thereto.

Project: As used herein shall mean the construction of **Suwannee Primary School Covered Play Structure and Transportation & I.T. Building Shell Structure**

Proposal Guarantee: As used herein shall mean the Bid Bond or good faith deposit, acceptable to the Owner, designated in the proposal to be furnished by the bidder as a guarantee of good faith to enter into a contract with the Board, if the contract is awarded to him.

Written Notice: Shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by certified or registered mail to the last business address known to him who gives notice.

Work: As used herein means labor or materials furnished by the Contractor or Subcontractor.

Completion: As used herein means that the facility called for is fully executed and completed in accordance with the contract.

Plans: As used herein include all drawings and specifications.

Punch List: Is a compilation of items which have been found to require further attention by Contractor.

END OF SECTION 00 72 00

SECTION 00 73 00 - SUPPLEMENTARY GENERAL CONDITIONS

SCOPE:

The Supplementary General Conditions modify, change, delete from or add to the General Conditions (A.I.A. 2007 Edition) and shall apply to each and every Section of the Work as though written in full therein.

SUPPLEMENTARY CONDITIONS:

The following paragraphs and subparagraphs take precedence over the General Conditions. Where any part of the General Conditions is modified or deleted by the Supplementary General Conditions, the unaltered provisions remain in effect.

Paragraph numbers and titles refer to like numbers and titles in the General Conditions.

ARTICLE 1 - GENERAL PROVISIONS:

- 1.1.3.1 The work of this Contract shall be the construction of the SUWANNEE PRIMARY SCHOOL COVERED PLAY STRUCTURE and TRANSPORTATION & I.T. BUILDING SHELL STRUCTURE
- 1.1.6.1 The section, article and paragraph headings in the Specifications are inserted only as a matter of convenience and for reference, and in no way define, limit or describe the scope or intent of any provision of the Contract Documents.
- 1.2.2.1 Scope paragraphs placed at the beginning of the Sections present a brief indication of the principal Work included in that Section, but do not limit Work to subject mentioned.
- 1.2.2.2 The Specifications have been partially "streamlined" and some works and phrases have been intentionally omitted. Missing portions shall be provided by inference as with notes on drawings.
- 1.2.4 Locations of piping, ductwork, conduit, outlets and the like, shown on the mechanical and electrical drawings are diagrammatic, except where specifically indicated by dimension or as existing. Therefore, it shall be the duty of the Contractor and his subcontractors to consult with each other and verify conditions, and in each case where there is a question of doubt as to adequacy of space or indicated arrangements, to submit a workable solution to the Architect for his approval before installing the work which is questionable.
- 1.2.4.1 Failure to report a conflict or ambiguity in the Contract Documents shall be deemed evidence that the Contractor has elected to proceed in the more expensive manner.
- 1.2.5 Upon award of the Contract, the Contractor will be furnished a disk containing the Contract Drawings and Specifications.

ARTICLE 2 - OWNER

- 2.2.3.1 The Owner does not warrant the accuracy of said surveys or utility locations and the Contractor shall be responsible for verifying all existing conditions. Those conditions which vary substantially from that noted or reasonably inferred therefrom will be considered for a change in the contract work.

- 2.2.5.1 Upon award of the Contract, the Contractor will be furnished signed and sealed permit sets of the Contract Drawings and Specifications.

ARTICLE 3 - CONTRACTOR:

- 3.3.4 Contractor is responsible for correlating the work of Subcontractors and exercising general superintendence over them. Contractor shall determine the extent of work of Subcontractors so the necessary placing of sleeves, inserts, anchors, hangers, bolts, bucks, sub-bases, pipes, conduits, mounting devise and other roughing-in may be accomplished by the proper time to provide for the ultimate placing or installing of equipment and fixtures. Contractor shall see that the work of Subcontractors is performed properly so there will be a minimum of cutting of work in place.
- 3.4.3.1 Contractor and his Subcontractors shall have full control of all persons in their employ; however, the Owner/Architect shall have the right to require Contractor to remove any Contractor or Subcontractor employee(s) whose actions have a disruptive effect upon the construction site. Further, Owner shall have the right to require Contractor to replace, within ten (10) days of Contractor's receipt of Owner's written notice, any employee or supervisor of Contractor or its Subcontractors.
- 3.4.4 Contractor shall notify Owner of potential jurisdictional disputes of or claims of two or more trades for work and shall consult with the Owner relative to any potential or actual slowdowns, stoppage, picketing or any other action that might result in labor disputes or work disruption at the Project Site.
- 3.4.5 To expedite inspection and testing of materials, the Contractor shall furnish complete statements to the Architect as to the origin, composition and manufacture of all materials to be used in the Work. Such statements shall be furnished promptly after execution of the Contract but, in all cases, prior to delivery of such materials. At the Owner's option, materials may be approved at the source of supply before delivery to the site. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources approved by Owner.
- 3.5.1 Contractor agrees to preserve for Owner any and all warranties furnished by Subcontractors and materialmen. In the event Contractor is unable to obtain from any Subcontractor or materialmen the warranty required by the Contract Documents, Contractor expressly assumes the risk of providing such warranty in lieu of the warranty sought from such Subcontractor or materialmen. Contractor shall accept no limitation of remedies or exclusion of warranties clauses in its Subcontracts or purchase orders or, alternatively, if such clauses are included in its Subcontracts or purchase orders, Contractor agrees to be fully liable to Owner for all damages sustained by the Owner or those claiming through the Owner notwithstanding such limitation or exclusion clauses. The Owner shall not be bound by any limiting language or clauses contained in any Subcontract or purchase order entered into by Contractor and no limiting language or clauses shall reduce, affect or limit in any way Contractor's liability to Owner. Any exception to this provision must be agreed to in writing by Owner.
- 3.7.4 (related to concealed or unknown conditions): line 6, delete 21 days and insert 7 days.

- 3.7.6 Where requirements of the Contract Documents differ from laws, ordinances, rules, regulations, orders, the Building Code or the requirements of authorities having jurisdiction, the more stringent requirements shall govern. Subject to the provisions of Subparagraph 3.7.2, any major changes in the scope of the Work as the result of laws, ordinances, rules, regulations, orders or the Building Code, the requirements of which are more stringent than the Contract Documents, shall be accompanied by appropriate Change Order Request from the Contractor.
- 3.7.7 On behalf of the Owner, the Contractor shall file a Notice-Of-Commencement, in accordance with State of Florida laws, with the applicable jurisdiction for the project.
- 3.9.2 Delete existing paragraph 3.9.2 and insert: "Contractor's superintendent(s) and/or project manager(s) shall have had recent experience in the type of Work to be performed under this Contract which shall be specified in a written Notice to Owner. Owner shall be deemed to accept such person(s) unless, within fourteen (14) days after receipt of such notice, Owner objects in writing to the selection. If Owner so objects, Contractor shall select another person and the above process shall be repeated. No adjustment in Contract time or Contract Sum shall be permitted for compliance with this subparagraph. Should Contractor's superintendent or project manager have to be replaced during the course of this Contract, this subparagraph shall apply."
- 3.11.1 The Job Superintendent, and the plumbing, heating, ventilation and electrical subcontractors shall make and keep current red line corrections on drawings, showing exact location of underground lines. The red line drawings shall include all underground or concealed pipes, conduit, ducts, and all existing items which were not installed exactly as shown on drawings. Failure to keep record drawings current will delay processing of monthly payments.
- 3.12.11 Architect's approval of Shop Drawings or Samples of Product Data which deviate from the Contract Documents does not authorize change to the Contract. Any changes to the Contract affected by such Shop Drawings, Samples or Product Data, shall be recorded by the Contractor on the as-builts record drawings. Construction cost associated with changes indicated in approved shop drawing shall be borne by the Contractor who proposes the change.
- 3.13.1 Contractor's proposed use of the Site shall be subject to Owner's prior written approval.
- 3.15.3 At reasonably frequent intervals during progress of Work, Contractor shall clean up site, building and access, and dispose of waste materials, rubbish and debris. Contractor shall provide containers and location on site for collection of waste materials, rubbish and debris. Contractor shall not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.
- Contractor shall lower waste materials in a controlled manner with as few handlings as possible and shall not drop or throw materials from heights. Contractor shall schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- Contractor shall schedule clean-up operations such that it does not interfere with the Owner's operations should that apply.
- Contractor shall conduct clean-up and disposal operations to comply with local ordinances and anti-pollution laws. Burning or burying of rubbish and waste

materials on the site is not permitted. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems or into streams or waterways or onto the ground is not permitted. Contractor shall remove waste materials, rubbish and debris from the Site and legally dispose of at public or private dumping areas off Owner's property.

Contractor shall vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as needed basis until the building areas are ready for Beneficial Occupancy.

- 3.18.1 (related to indemnification), first sentence, will be amended, in part, to read, "To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents, 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.

ARTICLE 4 - ARCHITECT

- 4.2.4.1 The Owner and Contractor shall issue all communications between each other simultaneously to the Architect.

ARTICLE 7 - CHANGES IN THE WORK

- 7.1.4 If Contractor wishes to make a claim for an increase in the Contract Sum, he shall give Owner written notice thereof within ten days after the occurrence of the event given rise to such claim. The amount of the adjustment shall be determined by one of the methods set forth in subparagraph 7.3.3. Any change in the Contract Sum resulting from such claim shall be authorized by written Change Order and shall not be valid or effective unless the written Change Order has been signed by Contractor, Owner and Architect.
- 7.2.2 For change order work, the maximum allowance of 5% profit and 10% overhead shall apply to the Contractor for work performed by his forces and to subcontractors and sub-subcontractors (combined if by both) for actual receipted material and direct labor costs. The Contractor may mark up subcontractor and sub-subcontractor cost by 5% maximum.
- 7.3.3.5 For each method previously listed (7.3.3.1 through 7.3.3.4) The Contractor shall submit a detailed cost breakdown for each task listed in a Proposal Request, AIA Doc. G709, or Change Order request. A cost breakdown shall mean the elements listed in 7.3.7.1 through 7.3.7.5. All cost elements shall be related directly to the tasks listed in the Proposal Request or Change Order Request. Other than profit, overhead and bond premiums, no cost shall be determined in a percentage basis. The Contractor shall submit a reply to the Architect's Proposal Request within ten (10) days of its date unless a letter is received by the Architect prior to the tenth day stating the cause for a delayed response. Upon receipt of a Contractor response, the Owner and Architect shall review the amounts. The Architect shall prepare a change order directive, AIA Doc. G701 as negotiated or deny the change order request; or, direct the work of the change order as allowed by Subparagraph 7.3.7.
- 7.3.3.6 Mark-ups for overhead, profit and commission shall be per subparagraph 7.2.2

- 7.3.5.1 In the event of failure to reach a timely agreement on a proposal submitted by the Contractor, the Architect and Owner may direct the Contractor to proceed whereby the cost shall be determined in accordance with 7.3.7 but in no case shall that cost exceed the increase of the proposal.
- 7.4.1 Minor changes so documented may, at a later date, be incorporated into the Drawings or Specifications, but this will in no way be cause for Contractor to make claim for additional cost or time if such claim has not been made promptly at the time of receipt of such instructions.

ARTICLE 8 - TIME

- 8.3.4 In case of claims for extension of time because of adverse weather, such extension of time shall be granted only when adverse weather prevented the execution of major items or Work on normal working days. The Contractor must notify the owner immediately [within one (1) hour] when a weather delay takes place. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the Work. "Adverse weather" shall be defined to indicate weather which is not normal (on a 5 year average) for the Site.
- 8.3.5 For each calendar day that any part of the Work remains uncompleted after the expiration of the Contract Time; including all extensions and adjustments as agreed, sums set out in the Agreement Between Owner and Contractor as liquidated damages, shall be deducted from any monies due Contractor or, if no money is due Contractor, Owner shall have the right to recover said sum or sums from Contractor, from the surety, or from both. The amount of these deductions are to cover liquidated damages to Owner incurred by additional and other expenses due to the failure of Contractor to complete the Work or any part of the work within the time specified, and such deductions are not to be considered as penalties. The sums represent liquidated damages for the loss to Owner on account of the expense due to the employment of the Architect and to any other expenses after the expiration of completion time.
- 8.3.6 By permitting the Contractor to continue and finish the Work, or any part of it, after the date fixed for its completion or after the date to which the time for completion may have been executed, will in no way serve as a waiver on the part of the Owner of any of its rights under the Contract.
- 8.3.7 There shall be no changes in the time limits allotted for Substantial Completion of the Work except by Change Order. Provisions similar to this are included in all contract documents governing work to be performed under this Contract. In the event that Contractor fails to complete any of the various work elements in the allotted time, he shall be liable for additional costs, including all attorney's fees, which are incurred by Owner because of failure of Contractor to complete such work within such time limits.
- 8.3.8 The Contractor shall cooperate with the Owner in order to maintain the contractual schedule. If Owner determines Contractor is falling behind schedule, contractor must, upon written request of Owner, submit to the Architect and Owner operational plans detailing Contractor's plan of action to regain lost time. If Owner determines it is in its own interest, Contractor shall comply with Owner's written orders to Contractor to take such steps as are necessary to improve progress of the Work. These steps may include, but are not limited to, expediting delivery times, or increasing overtime operations. No additional compensation will be made to Contractor for work done under this subparagraph.

ARTICLE 9 - PAYMENTS AND COMPLETION

- 9.2.1 The Schedule of Values shall breakdown the bid price in an organized manner to conform to the Technical Specification Index. Include cost of all required building permits, fees, premiums, bonds, etc.
- 9.2.2 When the Owner seeks exemption from the Florida State Sales Tax, the Schedule of Values shall have a column added separating the materials and building equipment costs from other costs for each line item.
- 9.3.1.3 The Architect may require a rough draft of the proposed application to review with the Contractor prior to submitting the final submittal.
- 9.7.1 Anything to the contrary notwithstanding, Contractor may not stop the Work for Owner's failure to pay if Owner's nonpayment is caused by defects in the Certificate for Payment.
- 9.8.1.1 Substantial completion cannot be achieved by the Contractor without express written approval of the public authorities having jurisdiction over the work.

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

- 10.2.1.4 The Contractor shall be responsible for repair of Contractor damages to any utility lines that are visible, shown on Contract Documents or made known in advance to the Contractor. The Contractor shall promptly report to the Architect any damages to lines not made known to him in advance. Locations of underground lines shown in the drawing are based on best available information, but are not necessarily exact in regard to location or number of lines.
- 10.2.8.1 Contractor agrees to abide by OSHA and any other safety regulations or regulatory agencies. Contractor will promptly report to Architect all lost time, injuries or property damage involving its work or employees. Such report shall be in writing and in a form acceptable to Architect.
- 10.2.9 When required by law or for the safety of the Work, Contractor shall shore up, brace, underpin and protect foundations and other portions of existing structures which are in any way affected by the Work. Contractor, before commencement of any part of the Work, shall give any notices required to be given to adjoining landowners or other parties.

ARTICLE 11 - INSURANCE AND BONDS

- 11.1.3 (related to certificates of insurance), second sentence will be amended to read, "These certificates and the insurance provisions required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be changed, canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner.
- 11.1.5 Certificates of Insurance for all required insurance coverages shall be forwarded to the Owner prior to the beginning of construction. All insurance shall remain in effect until the Owner accepts the project as substantially complete. The Contractor shall include the cost of this insurance as part of his original bid.

11.1.5.1 Insurance Requirements.

A. Contractor's insurers shall maintain an AM Best Rating of at least A-: IX and must be licensed in the state where work is being done. Contractor's insurance coverage must be written on a per Occurrence form.

B. Contractor's Commercial General Liability, Automobile Liability, Pollution Liability (when applicable) and Umbrella Liability policies shall be endorsed to name Suwannee County School Board (SCSB), its Officers, Trustees, employees, and independent contractors as Additional Insureds.

C. Contractor's insurance policies must

(1) include a waiver of subrogation in favor of SCSB,

(2) with respect to required liability policies, provide cross liability coverage as would be achieved under the standard ISO separation of insured clause;

(3) stipulate that with the exception of property insurance, the Contractor's policies of insurance shall be considered as primary insurance and any similar policy maintained by SCSB shall be considered as excess and non-contributory;

(4) designate SCSB as an additional insured (excepting Contractor's Workers' Compensation and Professional Liability (if applicable) policies) using ISO endorsement forms set forth below.

(5) provide coverage to SCSB for any and all bodily injury and property damage claims, costs and expenses arising out of or in any way relating to work or operations performed under this Agreement, including but not limited to bodily injury claims by employees of Contractor, regardless of whether Contractor's negligence, acts or omissions caused, contributed to or are alleged to have caused or contributed to the injury, damage or loss for which the claim is made

D. Contractor's failure to maintain the aforementioned insurance at any time required by this Agreement is a material breach of its obligations under this Agreement. In the event of any such breach, Contractor shall be liable to SCSB for any and all costs, liabilities, damages, penalties or expenses (including but not limited to attorneys fees, court and settlement expenses) sustained by Devereux in the handling, adjustment, defense and/or settlement of any claim that would otherwise be covered by such insurance.

E. Contractor shall provide SCSB with thirty (30) days' advanced written notice of the cancellation, non-renewal or material adverse change to the specified coverage and limits.

F. Prior to the commencement of any work, Contractor shall provide the SCSB Finance Director or his/her designee with Certificates of Insurance and relevant endorsements for all policies set forth above evidencing that Contractor and all sub-contractors, sub-consultants, independent contractors and any other person/entity performing duties under this Agreement on Contractor's behalf, have insurance coverage within the limits specified in this Agreement and have named SCSB as an additional insured [excepting Contractor's Workers' Compensation and Professional Liability (if applicable) policies] as described above.

G. Contractor shall monitor the compliance of sub-contracting parties with these insurance requirements, including maintaining Certificates of Insurance throughout the term of the contract. In the event Contractor fails to obtain the required certificates of insurance from the Subcontractor and a claim is made or suffered, the Contractor shall indemnify, defend and hold harmless SCSB from any and all claims for which the required insurance would have provided coverage. This indemnity obligation is in addition to any other indemnity obligation provided in the Contract.

11.1.5.2 Minimum Coverage Limits.

A. Contractor's requirements. Contractor shall obtain and maintain at all times during the course of this Agreement the following insurance and minimum limits:

(1) Workers' Compensation as required in compliance with the limits established by all applicable State and Federal law in which the work is to be performed and Employer's Liability Insurance with minimum limits of \$500,000 bodily injury for each employee, \$500,000 Disease Policy limit and \$500,000 Disease limit for each employee.

(2) Commercial General Liability Insurance on an "occurrence" basis including coverage for Premises and Operations, Products and Completed Operations, Personal Injury and Advertising Injury, Broad Form Property Damage, Independent Contractors, Broad Form Blanket Contractual Liability, "All Risk" Legal Liability, Coverage for Explosion, Collapse and Underground Property Damage (XCU), and Medical Payments. The minimum Limits of Liability required shall be:

Limit Per Occurrence	\$1,000,000
Personal Injury/Advertising Injury	\$1,000,000
Policy General Aggregate	\$2,000,000 with a "Per Project Aggregate Endorsement"
Product/Completed Operations	\$2,000,000
Medical Payments	\$10,000 each person
"All Risk" Legal Liability	\$100,000

Contractor's Commercial General Liability must include completed operations coverage and must be maintained for two (2) years from the day the work has been completed or the date of the last payment, whichever is later. Additional Insured coverage during the project, and for an additional two-year period for products/completed operations, shall be provided under ISO additional insured endorsement CG 20 10 or CG 20 33 **AND** CG 20 37 or substitute form(s) providing equivalent coverage.

(3) Automobile Liability Insurance covering any owned, hired or non-owned vehicle or other vehicle used in the performance of services hereunder in the amount of \$1,000,000 combined single limit per occurrence and including any statutorily mandated "No-Fault" Personal Injury Protection, medical payments or Uninsured/Underinsured Motorist coverage.

(4) Umbrella Liability Insurance shall provide following form coverage in excess of the above mentioned automobile, employers' and general and professional liability (if applicable) policies. Contractor's Umbrella policy shall be at least as broad in coverage as the primary layer policies and will contain no exclusion not on the primary layer policies. Minimum coverage limit required is:

___ \$5.0 million per occurrence and in the aggregate for those contractors involved in Excavation, Site Work, Blasting, Demolition, Roofing or any other operation involving work at heights in excess of 20 feet, or any work involving the hiring of a general contractor and/ or construction manager for the construction of a new building or renovation of an existing building with a total value in excess of \$250,000.

___ \$1.0 million per occurrence and in the aggregate for all other operations.

(5) Payment and Performance Bonds in an amount equal to 100% of the contract value are required for all projects of \$1.0 million or more. Performance and Payment Bonds may be required on other projects, subject to the judgment of SCSB's CFO. A letter from a surety evidencing the Contracting Party's ability to secure such bonds is required for any project greater than \$250,000 but less than \$1.0 million.

B. Subcontractor's requirements. Subcontractors shall be required to obtain and maintain at all times all insurances and minimums limits listed in Section II A(1) – (4) above.

C. Additional Insured Endorsement. All policies set forth above must be maintained for two (2) years from the day the work has been completed. Additional Insured coverage during the project, and for the additional two year period for products/completed operations, shall be provided under ISO additional insured endorsement CG 20 10 or CG 20 33 **AND** CG 20 37 or substitute form(s) providing equivalent coverage.

D. The insurance requirements and other provisions of this Agreement shall not limit the Contractor's indemnification obligations set forth in elsewhere in this Agreement.

ARTICLE 11.3 PROPERTY INSURANCE:

- 11.3.1.4.1 Although the Owner pays the Contractor for materials stored on site, it is the responsibility of the contractor to protect these materials from theft.
- 11.3.3 (related to loss of use insurance), second sentence will be amended to read, "The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential damages due to fire or other hazards, however caused, unless such loss is determined to be due to the negligence of the Contractor, subcontractor, sub-subcontractor or any other party providing services on behalf of the Contractor."
- 11.3.5 (related to property insurance), first sentence will be amended to read, "If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance it to be provided on the completed Project through a policy or policies other than those insuring the project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance, to the extent of such insurance, unless such loss is determined to be due to the negligence of the Contractor, subcontractor, sub-subcontractor or any other party providing services on behalf of the Contractor."
- 11.3.7 (related to waivers of subrogation), first sentence will be amended to read, "The Owner and the Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner, as fiduciary, unless such loss is determined to be due to the negligence of the Contractor, subcontractor, sub-subcontractor or any other party providing services on behalf of the Contractor."
- 11.3.9 (related to owner's bond upon occurrence of insured loss), first sentence shall be amended to read, "If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties, at the expense of that party in interest."

ARTICLE 11.4 PERFORMANCE BOND AND PAYMENT BOND:

- 11.4.1 Delete the existing paragraph and insert the following: The Contractor shall furnish Performance Bonds and Labor & Material Payment Bonds at least equal to the Contract price as security for the faithful performance and payment of all

Contractor's obligation under the Contract. These bonds shall identify the Owner as the beneficiary; and, shall remain in effect until one (1) year after the date of final payment, except as otherwise provided by law. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions. All bonds shall be in the forms prescribed by the bidding documents or Supplementary Conditions and be executed by such sureties as (a) are licensed to conduct business in the State of Florida and (b) are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All bonds signed by an agent must be accompanied by a certified copy of authority to act.

- 11.4.1.1 If the surety of any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in Florida. Contractor shall, within five (5) days thereafter, substitute another bond and surety, both of which shall be acceptable to Owner.
- 11.4.1.2 All surety companies are subject to approval and may be rejected by the Owner without cause, in the same manner that bids may be rejected.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

- 13.1.1 If any covenant, condition or provision contained in the Contract Documents is held to be invalid by any court of competent jurisdiction, such invalidity shall not affect the validity of any other covenant, condition or provision therein contained.
- 13.5.7 Inspections or tests not identified in the Contract Documents, determined by Contractor to be of his/her benefit and ordered by Contractor, shall be paid for by the Contractor.
- 13.5.8 If a proposed substitution requires investigation, testing or approval to determine its suitability for incorporation into the Work, the testing of the proposed substitution shall be determined by the Architect. Contractor shall bear all costs of such investigations or tests, including the Architect's additional services made necessary by such substitutions.

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT

- 14.1.2.1 Nothing in 14.1.2 shall authorize payment to Contractor for anticipated profits.

ARTICLE 15 – CLAIMS AND DISPUTES

- 15.1.6 (related to claims for consequential damages) deleted this sub paragraph.
- 15.2.1 (related to claims referred to initial decision maker), third sentence will be amended, in part, to read, "Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to ~~mediation~~ binding dispute resolution of any Claim..."
- 15.2.1.1 Any claim for extension of time or damages for delay or acceleration shall be made in writing to the Architect not more than ten (10) days from the commencement of the delay or acceleration; otherwise, it shall be waived. In the case of a continuing delay, only one claim is necessary.
- 15.2.5 (related to rendering the initial decision), last sentence will be amended to read, "The initial decision shall be final and binding on the parties but subject to

~~mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution."~~

- 15.2.6 (related to mediation of initial decision) deleted this sub-paragraph.
- 15.2.6.1 (related to demand for mediation after initial decision) deleted this sub-paragraph.
- 15.3 (related to mediation), including 15.3.1-15.3.3, deleted this sub-paragraph.
- 15.4 (related to arbitration), including 15.4.1, 15.4.1.1 and 15.4.2-15.4.3 deleted this sub-paragraph.

END OF SECTION 00 73 00

SECTION 00 90 10 - PROJECT FORMS

INSTRUCTIONS:

The forms and certificates listed below are to be used by the Contractor for submissions for contractual and administrative requirements specified herein.

Requirements and instructions on the forms may constitute extensions of, or additions to, the contractual conditions of the contract and the general requirements of the specifications.

Prepare all forms as required with all blank spaces filled in, in ink or typewritten.

PROJECT FORM LISTING:

TITLE	DOCUMENT NUMBER
Architect's Supplemental Instructions	AIA Doc. G710
Change Order	OEF Form 425
Contractor's Affidavit of Payment of Debts and Claims	AIA Doc. G706
Contractor's Affidavit of Release of Liens	AIA Doc. G706A
Consent of Surety Company to Final Payment	AIA Doc. G707
Proposal Request	AIA Doc. G709
Request for Inspection and Occupancy Certificate	OEF Form 110
Certificate of Final Inspection	OEF Form 209
Request for Information	SBBC Form
Project Close-Out Check List	SBBC Form
Project Substantial Completion Check List	SBBC Form
Project Final Close-Out Check List	SBBBC Form

END OF SECTION 00 90 10

SECTION 01 10 00 - SUMMARY OF THE WORK

PART 1 - GENERAL

RELATED DOCUMENTS:

Work of Contract can be summarized by reference to the Contract, General Conditions & Supplementary Conditions, specification sections as listed in the "Index of Specification Sections" bound herewith, drawings as listed in the Drawings and addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual, and including but not necessarily limited to printed matter referenced by any of these.

General: The work of this contract includes the remodeling of a Courtyard on an existing high school campus.

Abbreviated Written Summary: The work includes the provision and installation of all materials and equipment shown on contract drawings and/or specified in the contract specifications unless otherwise noted.

The work includes construction of a new enclosure and interior features on the existing, occupied primary school campus. In addition to the precautionary Life Safety concerns, the contractor shall satisfy the Jessica Lunsford Act requirements, along with other workman conduct control/monitoring.

The work includes adherence to State Requirements for Educational Facilities (SREF) as defined within the Florida Building Code (FBC) 2010 edition.

The work includes adherence to all pertinent requirements of the Florida Building Code (FBC) and other codes as referenced therein.

The work includes coordination of the contractor's planned construction activities with the district's Facilities Manager and the Principal of the school, as well as any persons identified by the district's Project Manager.

The work includes limited site work grading for site drainage associated with the roof drainage.

The Plumbing System includes rough in of underground, under slab piping and is further defined under respective sections herein.

The Electrical System minimal power for emergency lighting and for safety illumination and is further defined under respective sections herein.

PART 2 - PRODUCTS

SCHEDULE:

A project schedule is identified in other locations of this specification book.

PART 3 - EXECUTION

CONSTRUCTION SUPERVISION

The Contractor shall provide a Project Manager and full time Construction Superintendent. The Project Manager and Superintendent shall not be a subcontractor or tradesman engaged to perform as such on these projects. No work shall be performed by the Contractor or his subcontractors, at the site, unless either of these individuals is on site. **END OF SECTION 01 10 00**

SECTION 01 31 00 - SCHEDULES, REPORTS, PAYMENTS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of contract, including General and Supplementary Conditions and other Division-1 Specifications sections, apply to work of this section.

COORDINATION:

Coordinate both the listing and timing of reports and other activities required by provisions of this section and other sections, so as to provide consistency and logical coordination between the reports. Maintain coordination and correlation between separate reports by updating at monthly or shorter time intervals. Make appropriate distribution of each report and updated report to all parties involved in the work including the Architect/Engineer and Owner. In particular, provide close coordination of the progress schedule, schedule of values, listing of subcontracts, schedule of submittals, progress reports, and payment requests.

EXISTING CONDITIONS REPORTING:

Contractor shall immediately after notice to proceed, prepare a listing and "photo" report of the adjacent conditions of existing structure(s), prior to start of work. A copy of the photos and report shall be reviewed with and submitted to the architect and owner before demolition begins. Any items/fixtures missing which were to remain or be repaired/restored are to be identified in this report. Any structural cracking or damage to existing structures shall also be reported. Concealed adverse conditions, which could not be observed until demolition begins must be reported immediately as discovered/uncovered. Any and all claims by the contractor without substantiation by said reports and photos will be denied.

CONSTRUCTION PROGRESS SCHEDULE:

Chart Schedule: The form to be used for reporting progress schedules shall be as approved or provided by the Architect. Secure critical time commitments for performing major elements of the work. Within 20 days of the date established for "commencement of the work", submit a completed progress schedule, in accordance with the form instructions.

Distribution: Following the initial submittal to and response by the Architect/Engineer, print and distribute progress schedules to the Architect/Engineer and Owner (3 copies minimum).

Schedule Updating: Update schedule as required to maintain accurate current information and at least monthly. Minimally, submit three (3) copies minimum with the monthly application for payment.

SUBMITTAL SCHEDULE:

General: Immediately after acceptance of the fully developed progress schedule, prepare a complete schedule of work-related submittals. Correlate this submittal schedule with the listing of principal subcontractors, as required by the General Conditions, and with Section 01 33 00 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

SPECIAL REPORTS:

General: Submit special reports directly to the Owner within one day of an occurrence. Submit a copy of the report to the Architect and other entities that are affected by the occurrence.

Reporting Unusual Events: When an event of an unusual and significant nature occurs at the site, prepare and submit a special report. List chain of events, persons participating, response by the Contractor's personnel, an evaluation of the results or effects and similar pertinent information. Advise the Owner in advance when such events are known or predictable.

Reporting Accidents: Prepare and submit reports of significant accidents, at site and anywhere else work is in progress. Record and document data and actions. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

PROGRESS MEETINGS, REPORTING:

General: In addition to specific coordination and pre-installation meetings for each element of work, and other regular project meetings held for other purposes, hold general progress meetings each month with time coordinated with preparation of the payment requests. Review each entity's present and future needs including interface requirements, time, sequences, deliveries, access, site utilization, temporary facilities and services, hours of work, hazard and risks, housekeeping, change orders, and documentation of information for payment requests. Discuss whether each element of current work is ahead of schedule, on time, or behind schedule in relation with updated progress schedule. Determine how behind-schedule work will be expedited, and secure commitments from entities involved in doing so. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within Contract Time. Review everything of significance which could affect progress of the work.

Initial Progress Meeting: Schedule initial progress meeting, recognized as "Pre-Construction Conference", for a date not more than 10 days after date of commencement of the work. Use it as an organizational meeting, and review responsibilities and personnel assignments.

Reporting: Within 3 days after each progress meeting date, distribute copies of minutes-of-the-meeting to each entity present and to others who should have been present. Include brief summary (in narrative form) of progress of the work since previous meeting and report.

Schedule Updating: Immediately following each progress meeting, where revisions to progress schedule have been made or recognized, revise progress schedule. Reissue revised schedule concurrently with report of each meeting.

Daily Reports: Prepare a daily report, recording the following information concerning events at the site; and submit duplicate copies to Architect/Engineer at regular intervals not exceeding weekly intervals:

- List of subcontractors at the site
- List of separate contractors at the site
- Approximate count of personnel at the site
- High/low temperatures, general weather conditions
- Accidents (refer to accident reports)
- Meetings and significant decisions
- Unusual events (refer to special reports)
- Stoppages, delays, shortages, losses
- Meter readings and similar recordings
- Emergency procedures, field orders
- Orders/requests by governing authorities
- Change orders received, implemented

Services connected, disconnected
Equipment system tests and start-ups
Partial completions, occupancies
Substantial completions approved

SCHEDULE OF VALUES:

General: Prepare the schedule of values, as required by the General Conditions, in conjunction with the preparation of the progress schedule. Coordinate preparation of schedule of values and progress schedule. Correlate line items with other administrative schedules and the forms required for the work, including the progress schedule, payment request form, listing of subcontractors, schedule of allowances, schedule of alternatives, listing of products and principal suppliers and fabricators, and the schedule of submittals. Provide breakdown of the Contract Sum, by specification section, in sufficient detail to facilitate continued evaluation of payment requests and progress reports. Break down principal subcontract amounts into several line items. Round off to the nearest whole dollar, but with the total equal the Contract Sum. Submit for review and approval by A/E prior to first application submittal.

PAYMENT REQUESTS:

General: Except as otherwise indicated, the progress payment cycle is to be regular. Each application must be consistent with previous applications and payments. Certain applications for payment, such as the initial application, the application at substantial completion, and the final payment application involve additional requirements.

Waivers of Lien: Submit waivers of lien, per the SBBC Contractual & General Conditions, from every entity (including Contractor) who could lawfully and possibly file a lien in excess of \$200 arising out of the Contract, at intervals identified within those documents. Submit partial waivers for the amount requested, prior to deduction or retainage, on each item. When the application shows completion of an item, submit final or full waivers. The Owner reserves the right to designate which entities involved in the work must submit waivers.

Payment Application Times: The "date" for each progress payment application is as indicated in Owner-Contractor Agreement or, if none is indicated therein, it is the 25th day of each month. The period of construction work covered by each payment request is period indicated in Owner-Contractor Agreement or, if none is indicated therein, it is the 25th day of previous month or day following end of previous period to 24th day of present month.

Application Preparation: Except as otherwise indicated, complete every entry provided for on the form, including notarization and execution by authorized persons. Incomplete applications will be returned by Architect/Engineer without action. Entries must match current data of schedule of values and progress schedule and report. Listing must include amounts of change orders issued prior to last day of the "period of construction" covered by application.

Payment will be for work installed in place in a correct and operable manner. Payment for material stored at the project site will not be considered in the application for payment process.

Initial Payment Application: The principal administrative actions and submittals which must precede or coincide with submittal of contractor's first payment application can be summarized as follows, but not necessarily by way of limitation submit at least three (3) copies of each unless noted elsewhere to be more:

Listing of subcontractors and principal suppliers and fabricators

Schedule of values

Progress schedule

Schedule of submittals

Listing of Contractor's staff assignments and principal consultants

Copies of acquired building permits and similar authorizations and licenses from governing authorities for current performance of the work

Performance and/or payment bonds

Evidence satisfactory to Owner that Contractor's insurance coverage have been secured

Data needed to acquire Owner's insurance coverage

Typical Monthly Payment Application:

Provide at least three (3) copies of the following items by transmittal listing each.

- Application For Payment, properly numbered
- Updated Schedule of Values
- Updated Progress Schedule
- Waivers of Lien
- Stored Material invoices

Application at Time of Substantial Completion: Following issuance of Architect's or Engineer's "certificate of substantial completion", and as applicable, a payment application may be prepared allowing 100% completion of the work, if it is 100% completed, minus the retainage; and, submitted by Contractor. The principal administrative actions and submittals which must proceed or coincide with such special applications are summarized under Section 01 77 00 - PROJECT CLOSE-OUT.

Final Payment Application: The administrative actions and submittals which must precede or coincide with submittal of contractor's final payment application are also summarized under Section 01 77 00 - PROJECT CLOSE-OUT.

Application Transmittal: Submit 3 originally executed copies of each payment application. Transmit each copy with a transmittal form listing those attachments, and recording appropriate information related to application in a manner acceptable to Architect/Engineer. Transmit to Architect/Engineer by means ensuring receipt within 24 hours.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 31 00

SECTION 01 33 00 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawing and general provisions of contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to work of this section. Pay special attention to Section 01 60 00, Products and Substitutions.

DESCRIPTION OF REQUIREMENTS:

General: This section specifies procedural requirements for non-administrative submittals including shop drawings, product data, samples and other miscellaneous work-related submittals. Shop drawings, product data, samples and other work-related submittals are required to amplify, expand and coordinate the information contained in the Contract Documents.

Shop drawings are technical drawings and data that have been specially prepared for this project, including but not limited to the following items:

- Coordination drawings
- Fabrication and installation drawings
- Schedules
- Design mix formulas
- Contractor's engineering calculations
- Specialty engineering calculations and drawings.

Standard information prepared without specific reference to a project is not considered to be shop drawings.

Product data includes standard printed information on manufactured products that has not been specially-prepared for this project, including but not limited to the following items:

- Manufacturer's product specifications and installation instructions
- Standard color charts
- Catalog cuts
- Printed performance curves
- Operational range diagrams
- Mill reports
- Standard product operating and maintenance manuals

Samples are physical examples of work, including but not limited to the following items:

- Partial sections of manufactured or fabricated work
- Small cuts or containers of materials
- Complete units of repetitively-used materials
- Swatches showing color, texture and pattern
- Color range sets
- Units of work to be used for independent inspection and testing

Mock-ups are special forms of samples, which are too large or otherwise inconvenient for handling in the manner specified for transmittal of sample submittals.

Miscellaneous submittals are work-related, non-administrative submittals that do not fit in the three previous categories; including, but not limited to the following:

- Specially prepared and standard printed warranties
- Maintenance agreements
- Workmanship bonds
- Project photographs
- Testing and certification reports
- Record drawings
- Field measurement data
- Operating and maintenance manuals
- Keys and other security protection devices
- Maintenance tools and spare parts
- Overrun stock

SUBMITTAL PROCEDURES:

Coordination: Coordinate the preparation and processing of submittals with the performance of the work. Coordinate each separate submittal with other submittals and related activities such as testing, purchasing, fabrication, delivery and similar activities that require sequential activity.

Scheduling: In each appropriate administrative submittal, such as the progress schedule, show the principal work-related submittals and time requirements for coordination of submittal activity with related work.

Coordination of Submittal Times: Prepare and transmit each submittal to the Architect/Engineer within **20 days** of the date of the notice to proceed. Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the Architect/Engineer's need to review a related submittal. **The Architect/Engineer reserves the right to withhold action on any submittal requiring coordination with other submittals until related submittals are also received.**

Contractor's Review: Before submittal of items for review, the Contractor shall check and verify all pertinent field dimensions, make sure that all submitted items are properly coordinated and conform to the drawing and specifications, noting in colored pencil (any color except red) any modifications necessary to bring them into conformity. Shop drawings shall indicate the location of the different items shown on same, or make reference to the sheet number of the contract specifications to which they refer, and shall further indicate compliance with the referenced technical society or organization specifications. It shall be the Contractor's responsibility to see that shop drawings are submitted in logical groups to permit a complete review. Individual components which depend upon the proper selection of other components of a system are not to be submitted separately. In the event an item is submitted independently, to expedite procurement or for other reasons, and it is later discovered to be a poor selection due to the influence of items which are submitted for review in a different submission, the Contractor shall have the full responsibility for taking corrective action as directed by the Architect and at no additional cost to the Owner. Partial or incomplete submittals will be returned without review. The Contractor shall certify that he has verified the correctness, completeness and adequacy of all items submitted by suitable stamp and his signature.

Shop drawings submitted without Contractor's certification, and shop drawings which are not complete, may be returned for proper submission.

Review Time: Allow sufficient time so that the installation will not be delayed as a result of the time required to properly process submittals, including time for resubmittal, if necessary. Advise the Architect/Engineer on each submittal, as to whether processing time is critical to the progress of the work and if the work would be expedited if processing time could be shortened.

Allow two weeks from receipt by the Architect/Engineer's for initial processing of each submittal. Allow a longer time period where processing must be delayed for coordination with subsequent or

concurrent submittals. The Architect/Engineer will advise the Contractor when it is determined that a submittal being processed must be delayed for coordination.

Allow one week from receipt by the Architect for reprocessing each submittal.

No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect/Engineer sufficiently in advance of the work.

Submittal Preparation: Mark each submittal with a permanent label for identification.

Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect/Engineer, and to other destinations as indicated, by use of a transmittal form. Submittals received from sources other than the Contractor will not be reviewed.

Shop drawing delivery and pick up at the Architect's office is the responsibility of the Contractor.

Architect will provide only a review comment sheet to contractor as the review.

Architect will only ship, only submittals back to the Contractor at the Contractor's cost. Contractor's shipping account number must be provided prior to shipment. If the submittal is electronic and of a suitable file size to be easily e-mailed, that is the best.

Provide on the form places for the following information:

- Project name
- Date
- To:
- From:
- Names of subcontractor, manufacturer and supplier
- References
- Specification section number and type of submittal
- Submittal purpose and description
- Submittal and transmittal distribution record
- Signature of transmitter
- Contractor's certification stating that the information submitted complies with the requirements of the Contract Documents, with a place for the Contractor's signature

Submittal Log: Prepare a submittal log indicating submittal type, extent of all anticipated submittals and chronological disposition of each. Submit initial log showing anticipated submittals for review and acceptance by Architect. Special attention shall be given to those submittals requiring color selection or long lead items.

SPECIFIC SUBMITTAL REQUIREMENTS:

SHOP DRAWINGS: Information required on shop drawings includes, dimensions, identification of specific products and materials which are included in the work compliance with specified standards and notations of coordination requirements with other work. Provide special notation of dimensions that have been established by field measurement. Highlight, encircle or otherwise indicate deviations from the contract documents on the shop drawings.

Refer to all Sections for additional general requirements applicable to shop drawings.

Do not permit shop drawing copies without an appropriate final "Action" marking by the Architect/Engineer to be used in connection with the work.

Or, submit a .pdf file of newly prepared information, drawn to accurate scale. Indicate the name of the firm that prepared each shop drawing and provide appropriate project identification in the title block. Submit three (3) signed and sealed sets of shop drawings and data for construction materials and systems specified to be pre-engineered or engineered by others than the architect and engineers-of-record for this work.

Do not reproduce contract documents or copy standard printed information as the basis of shop drawings.

Preparation: Submit newly prepared information, drawn to accurate scale on sheets not less than 8 1/2" x 11" and the maximum sheet size shall not exceed 24" x 36". Indicate the name of the firm that prepared each shop drawing and provide appropriate project identification in the title block.

Do not reproduce contract documents or copy standard printed information as the basis of shop drawings.

PRODUCT DATA: General information required specifically as product data includes manufacturer's standard printed recommendations for application and use, compliance with recognized standards of trade associations and testing agencies, and the application of their labels and seals (if any), special notation of dimensions which have been verified by way of field measurement, and special coordination requirements for interfacing the material, product or system with other work.

Preparation: Collect required product data into a single submittal for each specification section of work. Mark each copy to show which choices and options are applicable to the project.

Where product data must be specially prepared for required products, materials or systems, because standard printed data is not suitable for use, submit data as "Shop Drawings" and not as "Product Data".

Submittals: Product data submittal is required for information and record and to determine that the products, materials and systems comply with the provisions of the contract documents. Therefore, the initial submittal is also the final submittal, except where the Architect/Engineer observes that there is non-compliance with the provisions of the contract documents and returns the submittal promptly to the Contractor marked with the appropriate "Action".

Except as otherwise indicated in individual sections of these specifications, submit 5 copies of each required product data submittal, plus 2 additional copies where required for maintenance manuals. The Architect/Engineer will retain 2 - 3 copies, and will return the others marked with "Action" and corrections or modifications as required.

Do not submit product data or allow its use on the project, until compliance with the requirements of the contract documents has been confirmed by the Contractor.

Do not proceed with installation of materials, products and systems until a copy of product data applicable to the installation is in the possession of the installer.

SAMPLES: Submit samples for the Architect/Engineer's visual review of general generic kind, color, pattern, and texture, and for a final check of the coordination of these characteristics with other related elements of the work. Samples are also submitted for quality control comparison of these characteristics between the final sample submittal and the actual work as it is delivered and installed.

Documentation required specifically for sample submittals includes a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing

regulations and recognized standards. In addition, indicate limitations in terms of availability, sizes, delivery time, and similar limiting characteristics.

Preparation: Where possible, provide samples that are physically identical with the proposed material or product to be incorporated into the work; provide full scale, fully fabricated samples cured and finished in the manner specified. Where variations in color, pattern, or texture are inherent in the material or product represented by the sample, submit multiple units of the samples (not less than 3 different units), which show the approximate limits of variations. Where samples are specified for the Architect/Engineer's selection of color, texture or pattern, submit a full set of available choices for the material or product. Mount, display, or package samples in the manner specified to facilitate the review of indicated qualities. Prepare samples to match the Architect/Engineer's sample where so indicated. The Architect/Engineer shall retain the samples throughout the life of the work as evidence to the acceptable standard for the work.

Distribution of Samples: Maintain the submittal sets of samples, if returned by the Architect/Engineer, at the project site, available for quality control comparisons throughout the course of performing the work. Prepare and distribute additional sets of samples to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for proper performance of the work. Show final distribution on transmittal forms.

Mock-up and similar samples specified in individual work sections are special types of samples. Comply with sample submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

COLOR SELECTION:

Be advised that the Architect shall retain all shop drawings, product and samples until he has received all items requiring color selection. Once all are received, he shall prepare a Color Schedule for the Owner's review. Once approved by the Owner, submittals with the Color Schedule shall be transmitted to the Contractor for his action. In the meantime, the submittals shall not be finally approved by the Architect until approval of the Color Schedule is given by the Owner. There is time involved with this process; therefore, the Contractor is encouraged to provide all submittals requiring color selection as soon after the Notice-to-Proceed as possible.

MISCELLANEOUS SUBMITTALS:

Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data" depending on whether the report is specially prepared for the project, or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.

Warranties: Provide proposed warranty data at early submittals with product data. Refer to section "Project Closeout" for specific general requirements on warranties, product bonds, workmanship bonds and maintenance agreements relative to closeout.

Standards: Where submittal of a copy of standards is indicated, and except where copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the Architect/Engineer's use. Where workmanship, whether at the project site or elsewhere is governed by a standard, furnish additional copies of the standard to fabricators, installers and others involved in the performance of the work.

Closeout Submittals: Refer to section "Project Closeout" and to individual sections of these specifications for specific submittal requirements of project closeout information, materials, tools, extra stock, and similar items.

Record Documents: Refer to section "Project Closeout" and other sections of these specifications for submittal of record documents.

Operating and Maintenance Data: Refer to "Project Closeout" and other sections of these specifications for submittal of this data.

Materials and Tools: Refer to "Project Closeout" and other individual sections of these specifications for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.

ARCHITECT/ENGINEER'S ACTION:

Action Stamp: The Architect/Engineer will stamp each submittal to be returned with a uniform, self explanatory action stamp, appropriately marked and executed to indicate whether the submittal returned is for unrestricted use, final-but-restricted use (as marked), must be revised and resubmitted (use not permitted) or without action (as explained on the transmittal form).

Final Unrestricted Release: Where the submittals are marked as follows, the work covered by the submittal may proceed provided it complies with the requirements of the contract documents; acceptance of the work will depend upon that compliance.

"No Exceptions Taken"

Returned for Resubmittal: When the submittal is marked as follows, do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise the submittal or prepare a new submittal in activity. Revise the submittal or prepare a new submittal in accordance with the Architect's/Engineer's notations stating the reasons for returning the submittals with the following marking to be used at the project site, or elsewhere where work is in progress.

"Revise and Resubmit"

"Rejected, Comments Attached"

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY CONTROL SERVICES

PART 1 - GENERAL

DESCRIPTION OF REQUIREMENTS:

Definitions: The requirements of this section relate primarily to customized fabrication and installation procedures, rather than the production of standard products. Quality control services include inspections, tests and related actions, including reports, performed by independent agencies and governing authorities, as well as those contracted directly by the Contractor. **Refer to specific sections throughout the project specifications for the required testing.**

Requirements for the Contractor to provide quality control services, as required by the Architect/Engineer, the Owner, governing authorities or other authorized entities are not limited by the provisions of this section.

The contract enforcement activities performed directly by the Architect/Engineer (design consultants) or owner's independent representative are not a quality control service. Should the Architect/Engineer or owner's independent representative identify defective or non-conforming work or products and be required to inspect the deficiency more than once to confirm if corrections have been made, his services for reinspection shall be an extra to the Owner at his current contracted hourly rates and such charges shall be deducted, by change order, from the construction contract.

RESPONSIBILITIES:

Owner Responsibilities: Except where they are specifically indicated as being the Contractor's responsibility, or where they are to be provided by another identified entity such as testing for standard products, initial inspections, tests and similar quality control services specified to be performed by independent agencies are the Owner's responsibility. Costs for these services may not be included in the Contract Sum. The Owner will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which are the Owner's responsibility.

Retest Responsibility: Where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance of related work with the requirements of the contract documents; then, retests by the initial testing firm are the responsibility of the Contractor, regardless of whether the original test was the Contractor's responsibility. Retesting of work revised or replaced by the Contractor is the Contractor's responsibility and the Architect will make the decision for the extent of retesting to be performed.

Testing or inspections of field assembled work is envisioned as a verification on behalf of the Owner that the work complies with the contract requirements. Such inspection(s) are not provided as a replacement for the Contractor's own quality control efforts. The Contractor shall have performed his own quality control checks before notifying the testing agency of a time for their verification. Costs associated to lengthy initial inspections or reinspections, or when required as a result of poor quality control by the Contractor will be borne by the Contractor.

Responsibility for Associated Services: The Contractor is required to cooperate with the independent agency performing required inspections, tests and similar services. Provide such auxiliary services as are reasonably requested. The Contractor shall notify the testing agency sufficiently in advance of operations to permit assignment of personnel. These auxiliary services include but are not necessarily limited to the following:

- Providing access to the work.
- Taking samples or assistance with taking samples.

- Delivery of samples to test laboratories.
- Delivery and protection of samples and test equipment at the project site.

Coordination: The Contractor and each independent agency engaged to perform inspections, tests and similar services for the project shall coordinate the sequence of their activities so as to accommodate required services with a minimum of delay in the progress of the work. In addition the Contractor and each independent testing agency shall coordinate their work so as to avoid the necessity of removing and replacing work to accommodate inspections and tests. The Contractor is responsible for scheduling times for inspections, tests, taking of samples and similar activities.

SUBMITTALS:

General: Refer to Division-1 section on "Submittals" for the general requirements on submittals. Submit a certified written report of each inspection, test or similar service, directly to the Architect/Engineer, in duplicate. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to the following:

- Name of testing agency or test laboratory.
- Dates and locations of samples and tests or inspections.
- Names of individuals making the inspection or test.
- Designation of the work and test method.
- Complete inspection or test data.
- Test results.
- Interpretations of test results.
- Notation of significant ambient conditions at the time of sample-taking and testing.
- Comments or professional opinion as to whether inspected or tested work complies with requirements of the contract documents.
- Recommendations on retesting, if applicable.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

REPAIR AND PROTECTION:

General: Upon completion of inspection, testing, sample-taking and similar services performed on the work, repair damaged work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed finishes. Comply with the contract document requirements for Cutting and Patching. Protect work exposed by or for quality control service activities, and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01 40 00

SECTION 01 41 00 - PROJECT COORDINATION

PART 1 - GENERAL

DESCRIPTION OF WORK:

Minimum administrative and supervisory requirements necessary for coordination of work on the project include but are not necessarily limited to the following:

- Coordination drawings
- Coordination and meetings
- Surveys and records or reports
- Special reports
- Project safety
- General installation provisions
- Cleaning and protection

COORDINATION DRAWINGS AND MEETINGS:

Coordination Drawings: The contractor's staff or a designated subcontractor (usually the HVAC subcontractor) shall prepare coordination drawings where work by separate entities requires fabrication of products and materials which must accurately interface above ceilings, within walls or specialties exposed to view. Coordination drawings shall indicate how work by separate contractors or as shown by separate shop drawings will interface, and shall indicate sequence for installation. Comply with all requirements of the "Submittals" section.

All items which will impact the visual integrity shall be specifically reviewed with the architect. The submittal drawings must be specific and include all components, anchors, etc.

Weekly Coordination Meetings: Hold weekly general project coordination meetings at regularly scheduled times convenient for all parties involved. These meetings are in addition to specific meetings held for other purposes, such as regular project meetings and special pre-installation meetings. Request representation at each meeting by every contractor currently involved in coordination or planning for the work of the entire project. Conduct meetings in a manner which will resolve coordination problems. Record results of the meeting and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

SURVEYS AND RECORDS/REPORTS:

General: Working from lines and levels established by the property survey, establish and maintain benchmarks and other dependable markers. Establish benchmarks and markers to set lines and level for work at each story of construction and elsewhere as needed to properly locate each element of the project. Calculate and measure required dimensions as shown within recognized tolerances. Drawings shall not be scaled to determine dimensions. Advise entities performing work, of marked lines and levels provided for their use.

Surveyor: Engage a Land Surveyor or Professional Engineer experienced and specializing in land survey work, who is registered in the State where the project is located, to perform those services specified in this article.

Survey Procedures: Before proceeding with the layout of actual work, verify the layout information shown on the drawings, in relation to the property survey and existing bench marks. As work proceeds, check every major element for line, level and plumb. Maintain a surveyor's log or record book of such checks; make the log or record book available for the Architect or Engineer's reference. Record deviations from required lines and levels, and advise the Architect

or Engineer promptly upon detection of deviations that exceed indicated or recognized tolerances. Record deviations which are accepted, and not corrected, on record drawings.

Final Property Survey: Before substantial completion, prepare a final property survey and submit per Section 01 32 00 and 01 77 00.

SPECIAL REPORTS:

General: Submit special reports per Section 01 31 00, directly to the Owner within one day of an occurrence. Submit a copy of the report to the Architect and other entities that are affected by the occurrence.

PROJECT SAFETY:

The Contractor and his subcontractor and their subcontractors shall perform all work in accordance with current federal safety standard as established by O.S.H.A. Likewise, the work environment shall be set up and operated in a manner to meet all current federal safety standards as established by O.S.H.A.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

GENERAL INSTALLATION PROVISIONS:

Existing Conditions: All projects have existing conditions whether it be just a site or a building undertaking renovation and/or additions. In any case, within 10 days of the Notice-to-Proceed with the work, the Contractor shall initiate an 'in depth' inspection and record and file with the Owner the existing conditions of all site features, facility features and equipment which are scheduled to remain and be a part of the completed site, building, or operation. The record-of-existing-conditions may be in the form of video tape and photographs of sufficient quantity, size and detail so as to see all items. For equipment or fixtures which are to remain and be functional at the close of the contract, whether renovation, reconditioned or not, the Contractor shall prepare a report which clearly and specifically identifies the function of the individual items at the time of inspection. If no documentation is submitted, the Contractor shall replace or repair existing items at the Owner's directions.

If the Contractor observes conditions with site, building or equipment which are contrary to instructions of the contract documents, he shall notify the SBBC Project Manager within 48 hours of discovery. All site features, building features and equipment conditions shall become accepted by the Contractor as they exist if not recorded in the manner identified above.

Pre-Installation Conferences: Hold a pre-installation meeting at the project site well before installation of each unit of work which requires coordination with other work. Installer and representatives of the manufacturers and fabricators who are involved in or affected by that unit of work, and with its coordination or integration with other work that has preceded or will follow shall attend this meeting. Advise the Architect of scheduled meeting dates.

Record significant discussions of each conference, and record agreements and disagreements, along with the final plan of action. Distribute the record of meeting promptly to everyone concerned, including the Owner and Architect.

Do not proceed with the work if the pre-installation conference can not be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the work and reconvene pre-installation conference at the earliest feasible date.

Installer's Inspection of Conditions: Require the Installer of each major unit of work to inspect the substrate to receive work and conditions under which the work is to be performed. The Installer shall report all unsatisfactory conditions in writing to the Contractor. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

Manufacturer's Instructions: Where installations include manufactured products, comply with the manufacturer's applicable instructions and recommendations for installation, to the extent that these instructions and recommendations are more explicit or more stringent than requirements indicated in the contract documents.

Inspect each item of material or equipment immediately prior to installation. Reject damaged and defective items.

Provide attachment and connection devices and methods for securing work. Secure work true to line and level, and within recognized industry tolerances. Allow expansion and building movement. Provide uniform joint width in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable visual-effect choices to the Architect for final decision.

Recheck measurements and dimensions of the work, as an integral step of starting each installation. **The contractor is solely responsible for assuring the project is built to accurate, true and correct dimensions. Any discrepancies in the documents must be referred to the Architect for confirmation or acceptance prior to fabrication or construction.**

Install each unit-of-work during weather conditions and project status which will ensure the best possible results in coordination with the entire work. Isolate each unit of work from incompatible work as necessary to prevent deterioration.

Coordinate enclosure of the work with required inspections and tests, so as to minimize the necessity of uncovering work for the purpose.

Mounting Heights: Where mounting heights are not indicated, mount individual units of work at industry recognized standard mounting heights for the particular application indicated. Refer questionable mounting height choices to the Architect for final decision.

EXPOSURES OF WORK:

Limiting Exposures of Work: Supervise performance of the work in such a manner and by such means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period. Such exposures include, where applicable, but not by way of limitation of the following:

- Excessive static or dynamic loading
- Excessive internal or external pressures
- Excessively high or low temperatures
- Excessively high or low humidity
- Water
- Solvents
- Chemicals
- Light
- Puncture
- Abrasion
- Heavy traffic
- Soiling

Insect infestation
Combustion
Improper lubrication, unusual wear
Incompatible interface
Destructive testing
Misalignment
Excessive weathering
Unprotected storage
Improper shipping or handling
Theft
Vandalism

CLEANING AND PROTECTION:

General: During handling and installation of work at the project site, clean and protect work in progress and adjoining work on the basis of continuous maintenance. Apply protective covering on installed work where it is required to ensure freedom from damage or deterioration at time of substantial completion.

Clean and perform maintenance on installed work as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

END OF SECTION 01 41 00

SECTION 01 42 00 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division -1 Specification sections, apply to work of this section.

DESCRIPTION OF REQUIREMENTS:

General: This section specifies procedural and administrative requirements for compliance with governing regulations and codes and other standards imposed upon the Work. These requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with regulations, codes and standards.

The term, "Regulations", is defined to include laws, statutes, ordinances and lawful orders issued by governing authorities, as well as those rules, conventions and agreements within the construction industry which effectively control the performance of the work regardless of whether they are lawfully imposed by governing authority or not.

Governing Regulations: Refer to General and Supplementary Conditions for requirements related to compliance with governing regulations.

DEFINITIONS:

Approve/Accept: Where used in conjunction with the Architect's/Engineer's response to submittals, requests, applications, inquiries, reports and claims by the Contractor, the meaning of the term "approved" will be held to limitations of the Architect's/Engineer's responsibilities and duties as specified in General and Supplementary Conditions. In no case will the Architect/Engineer's approval or acceptance be interpreted as a release of the Contractor from responsibilities to fulfill requirements of contract documents.

Architect: The use of the term, Architect-of-Record, within the usual architectural specifications and drawings is consistent with the Architect who signs and seals the documents. For Divisions 2, 15 and 16 it shall collectively refer to the Architect-of-Record, the Engineers-of-Record for the various disciplines and the Owner's project representatives.

Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed by the Architect/Engineer", "requested by the Architect/Engineer", and similar phrases. However, no such implied meaning will be interpreted to extend the Architect's/Engineer's responsibility into the Contractor's area of construction supervision or safety administrative efforts.

Furnish: Except as otherwise defined in greater detail, the term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations" as applicable in each instance.

General Explanation: A substantial amount of specification language consists of definitions of terms found in other contract documents, including drawings. (Drawings are recognized as being diagrammatic in nature and not completely descriptive of the requirements indicated thereon). Certain terms used in contract documents are defined in this article. Definitions and explanations contained in this section are not necessarily either complete or exclusive, but are general for the

Work to the extent that they are not stated more explicitly in another element of the contract documents.

General Requirements: The provisions or requirements of other Division -1 sections apply to entire work of the Contract and, where so indicated, to other elements which are included in the project.

Indicated: The term, "indicated", is a cross-reference to graphic representations, notes or schedules on the drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in contract documents. Where terms such as "shown", "noted", "scheduled", and specified" are used in lieu of "indicated", it is for the purpose of helping the reader locate the cross-reference, and no limitation of location is intended except as specifically noted.

Install: Except as otherwise defined in greater detail, the term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations", as applicable in each instance.

Installer: The term "installer" is defined as "the entity" (person or firm) engaged by the Contractor, its subcontractor or sub-subcontractor for performance of a particular unit of work at the project site, including installation, erection, application and similar required operations. It is a requirement that installers are experienced in the operations they are engaged to perform.

Project Site: The term, "project site", is defined as the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing other work as part of the 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 upon which the project is to be build.

Provide: Except as otherwise defined in greater detail, the term "provide" means "to furnish and install, complete and ready for intended use", as applicable in each instance.

Testing Laboratories: The term "testing laboratory" is defined as an independent entity engaged to perform specific inspections or tests of the work, either at the project site or elsewhere, and to report, and (if required) interpret results of those inspections or tests.

DRAWINGS AND SPECIFICATIONS:

The organization of the Specifications into divisions, sections and articles and the arrangement of drawings is for clarity only and shall not control the Contractor in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade. The Contractor may subcontract the work in such divisions as he sees fit and he is ultimately responsible for furnishing all work shown on the drawings and/or in the specifications.

In the event of inconsistencies between parts of the Contract Documents or between the Contract Documents and applicable standards, codes and ordinances, the Contractor shall: (1) provide the better quality and/or greater quantity of work; or (2) comply with the more stringent requirement: either or both in accordance with the Architect's interpretation. Technical specifications take priority over general specifications and detail drawings take precedence over general drawings. Any work shown on one drawing shall be construed to be shown in all drawings and the Contractor will coordinate the work and the drawings. If any portion of the Contract Document shall be in conflict with any other portion, the various documents comprising the Contract Documents shall govern in the following order of precedence: The Owner-Contractor Agreement; Modifications; Addenda; and Supplementary Conditions; the General Conditions; the Specifications; the Drawings; as between schedules and information given on Drawings, the schedules shall govern; as between figures given on Drawings and the scaled

measurements, the figures shall govern; as between large-scale drawings and small scale drawings, the larger scale shall govern. Any such conflict or inconsistency between or in the drawings shall be submitted to the Architect whose decision thereon shall be final and conclusive.

SPECIFICATION FORMAT AND CONTENT EXPLANATION:

General: This article is provided to help the user of these specifications more readily understand the format, language, implied requirements and similar conventions of content. None of the following explanations shall be interpreted to modify the substance of the contract requirements.

Production Methods: Portions of these specifications have been produced by the Architect/Engineer's standard method of editing master specifications; they may contain minor deviations from traditional writing formats. Such deviations are a natural result of this production technique, and no other meaning shall be implied.

Specification Format: These specifications are organized based upon the Construction Specifications Institute's 33-Division format. The organization of these specifications into Divisions, Sections or Trade Headings conforms generally to no recognized industry practice.

Specification Content: This project specification has been produced employing certain conventions in the use of language as well as conventions regarding the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

In certain circumstances, the language of the specifications and other contract documents is of the abbreviated type. It implies words and meanings that will be appropriately interpreted. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where the full context of the contract documents so indicates.

Imperative Language is used generally in the specifications. Requirements expressed imperatively are to be performed by the Contractor. At certain locations in the text, for clarity, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted.

Methods of Specifying: The techniques or methods of specifying requirements varies throughout the text. The method used for specifying one element of the Work has no bearing on requirements for another element of the Work. The methods of specifying may include the following, or any combination of the following:

Assignment of Specialists: In certain circumstances, the specification text requires or implies that specific elements of the Work are to be assigned to specialists who must be engaged to perform that element of the Work. Such assignments are special requirements over which the Contractor has no choice or option. Such assignments are intended to establish which party or entity involved in a specific element of the Work is considered as being sufficiently experienced in the indicated construction processes or operations to be recognized as "expert" in those processes or operations. Nevertheless, the ultimate responsibility for fulfilling all contract requirements remains with the Contractor.

These requirements should not be interpreted to conflict with the enforcement of building codes and similar regulations governing the work. They are also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

Trades: The use of certain titles such as "carpentry" in the specification text, is not intended to imply that the Work must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also is not exclusively to work by tradespersons of that corresponding generic name.

INDUSTRY STANDARDS:

Applicability of Standards: Except where more explicit or more stringent requirements are written into the contract documents, applicable construction industry standards have the same force and effect as if bound into or copied directly into the contract documents. Such industry standards are made a part of the contract documents by reference. Individual specification sections indicate which codes and standards the Contractor must keep available at the project site for reference.

Referenced Standards: (standards referenced directly in the contract documents) take precedence over non-referenced standards that are recognized in the industry for applicability to the Work.

Un-referenced Standards: Except as otherwise limited by the contract documents, un-referenced standards recognized in the construction industry are defined as having direct applicability to the Work and will be enforced for the performance of the Work. The decision as to whether an industry code or standard is applicable to the Work, or as to which of several standards are applicable, is the sole responsibility of the Architect/Engineer.

Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect or as recognized as governing by code authorities, as of date of contract documents.

Updated Standards: At the request of the Architect/Engineer, Contractor or governing authority, submit a change order proposal where an applicable industry code or standard has been revised and reissued after the date of the contract documents and before the performance of the work affected. The Architect/Engineer will decide whether to issue the change order to proceed with the updated standard.

Conflicting Requirements: Where compliance with two or more standards is specified, and where these standards establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the contract documents specifically indicate a less stringent requirement. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect/Engineer for a decision before proceeding.

Copies of Standards: The contract documents require that each entity performing work be experienced in that part of the work being performed. Each entity is also required to be familiar with industry standards applicable to that part of the work. Copies of applicable standards are not bound with the contract documents.

Where copies of standards are needed for proper performance of the Work, the Contractor is required to obtain such copies directly from the publication source.

Although certain copies of standards needed for enforcement of the requirements may be required submittals, the Architect/Engineer reserves the right to require the Contractor to submit additional copies of these standards as necessary for enforcement of the requirements.

Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where acronyms or abbreviations are used in the specifications or other contract documents they are defined to mean the recognized name of the trade association, standards generating organization, governing authority or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations", published by Gale Research Co., available in most libraries.

Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations as referenced in contract documents are defined to mean the associated names. Both names and addresses are subject to change, and are believed to be, but are not assured to be, accurate and up-to-date as of date of contract documents:

AA	Aluminum Association 900 19th St. N.W., Suite 300 Washington, DC 20006	(202) 862-5100
AABC	Associated Air Balance Council 1518 K Street, NW, Suite 503 Washington, DC 20005	(202) 737-0202
AAMA	American Architectural Manufacturer's Association 1540 E. Dundee Road, Suite 310 Palatine, IL 60067-8321	(708) 202-1350
ACI	American Concrete Institute P. O. Box 9094 Farmington Hills, MI 48333	(313) 532-2600
ACIL	American Council of Independent Laboratories 1629 K Street, NW, Suite 400 Washington, DC 20006	(202) 887-5872
ACS	Acoustical Society of America 500 Sunnyside Blvd. Woodbury, NY 11797	(516) 576-2360
ADC	Air Diffusion Council 11 S. LaSalle St., #1400 Chicago, IL 60603	(312) 201-0101
AHA	American Hardboard Association 1210 W. Northwest Hwy. Palatine, IL 60067	(847) 934-8800
AIA	American Institute of Architects 1735 New York Ave., NW Washington, DC 20006	(202) 626-7300
AISC	American Institute of Steel Construction 1 E. Wacker Dr., #3100 Chicago, IL 60601-2001	(312) 670-2400
AISI	American Iron and Steel Institute 1101 17th St., N.W., Suite 1300 Washington, DC 20036	(202) 452-7100
AMCA	Air Movement and Control Association 30 W. University Drive Arlington Heights, IL 60004	(847) 394-0150
ANSI	American National Standards Institute 11 W. 42nd St., 13 th Floor	

	New York, NY 10036	(212) 642-4900
ARI	Air Conditioning and Refrigeration Institute 4301 N. Fairfax Dr., Suite 425 Arlington, VA 22203	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association 4041 Powder Hill Road, Suite 404 Calverton, MD 20705	(301) 231-9050
ASC	Adhesive and Sealant Council 1627 K St., N.W., Suite 1000 Washington, DC 20006-1707	(202) 452-1500
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, NE Atlanta, GA 30329-2305	(800) 527-4723 (404) 636-8400
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017	(800) THE-ASME (212) 705-7722
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake Village, CA 91362-3649	(805) 495-7120
ASTM	American Society for Testing & Materials 100 Barr Harbor Dr. W. Conshohocken, PA 19428-2959	(610) 832-9500
AWI	Architectural Woodwork Institute 1952 Isaac Newton Sq. Reston, VA 20190	(703) 222-1100
AWPA	American Wood-Preservers' Association P. O. Box 286 Woodstock, MD 21163-0286	(410) 465-3169
AWPI	American Wood Preservers' Institute 1945 Old Gallows Road, Suite 150 Vienna, VA 22182	(800) 356-AWPI (703) 893-4005
AWS	American Welding Society 550 Le Jeune Road, NW Miami, FL 33126	(800) 443-9353
AWWA	American Water Works Association 6666 W. Quincy Ave. Denver, CO 80235	(303) 794-7711
BHMA	Builders' Hardware Manufacturers Assn. 355 Lexington Ave., 17th floor New York, NY 10017	(212) 661-4261
CAUS	Color Association of the United States	

	409 W. 44th St. New York, NY 10036	(212) 582-6884
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road Schaumburg, IL 60173	(847) 517-1200
CTI	Ceramic Tile Institute of America, Inc. 12061 W. Jefferson Culver City, CA 90230-6219	(310) 574-7800
DHI	Door and Hardware Institute 14170 Newbrook Drive Chantilly, VA 22021-2223	(703) 222-2010
GANA	Glass Association of North America 3310 S. W. Harrison St. Topeka, KS 66611-2279	(913) 266-7013
FMER	Factory Mutual Engineering and Research 1151 Boston-Providence Turnpike Norwood, MA 02062	(781) 762-4300
GA	Gypsum Association 810 First Street, N.E. Suite 510 Washington, DC 20002	(202) 289-5440
HEI	Heat Exchange Institute 1300 Sumner Avenue Cleveland, OH 44115	(216) 241-7333
ICEA	Insulated Cable Engineers Assn, Inc. P. O. Box 440 South Yarmouth, MA 02664	(508) 394-4424
IEc	International Electrotechnical Commission 11 W. 42nd St., 13 th Floor New York, NY 10036	(212) 642-4900
IEEE	Institute of Electrical and Electronic Engineers U.S. Activities Board 1828 L St., N.W., Suite 1202 Washington, DC 20036-5104	(202) 785-0017
MCA	Metal Construction Association 11 S. LaSalle Street; Suite 1400 Chicago, IL 60603	(312) 201-0193
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry 127 Park Street, NE Vienna, VA 22180	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers 8 S. Michigan Ave., Suite 1000 Chicago, IL 60603	(312) 456-5590

NCMA	National Concrete Masonry Assn. 2302 Horse Pen Road Herndon, VA 20171	(703) 713-1900
NEC	National Electric Code (by NFPA)	
NECA	National Electrical Contractors Assn. 3 Bethesda Metro Ctr., Suite 1100 Bethesda, MD 20814	(301) 657-3110
NEMA	National Electrical Manufacturers Assn. 1300 N. 17th St., Suite 1847 Rosslyn, VA 22209	(703) 841-3200
NPCA	National Paint and Coating Assn. 1500 Rhode Island Ave., NW Washington, DC 20005	(202) 462-6272
NRCA	National Roofing Contractors Assn. 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018	(847) 299-9070
PDI	Plumbing and Drainage Institute c/o W. C. Whitehead 45 Bristol Drive, Suite 101 Easton, MA 02375	(508) 230-3516
RFCI	Resilient Floor Covering Institute 966 Hungerford Drive; Suite 12-B Rockville, MD 20850	(301) 340-8580
RMA	Rubber Manufacturers Assn. 1400 K Street, NW, Suite 900 Washington, DC 20005	(202) 682-4800
SDI	Steel Deck Institute P. O. Box 9506 Canton, OH 44711	(330) 493-7886
S.D.I.	Steel Door Institute 30200 Detroit Road Cleveland, OH 44145	(216) 899-0010
SIGMA	Sealed Insulating Glass Manufacturers Assn. 401 N. Michigan Ave. Chicago, IL 60611-4267	(312) 644-6610
SJI	Steel Joist Institute 1205 48th Street, North; Suite A Myrtle Beach, SC 29577-5424	(803) 449-0487
SMACNA	Sheet Metal and Air Conditioning Contractors' National Assn. 4201 Lafayette Ctr. Dr. Chantilly, VA 22021	(703) 803-2980

SPC	Southern Pine Council P. O. Box 641700 Kenner, LA 70064-1700	(504) 443-4464
SSPC	Steel Structures Painting Council 40 24th St. Pittsburgh, PA 15222	(412) 281-2331
TCA	Tile Council of American, Inc. P. O. Box 1787 Clemson, SC 29633-1787	(864) 646-8453
UL	Underwriters Laboratories, Inc. 333 Pfingsten Road Northbrook, IL 60062	(708) 272-8800
WRI	Wire Reinforcement Institute 203 Loudoun St., S.W. Leesburg, VA 22075	(703) 779-2339
WSC	Water Systems Council 800 Roosevelt Rd, Suite 20, Building C Glen Ellyn, IL 60137	(708) 545-1762
W.W.P.A.	Woven Wire Products Assn. 2462 Hickory Glen Dr. Bloomfield Hills, MI 48304	(810) 258-5756

SUBMITTALS:

Certificates: For the Owner's records, submit copies of 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 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES

PART 1 - GENERAL

DESCRIPTION OF REQUIREMENTS:

Definitions: Nothing in this section is intended to limit types and amounts of temporary work required, and any omission from this section will be recognized as an indication by Architect or Engineer that such temporary activity is not required for successful completion of the work and compliance with requirements of contract documents. Provisions of this section are applicable to, but not by way of limitation, utility services, construction facilities, security/protection provisions, and support facilities.

Use Charges: No cost or usage charges for temporary services or facilities are chargeable to the Owner or Architect/Engineer. Cost or use charges for temporary services or facilities will not be accepted as a basis of claims for a change-order extra.

JOB CONDITIONS:

Conditions of Use: Install, operate, maintain and protect temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary and protective of persons and property, and free of deleterious effects.

PARTS 2 AND 3 - PRODUCTS AND EXECUTION

TEMPORARY UTILITY SERVICES:

The types of services required include, but not by way of limitation, water, sewerage, surface drainage, electrical power and telephones. Where possible and reasonable, contractor shall connect to existing franchised utilities for required services; and comply with service companies' recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations with minimum 14 days notice to Owner and affected utility company. If service from utility company(ies) is unavailable, contractor shall provide well(s), portable generator or other similar methods for temporary utilities.

Potable Water: Contractor may use owner's water service provided it is not abused or wasted.

Temporary Power: Contractor may use owner's electric service provided it is not abused or wasted.

TEMPORARY CONSTRUCTION FACILITIES:

The types of temporary construction facilities required may include, but not by way of limitation, water distribution, enclosure of work, heat, ventilation, electrical power distribution, lighting, hoisting facilities, stairs, ladders, and access roads. Provide facilities reasonably required to perform construction operations properly and adequately.

Enclosure: Provide temporary enclosure where reasonably required to ensure adequate workmanship and protection from weather and unsatisfactory ambient conditions for the work, including enclosure where temporary heat is used. Provide fire-retardant treated lumber and plywood. Provide tarpaulins with UL label and flame spread of 15 or less; provide translucent type (nylon reinforced polyethylene) where day-lighting of enclosed space would be beneficial for workmanship, and reduce use of temporary lighting.

Lighting: Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.

Provide uniformly spaced general lighting equivalent to not less than one 200-watt incandescent lamp per 1000 sq. ft. of floor area, and one 100-watt lamp per 50' of corridor and per flight of stairs.

Access Provisions: Provide ramps, stairs, ladders and similar temporary access elements as reasonably required to perform the work and facilitate its inspection during installation.

SECURITY/PROTECTION PROVISIONS:

The types of temporary security and protection provisions required may include, but not by way of limitation, fire protection, barricades, warning signs/lights, site enclosure fence, sidewalk bridges, building enclosure/lockup, personnel security program (theft prevention), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at project site. Provide security/protection services and systems in coordination with activities and in a manner to achieve 24-hour, 7-day-per-week effectiveness.

Fire Extinguishers: Provide types, sizes, numbers and locations as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide Type A extinguishers at locations of low-potential for either electrical or grease-oil-flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10. Post warning and quick-instructions at each extinguisher location, and instruct personnel at project site, at time of their first arrival, on proper use of extinguishers and other available facilities at project site. Post local fire department call number on each telephone instrument at project site.

Building Enclosure and Lockup: At earliest possible date, secure building against unauthorized entrance at times when personnel are not working. Provide secure temporary enclosures at ground floor and other locations of possible entry, with locked entrances.

Hurricane & Tropical Storm Preparedness: When there is news of a tropical storm or hurricane approaching and forecasted to affect the project area, the Contractor shall pick up all materials, scaffolding, equipment, etc. which are in place or attached to the structure but not in final position. He shall secure doors, windows and other openings in as much as is practical to close-in the project structure. The Contractor shall secure all equipment, materials and construction trailer(s) to remain at the site with locks, hold-down straps and ropes to prevent their movement as much as is possible. **Prior to leaving the site, the Contractor shall take several photographs showing the entire project and site; and, upon return to the site, the Contractor shall immediately take several photographs showing the entire project and site. Copies of these photographs shall be immediately made available to the Owner upon request.**

TEMPORARY SUPPORT FACILITIES:

The types of temporary support facilities required include, but not by way of limitation, field offices, storage sheds, fabrication sheds, sanitary facilities, drinking water, as may be reasonably required for proficient performance of the work and accommodation of personnel at the site including Owner's and Architect's/Engineer's personnel. Discontinue and remove temporary support facilities, and make incidental similar use of permanent work of the project, only when and in manner authorized by Architect/ Engineer; and, if not otherwise indicated, immediately before time of substantial completion. Locate temporary support facilities for convenience of users, and for minimum interference with construction activities.

Contractor's Field Office: Provide adequate office space for Contractor's field office functions. Include a telephone with recorder, a FAX machine (or computer with active email service), toilet,

and an air-conditioned conference room of sufficient size for meetings with Owner's representatives.

Contractor's superintendent shall have a cell phone(s) at all times from job start and during the closeout period until final payment is made.

Sanitary Facilities: Provide toilet facilities acceptable to governing authorities, adequate for use of personnel at project site.

Drinking Water: Provide drinking water.

Project Identification Sign: Provide project identification sign including owner, GC, architect, name and contact information. Engage an experienced sign painter to paint graphics on sign as indicated. Colors per the Architect.

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCTS AND SUBSTITUTIONS

PART 1 - GENERAL

DESCRIPTION OF REQUIREMENTS:

Substitutions: The Contractor's requests for changes of products, materials, equipment and methods of construction required by the contract documents are considered requests for "substitutions", and are subject to the requirements specified herein.

The Architect or Engineer's reference to "or equal" products or equipment; and, a contractor's submittal of a proposed "equal" product is considered a "substitution", and is subject to the requirements of this section.

In certain specifications sections, it may be indicated that substitute or alternative product will be considered prior to bid date. Beyond that time limit, no substitution is to be made; and, the Architect-Engineer is not obligated to accept or approve a proposed substitution. The following are not considered substitutions:

Substitutions requested during the bidding period, which have been accepted, in writing, prior to the "Bid Date", are included in the contract documents and are not subject to the requirements for substitutions as herein specified.

Specified Contractor options on products and construction methods included in the contract documents are choices available to the Contractor and are not subject to the requirements for substitutions as herein specified provided all requirements for a product performance as specified are met.

Standards: Refer to the products specified for the project, and for acronyms used in the text of the specification sections.

Where a proposed substitution involves the work of more than one prime contractor, each prime contractor involved shall cooperate and coordinate the work with each other prime contractor involved, so as to provide uniformity and consistency and to assure the compatibility of products.

QUALITY ASSURANCE:

Source Limitations: To the fullest extent possible, provide products of the same generic kind, from a single source, for each unit of work.

When it is discovered that specified products are available only from sources that do not or cannot produce an adequate quantity to complete project requirements in a timely manner, consult with the Architect/Engineer for a determination of what product qualities, such as visual, structural, durability, or compatibility, that are most important. When the Architect/Engineer's determination has been made, select products from those sources that produce products that possess the most important qualities, to the fullest extent possible.

Compatibility of Options: Compatibility of products is a basic requirement of product selection. When the Contractor is given the option of selecting between two or more products for use on the project, the product selected must be compatible with other products previously selected, even if the products previously selected were also Contractor options. The complete compatibility between the various choices available to the Contractor is not assured by the various requirements of the Contract documents, but must be provided by the Contractor.

SUBMITTALS:

Substitution Request Submittal:

Requests for Substitutions: Submit 3 copies of each request for substitution. In each request identify the product or fabrication or installation method to be replaced by the substitution; include related specification section and drawing numbers, and complete documentation showing compliance with the requirements for substitutions. Include the following information, as appropriate, with each request.

Provide complete product data, drawings and descriptions of products, and fabrication and installation procedures.

Provide samples where applicable or requested.

Provide a detailed comparison of the significant qualities of the proposed substitution with those of the work originally specified. Significant qualities include elements such as size, weight, durability, performance and visual effect where applicable.

Provide complete coordination information. Include all changes required in other elements of the work to accommodate the substitution, including work performed by the Owner and separate Contractors.

Provide a statement indicating the effect the substitution will have on the work schedule in comparison to the schedule without approval of the proposed substitution. Include information regarding the effect of the proposed substitution on the Contract Time.

Provide certification by the Contractor to the effect that, in the Contractor's opinion, after thorough evaluation, the proposed substitution will result in work that in every significant respect is equal-to or better than the work required by the Contract documents, and that it will perform adequately in the application indicated.

Include in this certification, the Contractor's waiver of rights to additional payment or time, which may subsequently be necessary because of the failure of the substitution to perform adequately.

Architect/Engineer's Action: Within one week of receipt of the Contractor's request for substitution, the Architect/Engineer will request additional information or documentation as may be needed for evaluation of the request. Within 2 weeks of receipt of the request, or within one week of receipt of the requested additional information or documentation, whichever is later, the Architect/Engineer will notify the Contractor of either the acceptance or rejection of the proposed substitution.

Excessive or repeated requests/submittals for substitutions primarily for the benefit of the Contractor, or substitutions which are being requested based on false information (i.e.: no longer made available) are unacceptable and extra work for the Architect/ Engineer. The Contractor shall bear the cost for same, which will be deducted from the construction contract via a change order; the basis of which cost shall be the Architect's contracted hourly rate plus any expenses. The owner will in turn pay the Architect all amounts so deducted.

PART 2 - PRODUCTS

GENERAL PRODUCT COMPLIANCE:

General: Requirements for individual products are indicated in the contract documents; compliance with these requirements is in itself a contract requirement. These requirements may

be specified in any one of several different specifying methods, or in any combination of these methods. These methods include the following:

Proprietary
Descriptive
Performance
Compliance with Reference Standards.

Compliance with codes, compliance with graphic details, allowances, and similar provisions of the contract documents also have a bearing on the selection process.

Procedures for Selecting Products: Contractor's options in selecting products are limited by requirements of the contract documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects. Required procedures include but are not limited to the following for the various indicated methods of specifying:

Proprietary Specification Requirements: Where the specifications identify one or more manufacturers as acceptable, but limit the contractor to same except by approval prior to bid, or by approval in accordance with this section; the contractor shall provide that product(s) by the manufacturers listed unless approval prior to bids has been incorporated, in writing, into the contract documents. Likewise, if the specifications indicate one or more contractors as a basis for design but allow others as "equals", the contractor shall receive approval of the "equals" prior to bids.

Non-Proprietary Specification Requirements: Where the specifications name products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to the use of these products only, the Contractor may at his option, use any available product that complies with contract requirements.

Descriptive Specification Requirements: Where the specifications describe a product or assembly generically, in detail, listing the exact characteristics required, but without use of a brand or trade name, provide products or assemblies that provide the characteristics indicated and otherwise comply with contract requirements.

Performance Specification Requirements: Where the specifications require compliance with indicated performance requirements, provide products that comply with the specific performance requirements indicated, and that are recommended by the manufacturer for the application indicated. The manufacturer's recommendations may be contained in published product literature, or by the manufacturer's individual certification of performance. General overall performance of a product is implied where the product is specified for specific performances.

Compliance with Standards, Codes and Regulations: Where the specifications require only compliance with an imposed standard, code or regulation, the Contractor has the option of selecting a product that complies with specification requirements, including the standards, codes and regulations.

Visual Matching: Where matching an established sample is required, the final judgment of whether a product proposed by the Contractor matches the sample satisfactorily will be determined by the Architect. Where there is no product available within the specified product category that matches the sample satisfactorily and also complies with other specified requirements, comply with the provisions of the contract documents concerning "substitutions" for the selection of a matching product in another product category, or for non-compliance with specified requirements.

Visual Selection: Except as otherwise indicated, where specified product requirements include the phrase "...as selected from the manufacturer's standard colors, patterns, textures..." or similar phrases, the Contractor has the option of selecting the product and manufacturer, provided the selection complies with other specified requirements. The Architect is subsequently responsible for selecting the color, pattern and texture from the product line selected by the Contractor.

Producer's Statement of Applicability: Where individual specification sections indicate products that require a "Statement of Applicability" from the manufacturer or other producer, submit a written-certified statement from the producer stating that the producer has reviewed the proposed application of the product on the project. This statement shall state that the producer agrees with or does not object to the Architect/Engineer's specification and the Contractor's selection of the product for use in the Work. The statement shall also state that the proposed application of the product on the project is suitable and proper.

SUBSTITUTIONS:

Conditions: Contractor's request for substitution will be received and considered when extensive revisions to the contract documents are not required, when the proposed changes are in keeping with the general intent of the contract documents, when the request is timely, fully documented and properly submitted, and when one or more of the following conditions is satisfied, all as judged by the Architect/Engineer; otherwise the requests will be returned without action except to record non-compliance with these requirements.

The Architect/Engineer will consider a request for substitution where the request is directly related to an "or equal" clause or similar language in the contract documents.

The Architect/Engineer will consider a request for substitution where the specified product or method cannot be provided within the Contract Time. However, the request will not be considered if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly or to coordinate the various activities properly.

The Architect/Engineer will consider a request for substitution where the specified product or method cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

The Architect/Engineer will consider a request for a substitution where a substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Architect/Engineer for redesign and evaluation services, the contractor(s), and similar considerations.

The Architect/Engineer will consider a request for substitution when the specified product or method cannot be provided in a manner which is compatible with other materials of the work, and where the Contractor certifies that the substitution will overcome the incompatibility.

The Architect/Engineer will consider a request for substitution when the specified product or method can not be properly coordinated with other materials in the work, and where the Contractor certifies that the proposed substitution can be properly coordinated.

The Architect/Engineer will consider a request for substitution when the specified product or method can not receive a warranty as required by the contract documents and where the contractor certifies that the proposed substitution receive the required warranty.

Work-Related Submittals: Contractor's submittal of and the Architect's/Engineer's acceptance of shop drawings, product data or samples which relate to work not complying with requirements of

the contract documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

GENERAL PRODUCT REQUIREMENTS:

General: Provide products that comply with the requirements of the contract documents and that are undamaged and, unless otherwise indicated, unused at the time of installation. Provide products that are 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.

Continued Availability: Where, because of the nature of its application, the Owner is likely to need replacement parts or additional amounts of a product at a later date, either for maintenance and repair or replacement, provide standard, domestically produced products for which the manufacturer has published assurances that the products and its parts are likely to be available to the Owner at a later date.

PART 3 - EXECUTION

INSTALLATION OF PRODUCTS:

General: Except as otherwise indicated in individual sections of these specifications, comply with the manufacturer's instructions and recommendations for installation of the products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work. Clean exposed surfaces and protect surfaces as necessary to ensure freedom from damage and deterioration at time of acceptance.

END OF SECTION 01 60 00

SECTION 01 60 01 - ZERO TOLERANCE HAZARDOUS MATERIALS STATEMENT

PART 1 - GENERAL

Attached hereto is a "Zero Tolerance Hazardous Materials Statement". It is a statement regarding all products and materials that are to be incorporated into the work. The General Contractor is advised to secure similar statements from all suppliers and subcontractors and submit same along with his statement at project closeout.

END OF SECTION 01 60 01

All materials are to be 100% FREE OF ASBESTOS and no LEAD BASE PAINT MATERIALS shall be used in the construction of this project. In the event that such material is discovered either during construction, or following completion of construction and close-out of the construction contract, it will be the responsibility of this contractor to pay all costs incurred to remove and replace those materials, including repair or replacement of all adjacent materials which are affected by the abatement process.

BUSINESS ADDRESS: _____

My Commission Expires _____, 20__.

SECTION 01 74 19 – CONSTRUCTION WASTE MANAGEMENT

PART 1 – GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary conditions and Division 1 Specification Sections, apply to this Section.

SUMMARY:

This section includes administrative and procedural requirements for the following:

- Salvaging non-hazardous demolition and construction waste
- Recycling non-hazardous demolition and construction waste
- Disposing of non-hazardous demolition and construction waste

Related Sections include the following: Division 1 Section “Temporary Facilities and Controls” for environmental-protection measures during construction, and location of waste containers at project site.

DEFINITIONS:

Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the work.

PERFORMANCE REQUIREMENTS:

General: Develop waste management plan that results in end-of-project rates for salvage/recycling of 50 percent by weight of total waste generated by the work.

Salvage/Recycle Requirements: Owner’s goal is to salvage and recycle as much non-hazardous demolition and construction waste as possible. Owner has established minimum goals for the following materials:

Demolition Waste:

- Asphaltic concrete paving
- Concrete
- Concrete reinforcing steel
- Brick
- Concrete masonry units

- Wood studs
- Wood joists
- Plywood and oriented strand board
- Wood paneling
- Wood trim
- Structural and miscellaneous steel
- Rough hardware
- Roofing
- Insulation
- Doors and frames
- Door hardware
- Windows
- Glazing
- Metal studs
- Gypsum board
- Acoustical tile and panels
- Carpet
- Carpet pad
- Demountable partitions
- Equipment
- Cabinets
- Plumbing fixtures
- Piping
- Supports and hangers
- Valves
- Sprinklers
- Mechanical equipment
- Refrigerants
- Electrical conduit
- Copper wiring
- Lighting fixtures
- Lamps
- Ballasts
- Electrical devices
- Switchgear and panelboards
- Transformers

Construction waste:

- Site-clearing waste
- Masonry and CMU
- Lumber
- Wood sheet materials
- Wood trim
- Metals
- Roofing
- Insulation
- Carpet and pad
- Gypsum board
- Piping
- Electrical conduit

Packaging: Regardless of salvage/recycle goal indicated above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

- Paper
- Cardboard
- Boxes
- Plastic sheet and film
- Polystyrene packaging
- Wood crates
- Plastic pails

SUBMITTALS:

Waste Management Plan: Submit 3 copies of plan within 7 days of date established for the Notice to Proceed.

Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report, Include separate reports for demolition and construction waste. Include the following information:

- Material category
- Generation point of waste
- Total quantity of waste in tons
- Quantity of waste salvaged, both estimated and actual in tons
- Quantity of waste recycled, both estimated and actual in tons
- Total quantity of waste recovered (salvaged plus recycled) in tons
- Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste

Waste Reduction Calculations: Before request for Substantial Completion, submit three copies of calculated end-of-project rates for salvage, recycling, and disposal as a percentage of total waste generated by the work.

Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

Landfill and Incinerator Disposal records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts and invoices.

Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.

Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

QUALITY ASSURANCE:

Waste Management Coordinator Qualifications: Minimum of five (5) years of experience.

Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

Waste Management Conference: Conduct conference at project site to comply with requirements in Division 1 Section 01040, 'Project Coordination'. Review methods and procedures related to waste management including, but not limited to the following:

- Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
- Review requirements for documenting quantities of each type of waste and its disposition.
- Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
- Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
- Review waste management requirements for each trade.

WASTE MANAGEMENT PLAN:

General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the work. Include estimated quantities and assumptions for estimates.

Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

Salvaged Materials for Reuse: For materials that will be salvaged and reused in this project, describe methods for preparing salvaged materials before incorporation into the work.

Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.

Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.

Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on project site where materials separation will be located.

Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

- Total quantity of waste.
- Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
- Total cost of disposal (with no waste management).
- Revenue from salvaged materials.
- Revenue from recycled materials.
- Savings in hauling and tipping fees by donating materials.
- Savings in hauling and tipping fees that are avoided.
- Handling and transportation costs. Include cost of collection containers for each type of waste.
- Net additional cost or net savings from waste management plan.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

PLAN IMPLEMENTATION:

General: Implement waste management plan as approved by Project LEED accredited professional. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

Comply with Division 1 Section “Temporary Facilities and Controls” for operation, termination, and removal requirements.

Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at project site full time for duration of project.

Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the work occurring at project site.

Distribute waste management plan to everyone concerned within three days of submittal return.

Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

Designate and label specific areas on project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

Comply with Division 1 Section “Temporary Facilities and Controls” for controlling dust and dirt, environmental protection, and noise control.

SALVAGING DEMOLITION WASTE:

Salvaged Items for Reuse in the Work:

- Clean salvaged items.
- Pack or crate items after cleaning. Identify contents of containers.
- Store items in a secure area until installation.
- Protect items from damage during transport and storage.
- Install salvaged items to comply with installation requirements for new materials and equipment.

- Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

Salvaged Items for Sale and Donation: Not permitted on project site.

Salvaged Items for Owner's Use:

- Clean salvaged items.
- Pack or crate items after cleaning. Identify contents of containers.
- Store items in a secure area until delivery to Owner.
- Transport items to Owner's storage area off-site.
- Protect items from damage during transport and storage.

Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL:

General: Recycle paper and beverage containers used by on-site workers.

Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at project site to the maximum extent practical.

Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from project site. Include list of acceptable and unacceptable materials at each container and bin.

Inspect containers and bins for contamination and remove contaminated materials if found.

Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

Stockpile materials away from construction area. Do not store within drip line of remaining trees.

Store components off the ground and protect from the weather.

Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

RECYCLING DEMOLITION WASTE:

Asphaltic Concrete Paving: Grind asphalt to maximum 1-1/2-inch size.

Crush asphaltic concrete paving and screen to comply with requirements in Division 2 Section "Earthwork" for use as general fill.

Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

Pulverize concrete to maximum 1-1/2-inch size.

Crush concrete and screen to comply with requirements in Division 2 Section "Earthwork" for use as satisfactory soil for fill or subbase.

Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

Pulverize masonry to maximum ¾-inch size.

Crush masonry and screen to comply with requirements in Division 2 Section "Earthwork" for use as satisfactory soil for fill or subbase.

Crush masonry and screen to comply with requirements in Division 2 Section "Exterior Plants" for use as mineral mulch.

Clean and stack undamaged, whole masonry units on wood pallets.

Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

Metals: Separate metals by type.

Structural Steel: Stack members according to size, type of member, and length.

Remove and dispose of bolts, nuts, washers, and other rough hardware.

Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples and accessories.

Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

Separate suspension system, trim, and other metals from panels and tile and sort with other metals.

Carpet and Pad:

- Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
- Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.

Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

Plumbing Fixtures: Separate by type and size.

Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

Lighting Fixtures: Separate lamps by type and protect from breakage.

Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

Conduit: Reduce conduit to straight lengths and store by type and size.

RECYCLING CONSTRUCTION WASTE:

Packaging:

Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.

Polystyrene Packaging: Separate and bag materials.

Pallets: As much as possible, require deliveries using pallets to remove pallets from project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.

Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

Site-Clearing Wastes: Chip brush, branches, and trees at landfill facility.

Comply with requirements in Division 2 Section "Exterior Plants" for use of chipped organic waste as organic mulch.

Wood Materials:

Clean Cut-Offs of Lumber: Grind or chip into small pieces.

Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

Comply with requirements in Division 2 Section "Exterior Plants" for use of clean sawdust as organic mulch.

Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.

Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

Comply with requirements in Division 2 Section "Exterior Plants" for use of clean ground gypsum board as inorganic soil amendment.

DISPOSAL OF WASTE:

General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from project site and legally dispose of the in a landfill or incinerator acceptable to authorities having jurisdiction.

Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.

Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

Burning: Do not burn waste materials.

Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

Disposal: Transport waste materials and dispose of at designated spoil areas on Owner's property.

Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01 77 00 - PROJECT CLOSE-OUT

PART 1 - GENERAL

DESCRIPTION OF REQUIREMENTS:

Definitions: Project close-out is the term used to describe certain collective project requirements, indicating completion of the Work items that are to be fulfilled near the end of the Contract time in preparation for occupancy and final acceptance of the Work by the Owner, as well as final payment to the Contractor and the normal termination of the Contract.

Specific requirements for individual units of work are included in the appropriate sections in Divisions 2 through 16.

Time of close-out is directly related to "Substantial Completion." For this project, the time of close-out will be a single time/date for the entire Work.

PREREQUISITES FOR SUBSTANTIAL COMPLETION:

General: Complete the following before requesting the Owner's or Architect/Engineer's inspection for certification of substantial completion, for the entire Work. Portions of the Work may be reviewed for acceptance as being fit for occupancy per the schedule. Substantial completion of the entire project will be considered only when all portions are substantially complete.

In the progress payment request that coincides with, or is the first request following, the date substantial completion is claimed for the entire work, show either 100% completion for the Work claimed as "substantially complete", or list incomplete items, the value of incomplete work, and reasons for the Work being incomplete.

Submit supporting documentation for review prior to the anticipated substantial completion date as indicated below and elsewhere in the contract documents. Supporting documentation for portions of the entire work that are substantially completed may include parts of the documentation as determined by the Architect.

Provide operational and maintenance instructions and training to all Owner-designated personnel at least one week prior to the anticipated substantial completion date.

Advise Owner of pending insurance change-over requirements.

Submit special warranties, workmanship/maintenance bonds, maintenance agreements, final certifications, special test certifications and similar documents.

Complete final cleaning-up requirements, including touch-up painting of marred surfaces.

Make final change out to permanent door locks leaving only specific doors with construction keying for access by the Contractor to complete the punchlist as acceptable to the Architect.

Touch-up and otherwise repair and restore marred exposed finishes.

Inspection Procedures: Upon receipt of the Contractor's written request for inspection, the Architect/Engineer will either proceed with inspection or advise the Contractor of unfilled prerequisites.

Following the initial inspection, the Architect/Engineer will either prepare the certificate of substantial completion, or will advise the Contractor of work which must be performed before the

certificate will be issued. The Architect/Engineer will repeat the inspection one time for those areas determined as incomplete when requested and when assured that the Work has been completed. Contractor shall bear all the costs of the Architect's and Engineer's reinspections at the hourly rates stipulated in the Owner/Architect Agreement.

Results of the completed inspection will form the initial "punchlist" for final acceptance.

PREREQUISITES FOR FINAL ACCEPTANCE:

General: Complete the following before requesting the Architect/Engineer's final inspection for certification of final acceptance, and final payment as required by the General Conditions. List known exceptions, if any, in the request.

Submit the final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

Submit an updated final statement, accounting for all additional changes to the Contract Sum.

Submit a certified copy of the Architect/Engineer's and local authority(ies)' final punchlist of itemized work to be completed or corrected, signed, dated and notarized by the Contractor and stating that each item has been completed or otherwise resolved for acceptance and has been endorsed and dated by the Architect/Engineer.

Submit consent of surety.

Submit a final liquidated damages settlement statement, acceptable to the Owner.

Submit evidence of final, continuing insurance coverage complying with insurance requirements.

Submit all as-built drawings, record drawings, specifications and shop drawings as required, clearly marked to indicate installed conditions.

Submit certified copy of final property survey in accordance with Section 01 41 00, Project Coordination.

Deliver tools, spare parts, extra stock of material and similar physical items to the owner and obtain a written receipt for each. Copy Architect with receipt.

Reinspection Procedure: The Owner's representative or Architect/Engineer will reinspect the Work upon receipt of the Contractor's written notice that the work, including punchlist items resulting from earlier inspections, has been completed, except for these items whose completion has been delayed because of circumstances that are acceptable to the Architect/Engineer.

Upon completion of reinspection, the Architect/Engineer will either prepare a certificate of final acceptance, or will advise the Contractor of work that is incomplete of obligations that have not been fulfilled, but are required for final acceptance.

If necessary, the reinspection procedure will be repeated and such cost as are currently paid the Architect on an hourly basis will be deducted from the Contractor's final payment request to reimburse the Architect for additional services.

RECORD DOCUMENT SUBMITTALS:

General: Specific requirements for record documents are indicated in the individual sections of these specifications. Other requirements are indicated in the General Conditions. General submittal requirements are indicated in the various "submittals" sections.

Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect/Engineer's reference during normal working hours.

Record Drawings: Maintain a record set of blue or black line white-prints of contract drawings and shop drawings in a clean, undamaged condition. Mark-up the set of record documents to show the actual installation where the installed work varies from the work as originally shown. Mark whichever drawing is most capable of showing the actual "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross-reference at the corresponding location on the working drawings. Give particular attention to concealed work that would be difficult to measure and record at a later date.

Mark record sets on at least a bi-monthly basis with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Review with architect, engineer and owner's representatives before or at each pay request. The pay request will be delayed until drawings are updated.

Mark-up new information which is known to be important to the Owner (i.e.: underground utilities, electrical circuitry or any concealed work), that is not shown on either contract drawings or shop drawings.

Note related change order numbers where applicable.

Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

Additionally, make an electronic copy (scan) in pdf after final review with the architect, engineer and owner.

Record Specifications: Maintain one complete copy of the Project Manual, including specifications and addenda, and one copy of other written construction documents such as change orders and similar modifications issued in printed form during construction. Mark these documents to show substantial variations in the actual work performed in comparison with the text of the specifications and modifications as issued. Give particular attention to substitutions, selection of options and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable.

Upon completion of the Work, submit record specifications to the Architect/Engineer for the Owner's records.

Miscellaneous Record Submittals: Refer to other sections of these specifications for requirements of miscellaneous record keeping and submittals in connection with the actual performance of the Work. Immediately prior to the date or date of final completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to Architect/Engineer for the Owner's records.

Operations and Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind data into individual binders properly identified and indexed. Bind each set of data in a heavy duty 2 inch, 3 ring, vinyl covered binder, with pocket folders for folded sheet information. Mark the appropriate identification on both front and spine of each binder.

Provide three (3) copies with original warranties, guarantees, and manufacturer's instruction booklets/data.

Organize the manuals into sections which correspond to that of the specifications (i.e.: Division 2, 3 and etc.). Subsections for each division shall be further broken into sections as noted below and as approved by the Architect.

- Copies of warranties - manufacturer's and Contractor's/installer's.
- Written review of instruction/training procedures and all manufacturer's operational data
- Emergency instructions
- Cleaning procedures (manufacturer's)
- Inspection procedures
- Recommended "turn-around" cycles
- Spare parts listing
- Wiring diagrams
- All shop drawings and product data

Also include an electronic (scanned) pdf copy, in each manual, of all of the above.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

CLOSE-OUT PROCEDURES:

General Operating and Maintenance Instructions: Arrange for each installer of operating equipment and other work that requires regular or continuing maintenance, to meet at the site with the owner's personnel to provide necessary basic instruction in the proper operation and maintenance of the entire Work. Where installers are not experienced in the required procedures, include instruction by the manufacturer's representatives. Provide meeting minutes of meetings and submit copies to the Owners and Architect.

As part of this instruction, provide a detailed review of the following items:

- Maintenance manuals
- Record documents
- Spare parts and materials
- Tools
- Lubricants
- Fuels
- Identification systems
- Control sequences
- Hazards
- Cleaning
- Warranties, bonds, maintenance agreements and similar continuing commitments

As part of this instruction for operating equipment, demonstrate the following procedures:

- Emergency operations
- Noise and vibration adjustments
- Safety procedures
- Economy and efficiency adjustments
- Effective energy utilization

FINAL CLEANING:

General: Special cleaning requirements for specific units of Work are included in the appropriate sections of Divisions 2 through 16. General cleaning during the regular progress of the Work is required by the General Conditions and is included under section "Temporary Facilities".

Cleaning: Provide final cleaning of the Work at the time indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected from a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for operations.

Complete the following cleaning operations before requesting the Architect/Engineer's inspection for certification of substantial completion.

Remove labels which are not required as permanent labels.

Clean transparent materials, including mirrors and glass in doors and windows, to a polished condition. Remove putty and other substances which are noticeable as vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of dust, stains, films and similar noticeable distracting substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces, strip, seal and wax all vinyl flooring using procedures, equipment and products equal to that which the Owners use on their other properties.

Clean the project site, including landscape development areas of rubbish, litter and other foreign substances. Sweep paved areas to a broom clean condition if disturbed during construction; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

Clean floor surfaces per Section 01 77 10, Floor Care.

Compliance: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site. Do not bury debris or excess materials on Owner's property. Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

Where extra materials of value remaining after completion of associated work have become Owner's property, dispose of these materials to the Owner's best advantage as directed.

END OF SECTION 01 77 00

SECTION 02 28 00 - TERMITE CONTROL

PART 1 - GENERAL

SCOPE OF WORK:

Provide soil treatment for termite control as herein specified.

SUBMITTALS:

In accordance with Section 01 33 00, Submittals, submit copies of applicator's license, product data and certification for the work of this section.

QUALITY ASSURANCE:

In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work, including preparation of substrate and application.

Engage a license professional pest control operator, for application of soil treatment solution.

Use only termiticides which bear a Federal registration number of the U.S. Environmental Protection Agency.

JOB CONDITIONS:

Restrictions: Do not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations.

To insure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with handling and application instructions of soil toxicant manufacturer.

SPECIFIC PRODUCT WARRANTY:

Furnish written warranty certifying that applied soil termiticide treatment will prevent infestation of subterranean termites and, that if subterranean termite activity is discovered during warranty period, Contractor will re-treat soil and repair or replace damage caused by termite infestation to maximum value of \$100,000.00.

Provide warranty for a period of 5 years from date of treatment, including yearly maintenance and inspections at no additional cost.

PART 2 - PRODUCTS

SOIL TREATMENT SOLUTION:

Use emulsible concentrate termiticide for dilution with water, specially formulated to prevent termite infestation. Provide a working solution as allowed by Florida Building Code and as acceptable with EPA, local governing authorities and the Architect. Use only soil treatment solutions which are not injurious to planting.

PART 3 - EXECUTION

GENERAL:

Advise Owner's representative of schedule for application of solution. A minimum of 48 hours notice will be required. Do not proceed without Owner's representative present to observe; otherwise, a second application will be required.

APPLICATION:

Surface Preparation: Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and foundations. Termiticide may be applied before placement of compacted fill underslabs, if recommended by manufacturer.

Application Rates: Apply soil treatment solution as follows:

Under slab-on-grade, including all building structures, adjacent patios, walks and stoops, treat soil before concrete slabs are placed using the following rates of application as a minimum:

Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or other construction activities following application.

END OF SECTION 02 28 00

SECTION 033000 - CAST-IN-PLACE CONCRETE

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 cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Foundations.
 - 2. Slabs-on-grade.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - 1. Location of construction joints is subject to approval of the Architect.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Welding certificates.
- C. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Fiber reinforcement.
 - 6. Curing compounds.
 - 7. Bonding agents.
 - 8. Adhesives.
 - 9. Vapor retarders.
 - 10. Semirigid joint filler.
 - 11. Joint-filler strips.
 - 12. Repair materials.
- D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates.
- E. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- F. Field quality-control reports.
- G. Minutes of preinstallation conference.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
 - E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
 - F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 1. ACI 301, "Specifications for Structural Concrete,"
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
 - G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
 - H. Preinstallation Conference: Conduct conference at Project site.
 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 - e. Special concrete finish subcontractor.
 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
 - B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
 - 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.
 - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60, deformed bars, assembled with clips.
- C. Plain-Steel Wire: ASTM A 82/A 82M.
- D. Deformed-Steel Wire: ASTM A 496/A 496M.

- E. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.
- F. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I/II.,
 - a. Fly Ash: ASTM C 618, Class F or C.
 - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
 - 2. Blended Hydraulic Cement: ASTM C 595, cement.
- B. Silica Fume: ASTM C 1240, amorphous silica.
- C. Normal-Weight Aggregates: ASTM C 33, coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those

permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.6 VAPOR RETARDERS

- A. Sheet Vapor Retarder: ASTM E 1745, Class B. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.7 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Axim Italcementi Group, Inc.; CATEXOL CimFilm.
 - b. BASF Construction Chemicals - Building Systems; Confilm.
 - c. ChemMasters; SprayFilm.
 - d. Conspec by Dayton Superior; Aquafilm.
 - e. Dayton Superior Corporation; Sure Film (J-74).
 - f. Edoco by Dayton Superior; BurkeFilm.
 - g. Euclid Chemical Company (The), an RPM company; Eucobar.
 - h. Kaufman Products, Inc.; Vapor-Aid.
 - i. Lambert Corporation; LAMBCO Skin.
 - j. L&M Construction Chemicals, Inc.; E-CON.
 - k. Meadows, W. R., Inc.; EVAPRE.
 - l. Metalcrete Industries; Waterhold.
 - m. Nox-Crete Products Group; MONOFILM.
 - n. Sika Corporation; SikaFilm.
 - o. SpecChem, LLC; Spec Film.
 - p. Symons by Dayton Superior; Finishing Aid.
 - q. TK Products, Division of Sierra Corporation; TK-2120 TRI-FILM.
 - r. Unitex; PRO-FILM.
 - s. Vexcon Chemicals, Inc.; Certi-Vex Envio Set.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
 - 1. Products: Subject to compliance with requirements, provide one of the following available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
 - b. BASF Construction Chemicals - Building Systems; Kure 200.
 - c. ChemMasters; Safe-Cure Clear.
 - d. Conspec by Dayton Superior; W.B. Resin Cure.
 - e. Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
 - f. Edoco by Dayton Superior; Res X Cure WB.
 - g. Euclid Chemical Company (The), an RPM company; Kurez W VOX; TAMMSCURE WB 30C.
 - h. Kaufman Products, Inc.; Thinfilm 420.
 - i. Lambert Corporation; AQUA KURE - CLEAR.
 - j. L&M Construction Chemicals, Inc.; L&M Cure R.
 - k. Meadows, W. R., Inc.; 1100-CLEAR.
 - l. Nox-Crete Products Group; Resin Cure E.
 - m. Right Pointe; Clear Water Resin.
 - n. SpecChem, LLC; Spec Rez Clear.
 - o. Symons by Dayton Superior; Resi-Chem Clear.
 - p. TK Products, Division of Sierra Corporation; TK-2519 DC WB.
 - q. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Anti-Hydro International, Inc.; AH Clear Cure WB.
 - b. BASF Construction Chemicals - Building Systems; Kure-N-Seal WB.
 - c. ChemMasters; Safe-Cure & Seal 20.
 - d. Conspec by Dayton Superior; Cure and Seal WB.
 - e. Cresset Chemical Company; Crete-Trete 309-VOC Cure & Seal.
 - f. Dayton Superior Corporation; Safe Cure and Seal (J-18).
 - g. Edoco by Dayton Superior; Spartan Cote WB II.
 - h. Euclid Chemical Company (The), an RPM company; Aqua Cure VOX; Clearseal WB 150.
 - i. Kaufman Products, Inc.; Cure & Seal 309 Emulsion.
 - j. Lambert Corporation; Glazecote Sealer-20.
 - k. L&M Construction Chemicals, Inc.; Dress & Seal WB.
 - l. Meadows, W. R., Inc.; Vocomp-20.
 - m. Metalcrete Industries; Metcure.
 - n. Nox-Crete Products Group; Cure & Seal 150E.
 - o. Symons by Dayton Superior; Cure & Seal 18 Percent E.

- p. TK Products, Division of Sierra Corporation; TK-2519 WB.
 - q. Vexcon Chemicals, Inc.; Starseal 309.

- G. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Construction Chemicals - Building Systems; Kure-N-Seal W.
 - b. ChemMasters; Safe-Cure Clear.
 - c. Conspec by Dayton Superior; High Seal.
 - d. Dayton Superior Corporation; Safe Cure and Seal (J-19).
 - e. Edoco by Dayton Superior; Spartan Cote WB II 20 Percent.
 - f. Euclid Chemical Company (The), an RPM company; Diamond Clear VOX; Clearseal WB STD.
 - g. Kaufman Products, Inc.; SureCure Emulsion.
 - h. Lambert Corporation; Glazecote Sealer-20.
 - i. L&M Construction Chemicals, Inc.; Dress & Seal WB.
 - j. Meadows, W. R., Inc.; Vocomp-20.
 - k. Metalcrete Industries; Metcure 0800.
 - l. Nox-Crete Products Group; Cure & Seal 200E.
 - m. Symons by Dayton Superior; Cure & Seal 18 Percent E.
 - n. Vexcon Chemicals, Inc.; Starseal 0800.

- H. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Construction Chemicals - Building Systems; Kure-N-Seal 25 LV.
 - b. ChemMasters; Spray-Cure & Seal Plus.
 - c. Conspec by Dayton Superior; Sealcure 1315.
 - d. Dayton Superior Corporation; Day-Chem Cure and Seal (J-22UV).
 - e. Edoco by Dayton Superior; Cureseal 1315.
 - f. Euclid Chemical Company (The), an RPM company; Super Diamond Clear; LusterSeal 300.
 - g. Kaufman Products, Inc.; Sure Cure 25.
 - h. Lambert Corporation; UV Super Seal.
 - i. L&M Construction Chemicals, Inc.; Lumiseal Plus.
 - j. Meadows, W. R., Inc.; CS-309/30.
 - k. Metalcrete Industries; Seal N Kure 30.
 - l. Right Pointe; Right Sheen 30.
 - m. Vexcon Chemicals, Inc.; Certi-Vex AC 1315.
 - 2. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

- I. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Construction Chemicals - Building Systems; Kure 1315.
 - b. ChemMasters; Polyseal WB.
 - c. Conspec by Dayton Superior; Sealcure 1315 WB.
 - d. Edoco by Dayton Superior; Cureseal 1315 WB.
 - e. Euclid Chemical Company (The), an RPM company; Super Diamond Clear VOX; LusterSeal WB 300.
 - f. Kaufman Products, Inc.; Sure Cure 25 Emulsion.
 - g. Lambert Corporation; UV Safe Seal.
 - h. L&M Construction Chemicals, Inc.; Lumiseal WB Plus.
 - i. Meadows, W. R., Inc.; Vocomp-30.
 - j. Metalcrete Industries; Metcure 30.
 - k. Right Pointe; Right Sheen WB30.
 - l. Symons by Dayton Superior; Cure & Seal 31 Percent E.
 - m. Vexcon Chemicals, Inc.; Vexcon Starseal 1315.
 2. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.8 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
- E. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- F. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.9 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
 4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
 4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.10 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash: 25 percent.
 2. Combined Fly Ash and Pozzolan: 25 percent.
 3. Ground Granulated Blast-Furnace Slag: 50 percent.
 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
 5. Silica Fume: 10 percent.
 6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
 - D. Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
 - E. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.11 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as noted on drawings.
- B. Foundation Walls: Proportion normal-weight concrete mixture as noted on drawings.
- C. Slabs-on-Grade: Proportion normal-weight concrete mixture as noted on drawings.

2.12 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.13 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.
 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 1. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 1. Install keyways, reglets, recesses, and the like, for easy removal.
 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches and seal with manufacturer's recommended tape.
- B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder according to manufacturer's written instructions.
- C. Granular Course: Cover vapor retarder with granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.

1. Place and compact a 1/2-inch- thick layer of fine-graded granular material over granular fill.

3.5 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
- F. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.
- G. Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to ASTM A 780. Use galvanized steel wire ties to fasten zinc-coated steel reinforcement.

3.6 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

5. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.

- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
 - 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
 - 3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
 - 1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighen until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
1. Apply a trowel finish to surfaces indicated exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 - a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.
 - b. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.
 - c. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 15; for suspended slabs.
 - d. Specified overall values of flatness, F(F) 45; and of levelness, F(L) 35; with minimum local values of flatness, F(F) 30; and of levelness, F(L) 24.
 3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.10 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.11 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.12 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.13 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.14 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Steel reinforcement welding.
 - 3. Headed bolts and studs.
 - 4. Verification of use of required design mixture.
 - 5. Concrete placement, including conveying and depositing.
 - 6. Curing procedures and maintenance of curing temperature.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 - 6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 7. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.

8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
 14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- E. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

3.15 PROTECTION OF LIQUID FLOOR TREATMENTS

- A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 033000

SECTION 042000 - UNIT MASONRY

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:

1. Concrete masonry units.
2. Mortar and grout.
3. Steel reinforcing bars.
4. Masonry joint reinforcement.
5. Miscellaneous masonry accessories.

- B. Related Sections:

1. Division 03 Section "Cast-in-Place Concrete" for dovetail slots for masonry anchors.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide structural unit masonry that develops indicated net-area compressive strengths at 28 days.
 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
 2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:

1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.

1.6 INFORMATIONAL SUBMITTALS

- A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
 1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.
- B. Qualification Data: For testing agency.
- C. Material Certificates: For each type and size of the following:
 1. Masonry units.
 - a. Include data on material properties material test reports substantiating compliance with requirements.
 - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
 - c. For exposed brick, include test report for efflorescence according to ASTM C 67.
 - d. For masonry units, include data and calculations establishing average net-area compressive strength of units.
 2. Cementitious materials. Include brand, type, and name of manufacturer.
 3. Pre-blended, dry mortar mixes. Include description of type and proportions of ingredients.
 4. Grout mixes. Include description of type and proportions of ingredients.
 5. Reinforcing bars.
 6. Joint reinforcement.
 7. Anchors, ties, and metal accessories.
- D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- E. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units,

mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

- F. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.
- D. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.9 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.

2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
 - C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 2. Protect sills, ledges, and projections from mortar droppings.
 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
 - D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
 - E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.
- B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside corners unless otherwise indicated.

B. CMUs: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi.
2. Density Classification: Normal weight.
3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
4. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
5. Faces to Receive Plaster: Where units are indicated to receive a direct application of plaster, provide textured-face units made with gap-graded aggregates.

2.3 CONCRETE AND MASONRY LINTELS

- A. General: Provide one of the following:
- B. Concrete Lintels: ASTM C 1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated. Provide lintels with net-area compressive strength not less than CMUs.
- C. Concrete Lintels: Precast or formed-in-place concrete lintels complying with requirements in Division 03 Section "Cast-in-Place Concrete," and with reinforcing bars indicated.
- D. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.4 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C 91.
- E. Aggregate for Mortar: ASTM C 144.
1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

F. Aggregate for Grout: ASTM C 404.

G. Water: Potable.

2.5 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.

1. Exterior Walls: Hot-dip galvanized, carbon steel.
2. Wire Size for Side Rods: 0.148-inch diameter.
3. Wire Size for Cross Rods: 0.148-inch diameter.
4. Wire Size for Veneer Ties: 0.148-inch diameter.
5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
6. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

D. Masonry Joint Reinforcement for Multiwythe Masonry:

1. Ladder type with 1 side rod at each face shell of hollow masonry units more than 4 inches wide, plus 1 side rod at each wythe of masonry 4 inches wide or less.
2. Tab type, either ladder or truss design, with 1 side rod at each face shell of backing wythe and with rectangular tabs sized to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face.
3. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches. Size ties to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face.

E. Masonry Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.187-inch- diameter, hot-dip galvanized, carbon-steel continuous wire.

2.6 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.

1. Mill-Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 641/A 641M, Class 1 coating.
2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.
3. Galvanized Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.

B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

2.7 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.8 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Use portland cement-lime masonry cement or mortar cement mortar unless otherwise indicated.
 - 3. For exterior masonry, use portland cement-lime masonry cement or mortar cement mortar.
 - 4. For reinforced masonry, use portland cement-lime masonry cement or mortar cement mortar.
 - 5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated.
 - 1. For masonry below grade or in contact with earth, use Type M.
 - 2. For reinforced masonry, use Type S.
 - 3. For mortar parge coats, use Type S.
 - 4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.
 - 5. For interior non-load-bearing partitions, Type O may be used instead of Type N.
- D. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
 - 3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

3.3 TOLERANCES

- A. Dimensions and Locations of Elements:
 - 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
 - 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.

3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
 - 1. Install compressible filler in joint between top of partition and underside of structure above.
 - 2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c. unless otherwise indicated.
 - 3. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
 - 4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Division 07 Section "Fire-Resistive Joint Systems."

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
 - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
 - 1. For glazed masonry units, use a nonmetallic jointer 3/4 inch or more in width.

- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches o.c.
 - 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 LINTELS

- A. Install steel lintels where indicated.
- B. Provide concrete or masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- C. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.8 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches.

3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.10 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

END OF SECTION 042000

SECTION 06 10 53 - ROUGH CARPENTRY

PART 1 - GENERAL

Rough carpentry: Includes carpentry work not specified as part of other sections and which is generally not exposed, except as otherwise indicated.

SUBMITTALS:

In accordance with Section 01 33 00, Submittals, provide product data on chemical and pressure treated wood to the Architect for review.

QUALITY ASSURANCE:

Fire-Retardant Marking: Where required by code, mark each unit of fire-retardant treated lumber and plywood with classification marking of Underwriters Laboratory, Inc., or other testing and inspecting agency acceptable to authorities having jurisdiction. Place marking on surfaces which will not be exposed after installation.

PART 2 - PRODUCTS

LUMBER DESCRIPTION:

Sizes: Lumber shall be dressed to conform to PS 20 and unless otherwise specified, all lumber shall be surfaced four sides (S4S).

Size references, unless otherwise noted, are nominal sizes; actual sizes shall be within manufacturing tolerances allowed by the standard under which it is produced.

Lumber Types: All shall be Southern Pine or Douglas Fir.

CONCEALED BLOCKING:

Lumber shall be #2 Southern Pine or #2 Douglas Fir having a maximum moisture content of 19 percent, stamped "Dry".

PART 3 - EXECUTION

All rough carpentry work shall conform to the requirements of the Florida Building Code, latest edition or that noted herein or on the drawings, whichever is more stringent.

GENERAL APPLICATION:

The contractor shall coordinate the location and application of rough carpentry work with all other trades to assure that the installation of finish work may be properly executed to fulfill the design requirements.

Check all shop and contract drawings before initiating work to verify locations of supports and joints in connection with other work.

Apply all rough carpentry work in conjunction with the rough hardware, fastening devices and miscellaneous materials noted in Section 06 11 00.

END OF SECTION 06 10 53

SECTION 07 90 00 - JOINT SEALERS

PART 1 - GENERAL

Provide joint sealers at interior and exterior locations throughout the project to insure a fully sealed water and air tight structure. Additionally, to provide for the sealing of fire/smoke rated assemblies. Carefully review other sections of the project specifications for required sealant joints not specifically shown on the drawings or noted herein.

QUALITY ASSURANCE:

Preconstruction Field Tests: Prior to installation of joint sealers, field-test their adhesion to joint substrates as recommended in ASTM C 962.

Warranty: Provide only products which are warranted by manufacturer for a period of 20 years.

It is anticipated that a firm who specializes in the sealing (installation and product types) of buildings will be secured by the general contractor/CM to complete the work of this section.

SUBMITTALS:

In addition to product and warranty data submit the following:

Samples of each type and color of joint sealer for this work.

Schedule of sealants to be used clearly identifying where each type is to be installed. Refer to example Joint Sealant Schedule at end of this section. The contractor or sealant's subcontractor shall prepare a schedule, even if products will be provided by others, and submit it for review. He shall coordinate the work of other trades and assure all products are compatible.

PART 2 - PRODUCTS

Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under service and application conditions, as demonstrated by testing and field experience.

Color: Provide color of exposed joint sealers as selected by Architect.

Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated, complying with ASTM C 920 requirements.

One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and O; intended for sealing interior joints with nonporous substrates exposed to moisture.

One-Part Nonsag Urethane Sealant: Type S; Grade NS; Class 25; Uses NT, M, A and O.

Acrylic Sealant: Manufacturer's standard one-part nonsag, solvent-release- curing, acrylic terpolymer sealant complying with ASTM C 920 for Type S; Grade NS; Uses NT, M, G, A and O; except for selected test properties which are revised as follows:

Heat-aged hardness:	40 - 50
Weight loss:	15%
Max. cyclic movement capability (Class):	+/- 7 1/2%

Asphalt saturated fiberboard.

Sealant Backings, General: Non-staining; compatible with joint substrates, sealants, primers and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

Plastic Foam Joint-Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of closed-cell polyethylene foam, non-gassing, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

Elastomeric Tubing Joint-Fillers: Neoprene, butyl or EPDM tubing complying with ASTM D 1056, non-absorbent to water and gas, capable of remaining resilient at temperatures down to -26 degrees F. (-32 degrees C). Provide products with low compression set and size and shape to provide a secondary seal, to control sealant depth and otherwise contribute to optimum sealant performance.

Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back (3rd) surface of joint.

Primer: Type as recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealer-substrate and field tests.

PART 3 - EXECUTION

INSTALLATION OF JOINT SEALERS:

General: Comply with joint sealer manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

Sealant shall be installed at all necessary locations to insure a water and air tight structure, and where required as part of rated separations. The following schedule is a guide and shall not be a means of limiting the sealant locations.

JOINT SEALER SCHEDULE (GENERAL):

DESCRIPTION OF JOINT CONSTRUCTION AND LOCATION WHERE SEALANT IS
TYPICALLY APPLIED

JOINT SEALERS (GENERAL)

(SEE NOTE BELOW)

One-Part Non-Sag Urethane Sealant	Exterior and interior joints in vertical surfaces of concrete and masonry; between concrete masonry or stone; between metal and concrete, mortar or stone; perimeters of metal frames in exterior walls; overhead or ceiling joints; and on interior of glazed curtain wall.
One-Part Mildew-Resistant Silicone Sealant	Interior joints in vertical surfaces of ceramic tile in toilet rooms, showers, and kitchens.
Acrylic-Emulsion or Latex Sealant	Interior joints in field-painted vertical and over-head surfaces at perimeter of elevator door frames, hollow

metal door frames, gypsum drywall, plaster and concrete or concrete masonry; and all other interior locations not indicated otherwise.

Note: Install sealant indicated in joints fitting descriptions and locations listed.

Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.

Latex Sealant Installation Standard: Comply with requirements of ASTM C 790 for use of latex sealants.

Installations of Sealant Backings: Install sealant backings to comply with the following requirements:

Install joint-fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.

Do not leave gaps between ends of joint-fillers.

Do not stretch, twist, puncture or tear joint-fillers.

Remove absorbent joint-fillers which have become wet prior to sealant application and replace with dry material.

Install bond breaker tape between sealants and joint-fillers, compression seals or back of joints where required to prevent third-side adhesion of sealant to back of joint.

Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.

Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of a concave joint configuration per Figure 6A in ASTM C 962, to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

PROTECTION AND CLEANING:

Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

END OF SECTION 07 90 00

SECTION 08 10 00 - HOLLOW METAL FRAMES

PART 1 - GENERAL

DESCRIPTION OF WORK:

All door and window frames scheduled, or otherwise detailed as hollow metal shall be standard steel frames as furnished by an established manufacturer who regularly engages in the fabrication of such metal components. All metal frames shall be of the types and sizes shown on the drawings and in the door schedule and shall include all standard accessory items. The work includes label frames, see schedule.

SUBMITTALS:

In accordance with Section 01 33 00, Submittals, provide shop drawings, product data, warranty, certifications and tests. Exterior frames shall be certified along with the doors confirming compliance with the Florida Building Code Product Approval. Submit copy of product approval.

PART 2 - PRODUCTS

MATERIALS:

Frames shall be made of commercial grade cold-rolled steel conforming to ASTM designation A-366.

Frame Gauge: Oversize frames shall be formed from 12 gauge steel sheet, all other frames shall be formed from No. 14 gauge steel sheet.

All frames not scheduled to receive weatherstripping shall be equipped with rubber bumpers or silencers on the strike jamb of single doors (minimum 3/jamb) and on the head member of double doors (one/door leaf).

CONSTRUCTION:

Size: All metal door and window frames shall be accurately fabricated to the sizes and shapes shown on the drawings. Frames shall be custom-made units to match the new doors or to fit existing openings where noted.

Shape: Frames shall typically have double rabbeted and cased opening profiles, depth as shown on the drawings, with 2" faces and 1/2" returns typical.

Minimum depths of stops shall be 5/8" or as required for U.L. labeled doors and standard width for all stops shall be in accordance with detail drawings.

Joints: All frames shall be welded unit type with head and jamb members mitered, continuously welded and ground smooth. Door frames shall be provided with steel bottom spreader.

All finished work shall be strong and rigid, neat in appearance, square, true, and free of defects, warp, or buckle. Members shall be clean cut, straight, and of uniform profile throughout their lengths.

HARDWARE PROVISIONS:

Frames shall be prepared at the factory for the installation of hardware. Frames shall be mortised, reinforced, drilled and tapped to templates for all mortised hardware.

Frames shall be mortised for template type hinges conforming to CS 9-65, see hardware schedule.

Minimum thickness of hardware reinforcement plates shall be as follows:

Hinge and pivot reinforcements: No. 7 gauge

Strike, flush bolt, closer and other surface mounted hardware: No. 12 gauge

Dust covers, at all hardware cutouts: No. 24 gauge

ANCHORS:

Wall Anchors: Metal anchors of shapes and sizes required for the adjoining type of wall construction shall be provided as required.

Fabricate jamb anchors of steel, not lighter than the gauge used for frame.

Locate anchors on jambs near the top and bottom of each frame and at intermediate points not over 24" apart.

Provide for securing anchors to wood studs with 1/4" round head machine or wood screws.

Floor Anchors: Floor anchors shall be welded inside each jamb, with holes provided for floor anchorage. Minimum thickness shall be No. 14 gauge.

STOPS AND BEADS:

Metal glazing beads shall be furnished with the hollow metal frames at window openings and other locations where beads are indicated in hollow metal frames.

Drill and tap frames to receive the type of glazing beads, stops and gaskets required.

FINISHES:

After fabrication, before priming, all tool marks and surface imperfections shall be removed, and exposed faces of all welded joints shall be dressed smooth.

All frames shall be galvanized, A60 rating, and shall then be chemically treated to insure maximum paint adhesion and shall be coated on all accessible surfaces with a rust-inhibitive primer. Insides of all frames to be grouted shall also be factory coated with a bituminous water resistant paint.

All frames shall be cleaned, bonderized and shop primed to receive finish painting (Section 09 91 00).

PART 3 - EXECUTION

Frames shall be securely installed according to publication #105 by Steel Door Institute.

Frames shall be carefully plumbed and aligned. Brace frames until permanent anchors are set. Anchor base of frames to floor with non-corrosive expansion bolts or with power fasteners. Grout solid all frames in masonry or concrete walls.

END OF SECTION 08 10 00

SECTION 08 11 00 - HOLLOW METAL DOORS

PART 1 - GENERAL

DESCRIPTION OF WORK:

All doors scheduled, or otherwise designated, as hollow metal steel shall be of standard full flush construction as manufactured by an established firm regularly engaged in the fabrication of such door types. Hollow metal doors shall be furnished complete with all accessory components and related specialty items as specified or noted in the drawings.

Door types, frames and details are scheduled in the drawings.

SUBMITTALS:

In accordance with Section 01 33 00, Submittals, provide shop drawings, product data, warranty and certifications; and, test data indicating compliance with the Building Code impact resistance requirements for the exterior doors.

TESTING AND PERFORMANCE REQUIREMENTS FOR EXTERIOR INSTALLATION:

Test Units: All tests, unless otherwise noted, shall conform to the impact, static, cyclic, air and water tests as set forth by the Florida Building Code, and SBCCI SSTD 12-97; latest editions.

PART 2 - PRODUCTS

MANUFACTURERS:

For exterior door installations, the H.M. door manufacturer shall be one selected and tested using the hardware specified in the Door - Window Schedule Legend.

MATERIALS:

Doors shall be made of commercial quality, level, rolled steel conforming to ASTM Designation A-366 and free of scale, pitting, or other surface defects.

Face Sheets: Face sheets for all doors shall be No. 16 gauge rolled steel sheet (galvanized).

All structural components shall be manufactured of steel, utilizing maximum-strength welding design and techniques throughout.

DOOR CONSTRUCTION:

Door Faces: Shall be rigid, and neat in appearance, free from warpage, or buckle. Corner bends shall be true and straight and of minimum radius for the gauge of metal used.

Face sheets, as well as lock and hinge edges, shall have a smooth, seamless and unbroken surface.

Face panels shall be laminated to core materials and welded to perimeter channel edge at 5" o.c. to assure maximum strength and rigidity.

Edges: Lock and hinge edges shall be formed by full overlap of each face sheet around the perimeter vertical channels of a unitized grid structure, meeting at the centerline of each edge and continuously welded, filled and ground smooth. Top and bottom edges shall be closed flush to the door face sheets.

The resulting seam shall be closed by a continuous bead arc weld, and ground smooth.

Top, bottom, and lock channels: 16 gage steel, minimum.

Core Materials: All hollow metal doors shall be completely filled with a rigid urethane core foamed in place and chemically bonded to all internal door surfaces.

Door face sheets shall be uniformly supported by the rigid core material thereby providing increased sound retardation and thermal barrier properties.

Sizes: Door types and sizes shall be as defined in the drawings and/or scheduled.

Unless noted otherwise, all doors shall be 1 3/4" thick.

HARDWARE PROVISIONS:

Doors shall be mortised, reinforced, drilled and tapped at the factory for field applied, fully templated hardware only, in accordance with the approved hardware schedule and templates provided by the hardware contractor.

Where surface mounted hardware is to be applied, doors shall have reinforcing plates only; all drilling and tapping shall be done in the field.

Mortising: Doors shall be mortised for 4 1/2" x 4 1/2" template type hinges, unless specified otherwise in the hardware schedule, conforming to CS9-65.

Active doors shall be prepared for mortise and cylindrical locksets with 2 3/4" backsets and ANSI A115.2 lock front.

Hardware Reinforcement:

Hinge Reinforcement: 8 gauge minimum, tapped and drilled by manufacturer.

Closer Reinforcement: 12 gauge minimum.

Lock Reinforcement: 14 gauge minimum.

FINISHES:

Pre-clean and shop prime each door for finish painting which will be performed at the job site under Section 09 91 00 of these specifications.

After fabrication, all tool marks and surface imperfections shall be dressed as required to make all faces and vertical edges smooth, level, and free of all irregularities.

All exterior and specially designated doors shall be galvanized with a zinc coating G90 per ASTM A525 and shall then be chemically treated to insure maximum paint adhesion and shall be coated, on all exposed surfaces, with a primer which is fully-cured before shipment.

All doors shall be bonderized and finished as standard with one prime coat of baked-on rust inhibitive paint capable of passing humidity resistance of 500 hours minimum, according to ASTM D714 and a salt spray resistance of 250 hours minimum according to ASTM B117.

FEATURES:

Glazing: Where specified or scheduled, doors shall be provided with moldings in accordance with glass opening sizes shown or scheduled on the drawings.

Doors with glass lights shall have manufacturer's standard glass molding, not less than 20 gauge with no exposed screws.

PART 3 - EXECUTION

Install all metal doors throughout the building in strict accordance with all pertinent codes, regulations, recommendations of Steel Door Institute (SDI), the approved shop drawings, and the manufacturer's recommendations, anchoring all components firmly in position for long life under hard use.

END OF SECTION 08 11 00

SECTION 08 33 13 - OVERHEAD COILING DOORS (EXTERIOR)

PART 1 - GENERAL

Location of Door is on the exterior wall at the Delivery.

SUBMITTALS:

In accordance with Section 01 33 00, Submittals, provide product data, shop drawings and installation details for review by the Architect.

Additionally, provide a Florida Product Approval Number and certification data which demonstrates compliance with the test requirements as set forth in the Florida Building Code, 2010 edition, for exterior doors.

DESIGN:

The doors shall be designed to resist wind loads consistent with that expected for the area of installation and to comply with local codes.

TESTING AND STRUCTURAL PERFORMANCE REQUIREMENTS:

Test Units: All tests, unless otherwise noted, shall conform to the static, cyclic, air and water tests as set forth by the Florida Building Code, latest edition, wind speed for this project site exposure and importance factor must satisfy the requirements set forth on the structural drawings.

PART 2 - PRODUCTS

Manufacturer: Specifications are based on product manufactured by Overhead Door Corporation, Lewisville, TX (800) 275-3290, www.overheaddoor.com Manufacturers of similar products of equal or better quality products will be considered.

Door Curtain: Shall be formed of interlocking slats filled with insulation and end locks. The bottom slat shall be reinforced with double back to back angles not less than 1/8" thick.

Insulated Slats: Cavity filled with CFC-free foamed-in-place, polyurethane insulation.

Curtain material and design for this work shall be:

- Galvanized Steel, 20 gauge (minimum) at exterior door, galvanized G90

Guides: Shall be composed of three structural angles bolted with 3/8" diameter bolts to form groove for the curtain. Wall angle to be continuous type. Guides shall be of same metal type finish as the curtain unless recommended otherwise by the door manufacturer and as approved by the Architect.

Gears: Shall be cast metal G90 galvanized with teeth cast from machine cut patterns. Gear ratio shall be designed for maximum manual effort of 30 pounds.

Barrel: Shall be 4" diameter metal tubing capable of limiting deflection to .03 inches per foot.

Hood: Shall be formed to fit the curve of the brackets and of a metal type and finish same as the curtain slats. Metal gauge/thickness shall be as required for metal type selected but not less than 24 gauge steel or an equivalent strength for other metals.

Wind Locks: Shall be installed on all exterior doors due to greater design wind loads.

Curtain Finish: Epoxy primed with polyester top coat for field paint.

Door Operation: For this work, shall be Manual-Chain Hoist.

PART 3 - EXECUTION

Guides shall be attached to the wall with 1/2" diameter bolts or welded at 36" on center.

Bolt finish for this work shall be hot dip Galvanized.

Brackets: Shall be anchored to the wall angle with minimum of 1/2" diameter fasteners compatible with the selected curtain and angle finish.

Install door mechanical parts and hardware per manufacturer's instructions.

Door shall be snug to and sealed tight at the head and jambs. Door base shall rest snug at the sill.

END OF SECTION 08 33 13

SECTION 08 52 10 - ALUMINUM WINDOWS

PART 1 - GENERAL

DESCRIPTION OF WORK:

Standards: Comply with applicable requirements for aluminum windows, terminology and standards of performance, and fabrication workmanship specified in applicable sections of ANSI/AAMA GS-001.

SUBMITTALS:

In accordance with Section 01 33 00, Submittals, provide certified test reports, shop drawings, product data including half-size details of each typical section, showing glazing details. Submit specific information on operating parts, hardware, weatherstripping, finishes for aluminum and preglazed construction. Test data to verify requirements for wind loading consistent with the Florida Building Code 2010. A Florida Product Approval Number and supporting data which confirms compliance with Test Standards shall be provided. All windows shall bear a current label to confirm compliance.

QUALITY CONTROL:

All operable window sections shall comply with the performance requirements of AAMA/ANSI and shall bear the AAMA certification label.

WARRANTY:

Submit written warranty signed by Manufacturer, Installer and Contractor, agreeing to repair or replace aluminum window units which fail in materials or workmanship within 3 years of date of acceptance. Failure of materials or workmanship shall include (but not be limited to) excessive leakage or air infiltration, excessive deflections, faulty operation of sash, deterioration of finish or metal in excess of normal weathering (local climate), and defects in hardware, weatherstripping, and other components of work beyond normal wear and tear. Methods to determine extensive failure of all or portions of units shall be via visual inspections by experienced personnel or testing by a recognized testing agency.

MANUFACTURERS:

Subject to compliance with the requirements, products by the following manufacturer (www.cgiwindows.com) are those which the drawings and design are based upon. Equivalent products by other manufacturers will be considered prior to bid and per Section 01 60 00.

CGI Windows – Series 238 Project Out and Casement Windows (AAMA HC-110 rating)

DESIGN REQUIREMENTS:

Design Requirements: Comply with air infiltration, water penetration and structural performance requirements indicated in AAMA for the type, grade and performance class of window units required.

The "Performance Class Number" included as a part of the window designation system is the actual design pressure in pounds per sq. ft. used to determine the structural test pressure and the water test pressure.

Where the required design pressure exceeds the minimum for the specified window grade, comply with requirements of AAMA, "Optional Performance Classes" for higher than minimum performance class.

Design wind velocity at the project site shall be as identified on structural.

Sizes and Profiles: Required sizes for window units and profile requirements are indicated on the drawings.

PART 2 - MATERIALS:

Windows shall be constructed using, 6063-T6 extruded aluminum frame and vent members, 6063-T5 extruded aluminum glazing beads. Minimum wall thickness to be as follows: .080" at frame / .090" at vent / .045" at glazing bead. Vent depth shall be 1 3/4" minimum.

All frame and vent member fasteners shall be stainless steel and #10 or larger.

Provide (8) .062" thick stainless steel corner keys per window.

Provide (4) .062" thick aluminum corner keys per window.

Glass thickness shall meet FBC requirements for wind loads and energy efficiency. Values for thermal resistance (U) shall be <.45 and solar heat gain coefficient (SHGC) shall be <.24.

Provide 100% silicone sealants for frame construction.

HARDWARE:

- (2) Anderbert S/S four bar concealed hinge (no exposed hinges).
- Truth Roto Type Metal Operator (finish to match window) and S/S track. Projection shall be 8 1/2".
- Truth Metal Cam Locks (finish to match windows) and S/S keepers.
- Custodial type locks.

ACCESSORIES:

Aluminum extruded frame screen (held in place without visible retaining clips) and charcoal fiberglass mesh.

Sealant for exterior shall be Sonaborn NP-1 or approved equal.

Caulking for interiors shall be a latex base low odor product.

ALUMINUM FINISH:

Kynar 500 paint in color: Selected by Architect from manufacturer's standard range.

INSTALLATION:

Windows shall be installed individually or as a combination in the same rough opening. Include vertical aluminum meeting mullion per opening, anchored as specified per manufacturer, for combination units.

Windows shall be installed square, plumb, level and secured in a professional manner to assume neat, strong, weathertight construction in accordance with ANSI/ASTM specification E-737 and in compliance with manufacturer's recommendations when more stringent.

Also comply with approved installation per Product Approval procedure/requirements . However, any variations must be approved by the Architect.

Anchor window units securely in place, with permanent separations to prevent electrolytic corrosion. Properly seal the entire perimeter of each unit.

Installation shall follow shop drawings relative to engineer certified fastener type, spacing and etc. to insure compliance with test certifications/approvals by the FBC Product Approval.

Check window opening for correct size.

Assure wood bucks are of the correct size and type set on a smooth flat surface, properly bed in sealant and securely attached to structure. Wood bucks should not be separated at corners. Verify that wood bucks are plumb, level and square.

Label which vent belongs to which frame (they are not interchangeable). Also, mark the bottom edge of the vent to prevent from installing upside down.

Clean window flange and apply a generous amount of sealant to flange at full perimeter. Assure sealant is compatible and will adhere to aluminum and wood.

Slightly open operable window and install window frame from outside onto wood bucks. It may be necessary to disengage the operator arm or limit opening device to access all the screws on the frame.

Temporarily secure window frame using installation screws as selected from the Product Approvals for your specific application. Shim every installation screw snugly (shim space should not exceed $\frac{1}{4}$ "). Make sure operable windows operate correctly. Make sure that when closing an operable vent, window is not racked and closing unevenly. Make sure window is plumb, level and square. Tighten down all installation screws and verify that window still opens and closes correctly.

Caution: Any window frame, which is forced into an opening and racked or twisted, can cause glass breakage once the glazed vent is forced to adjust to the racked frame.

Assure mullion tubes are properly attached to structure at each end with the supplied clips.

Check window for leakage at corner frame joints. It may be necessary to reseal frame corners after installing. The factory applied sealant may get damaged during transport of the window due to racking.

Properly seal exterior perimeter of window and caulk interior perimeter of window to the adjacent opening face.

Check window for proper operation. Adjust keepers as required for proper locking. Lubricate moving hardware using silicone based lubricant.

Clean aluminum surfaces promptly after installation; do not damage protective coating. Repair minor damage to the finish. Clean glass promptly after installation.

END OF SECTION 08 52 10

SECTION 08 71 00 - FINISH HARDWARE

PART 1 - GENERAL

DESCRIPTION OF WORK:

Types of finish hardware required is indicated by manufacturer, in schedules on the construction drawings.

Types of finish hardware required include the following:

Hinges; Pivots; Lock cylinders and keys; Lock and latch sets; Bolts; Exit devices; Push/pull units; Closers; Miscellaneous door control devices; Door trim units; Protection plates; Weatherstripping for exterior doors; Sound stripping for interior doors; and Thresholds.

Hardware for aluminum, special entrance or other doors are specified elsewhere in Division 8.

QUALITY ASSURANCE:

Manufacturer: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.

Wind Rating for Exterior Doors: In accordance with current Florida Building Code 2010, exterior door, frame and hardware are to be tested for wind resistance. Only those materials meeting the requirements of the test and codes shall be provided for exterior openings for this work. Proof shall be provided in the form of Florida Product Approval test results signed by a Licensed Florida Engineer.

Specific hardware types are typically noted in the Door Schedule shown on the drawings or the Specifications. Alternative hardware types or manufacturers providing products equal to or exceeding the specified quality will be considered only during the bid period prior to seven (7) days of the bid date.

The contractor shall provide hardware meeting ANSI A117.1, Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.

SUBMITTALS:

In accordance with Section 01 33 00, Submittal, provide product data and hardware schedule. Include:

Type, style, function, size, and finish of each hardware item.

Name and manufacturer of each item.

Fastenings and other pertinent information.

Location of hardware set cross-referenced to indications on drawings both on floor plans and in door and frame schedule.

Explanation of all abbreviations, symbols, codes, etc. contained in schedule.

Mounting locations for hardware.

Door and frame sizes and materials.

Keying information.

Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

Samples: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule. Samples will be returned to the supplier.

Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.

Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and all weather and sound control hardware.

For Exterior Door Hardware: Submit data indicating compliance with static and cyclic loading and as set forth by the Florida Building Code, latest edition. This data may take the form of test data and reports. All items shall be signed and sealed by an engineer registered in the State of Florida if required by code.

OPERATION AND MAINTENANCE DATA:

Submit under provisions of Section 01 77 00.

Operations and Maintenance Data: At the completion of the job, furnish to the architect the required copies of an Owner's Operation and Maintenance Manual. The manual shall consist of the following:

- Maintenance instructions for each item of hardware.
- Catalog pages for each product
- Data of operating and adjusting hardware
- Lubrication requirements
- Inspection procedures related to preventative maintenance
- Name and phone number of distributor of hardware
- Name and phone number of manufacturer of hardware
- Parts list for each product
- Copy of final as installed hardware schedule
- Copy of final keying and bitting schedule

QUALIFICATIONS:

Manufacturer: Products furnished in the work of this section shall be by a company specializing in manufacturing the products specified in this section with three years documented experience.

Hardware Supplier: The company furnishing the materials under this section shall be a recognized architectural door hardware supplier with a successful in-service performance for supplying door hardware in this geographic area for a period of no less than three years.

WARRANTY:

Warrant door closers against failure due to defective materials and workmanship for a period of ten (10) years. Closers judged defective during this period shall be replaced or repaired at no cost to the owner.

Warrant mechanical exit devices against failure due to defective materials and workmanship for a period of three (3) years. Exit devices judged defective during this period shall be replaced or repaired at no cost to the owner.

The hardware supplier shall provide in writing that all additional materials furnished under this section shall be free from defects in material and workmanship for a period of one year from date of substantial completion of work.

PART 2 - PRODUCTS

MANUFACTURERS:

Reference to specific proprietary products are used to establish the minimum standards of quality to be allowed. Unless otherwise approved by the architect, provide only the products specified in the schedule 'legend' with the Door Schedule on the construction drawings. A request made to furnish a substitute product must be submitted in writing to the architect a minimum of ten (10) days prior to the scheduled bid date. The submittal shall include technical data including cut sheets which fully explain the proposed product and how it is different from the product specified. Provide the manufacturer's standard warranty information with the submittal.

GENERAL:

All door hardware shall be new and free from defects affecting the service ability and appearance. All parts shall be properly fitted and work smoothly without unnecessary play.

All door hardware for metal doors and frames shall be installed to template locations, and furnished with the proper fasteners to give complete and satisfactory installation.

Furnish all hardware with the necessary screws, shields, bolts, and other fasteners of suitable size and type to anchor the hardware in position for long life under hard use. Provide concealed fasteners.

Use of self-tapping or sheet metal type screws is prohibited except for application of flush mounted protective plates (flat goods).

Fasteners exposed to the weather shall be of non-ferrous metal or of stainless steel.

MATERIALS AND FABRICATION:

Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

Base Metal: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI A156 series standard for each type hardware item and with ANSI A156.18 for finish designations indicated.

Provide concealed fastener for hardware units which are exposed when door is closed. Do not use thru-bolts for installation, where bolt head or nut on opposite face is exposed in other work.

Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware. The hardware shall include all necessary screws, bolts, expansion shields and other devices necessary for the proper application of the hardware.

HINGES, BUTTS, AND PIVOTS:

Manufacturer: McKinley, Hager or equivalent

Construction: Ball bearing, standard weight

Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

Screws: See above, "General".

Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

Non-ferrous Hinges: Stainless steel pins

Exterior Doors: Non-removable pins

Tips: Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.

Number of hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90" or less in height and one additional hinge for each 30" of additional height.

Size: Not less than that specified in schedule. Provide larger size per manufacturer's recommendations for large, oversized or special doors (i.e., X-ray). Provide pivots where applicable and approved by Architect.

Provide hinges with sufficient throw to clear the wall condition and trim when opening to 180 degrees.

LOCK CYLINDERS AND KEYING:

General: Supplier will meet with Owner's Facility representative, not Architect-Engineer, to finalize keying requirements and submit final instructions in writing thru the Architect.

Manufacturers: Refer to schedule on the drawings and provide "Schlage", per local district requirements.

Existing System: Provide new to match existing Grand or Master system.

Equip locks with cylinders for interchangeable-core pin tumbler inserts. Furnish temporary inserts for the construction period only, and remove these when directed and install cores to match Owner approved keying schedule. Do not install finish cores for Contractor and subcontractors use.

Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.

All locksets shall meet or exceed ANSI 156.2, Grade I, Series 4000, and ANSI A117.1 Accessibility Code.

All levers shall be knurled in areas of hazard (electrical room) in accordance with the State of Florida Accessibility Requirements.

Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.

All key blanks shall be "Primus" blanks whether or not lock has a "Primus" cylinder.

Key Material: Provide keys of nickel silver only.

Key Quantity: Furnish 3 change keys for each lock; 5 master keys for each master system; and 5 grand master keys for each grandmaster system.

Deliver keys to Owner's representative and obtain signed receipt for each delivery. Forward copy of receipt to Architect.

Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of the number of locks required for the project. Provide hinged-panel type cabinet, for wall mounting.

LOCKS, LATCHES, AND BOLTS:

Manufacturers: Same as for previous paragraph, "Lock Cylinders".

Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.

Lock Throw: Provide 5/8" minimum throw of latch and deadbolt used on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings and for exterior doors in windborne debris locales.

Provide 1/2" minimum throw on other latch and deadlock bolts.

Flush Bolt: Minimum of 1/2" diameter rods of brass, bronze or stainless steel, with minimum 12" long rod for doors up to 7'0" in height. Provide longer rods as necessary for doors exceeding 7'0" in height. Provide "dust proof" strikes at floor strikes for all flush or other bolts. Furnish flush bolts in pairs (top and bottom of door). Flush bolts shall have a minimum 5/8 inch throw and a 7/8 inch vertical adjustment.

PUSH/PULL UNITS:

Manufacturer: Refer to schedule on the drawings and when not listed, Hager or equal.

Exposed Fasteners: Provide manufacturer's standard exposed fasteners for installation; through-bolted for matched pairs, but not for single units. The door pull shall be installed using thru bolts. The head of the thru bolt shall be countersunk on the opposite side of the door from the pull when using a push plate. Do not drill the push plate for the thru bolt to extend thru.

All push plates, kick plates, and armor plates shall be constructed from .05 inch (US 18 ga.) stainless steel (US32D).

All flat goods shall be delivered to the job site with a protective vinyl covering over the entire finished surface. This protective covering shall be removed after the plate has been properly installed on the door.

CLOSERS AND DOOR CONTROL DEVICES:

Manufacturer: Refer to schedule on the drawings and provide Corbin or equal.

Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.

Provide fully concealed closers when possible; where not, provide parallel arms for all overhead closers.

Closers shall be fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.

Hydraulic fluid shall be type requiring no seasonal adjustment for temperatures 120 degrees F (40 degrees C) to 30 degrees F (-35 degrees C).

Hydraulic regulation shall be tamper-proof, non-critical screw valves, adjustable only with a hex wrench. Closers shall have separate adjustment for latch speed, general closing speed, and hydraulic back check.

All closers mounted with parallel arm mounting shall have forged main and forearm. All closers mounted with regular arm mounting shall have solid forged main arm and adjustable fore arm.

All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified testing laboratory. Upon the request of the architect, a written certification showing successful completion of a minimum of 10,000,000 cycles must be provided.

Closers on exterior doors shall meet the 8.5 pound opening force requirement, and interior closers shall meet the 5 pound opening force requirement in accordance with the State of Florida Accessibility Code Manual. Note: Life Safety NFPA 101 and NFPA 80 supersede.

A representative of the manufacturer shall inspect and adjust as necessary all closers at substantial completion of the work.

DOOR TRIM UNITS:

Manufacturer: Refer to schedule on the drawings and when not listed, provide Hager, or equal.

Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops, door stops and similar units); either machine screws or self-tapping screw.

Fabricate edge trim of stainless steel, not more than 1/2" nor less than 1/16" smaller in length than door dimension.

Fabricate protection plates (armor, kick, or mop) not more than 1 1/2" less than door width on stop side and not more than 1/2" less than door width on pull side, x the height of 8".

Metal plates: Stainless steel, 0.50" (U.S. 18 gauge).

Door stops: Shall be type that are wall mounted at knob/lever height unless no wall is present, then use floor mounted type. Wall type shall have grey neoprene rubber depressed in center for screw set. Floor type shall be solid rubber, half circle set in metal frame and attached to floor.

WEATHERSTRIPPING:

Manufacturers: Zero International, Pemko, or equal.

General: Except as otherwise indicated, provide continuous weatherstripping at each edge of every exterior door leaf. Provide smoke seals as required for all labeled doors. Provide type, sizes, and profiles shown or scheduled. Provide non-corrosive fasteners as recommended by manufacturer for application indicated.

Replaceable Seal Strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.

Weatherstripping at Jambs and Heads: Provide bumper-type resilient insert and metal retainer strips, surface-applied unless shown as mortised or semi-mortised, of following metal, finish, and resilient bumper material:

Extruded aluminum in finish to match door/frames, 0.05" minimum thickness of main walls and flanges.

Flexible bulb or loop insert of vinyl, conforming to MIL R 6055, Class II, Grade 40.

THRESHOLDS:

Manufacturer: Zero International, Pemko, or equal.

General: Except as otherwise indicated provide standard metal threshold unit of type, size, and profile as shown or scheduled.

Exterior Hinged/Pivoted Doors: Provide units not less than 4" wide, formed to accommodate change in floor elevation where indicated, fabricated to accommodate door hardware and to fit door frames, and as follows:

For out-swinging doors provide rabbeted type units with replaceable weatherstrip insert in stop.

HARDWARE FINISHES:

For this work provide finish scheduled on the drawings and when not listed;

Exterior use: 630, US 32D - stainless steel metal,

Other items are specified, submit to Architect for approval.

Provide matching finished for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.

Provide finishes which match those established by BHMA or, if none established, match the Architect's sample.

Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.

Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated.

The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI A156.18 "Materials & Finishes Standard", including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

PART 3 - EXECUTION

INSTALLATION:

Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute; and, as required by the Florida BBBS Accessibility Requirements Manual and ANSI A117.1 latest edition, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

ADJUST AND CLEAN:

Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which can not be adjusted to operate freely and smoothly as intended for the application made. Clean adjacent surfaces soiled by hardware installation.

Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

END OF SECTION 08 71 00

SECTION 09 91 00 - PAINTING

PART 1 GENERAL

DESCRIPTION OF WORK:

Extent of painting work is indicated on drawings and schedules, and as herein specified.

Note: The Contractor is advised to review the paint schedule. In all instances as may be possible, each coat of paint color in a multiple coat application will be installed a shade different in order to observe evidence of adequate and proper paint coverage.

Work includes painting and finishing of select new exposed exterior items and surfaces throughout project, except as otherwise indicated.

Surfaces to be Painted: Work includes field (or factory) painting of exposed preprimed steel and iron work, and doors, unless as otherwise indicated.

"Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

Shop priming and "possible" finish painting is included under other sections of these specifications, coordinate quantity of field painting with any finish painting to be shop applied under Section 13 34 19.

Lead based paint shall not be allowed for use on this work.

QUALITY ASSURANCE:

Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits. See "Submittals" for evidence of compatibility.

WARRANTY:

The Contractor and paint manufacturer shall jointly and fully warranty the product and installation for one year from the date of Substantial Completion as established by the Owner and Architect.

Paint products shall be warranted for a longer duration as advertised by the paint manufacturer.

SUBMITTALS:

In accordance with Division 1, Submittals, provide product data, including paint label analysis and application instructions.

Provide written evidence that sufficient testing has been completed on both new and previously painted surfaces to insure that the new product is acceptable with each surface, material and condition. Should the existing surface or paint prove inadequate, the contractor shall take whatever steps necessary, including removal of all old coats down to the base material. For this reason, it is recommended that the bidders undertake all inspections and testing prior to or during the bid period.

Preliminary colors will be selected when all other items requiring color selection are received by the architect. The paint contractor must be aware that the number of paint colors is multiple (i.e.:

body and accent) as judged solely by the architect. Refer to proposed appearance rendered pictures for a general understanding of the color scheme and depth of color tone.

Final acceptance of colors will be from samples applied on the job.

EXTRA STOCK:

Contractor, at close of project, shall supply to the owner one (1) gallon in unopened container for each type and color of paint selected on the project. Cans will be clearly labeled with color name and number. A list of locations and mix numbers where color was used shall also be provided.

JOB CONDITIONS:

Do not apply paint in rain, fog or mist, or when relative humidity exceeds that permitted by paint manufacturer's printed instructions.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS:

Manufacturers: Subject to compliance with requirements basis of design are products of the following: **The Sherwin-Williams Co. (SW)**

MATERIALS:

Material Quality: Provide best quality grade of various types of coatings required.

Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

ACCESSORIES:

Provide all necessary material, equipment and labor to complete the work in total.

INSPECTION:

Notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected.

Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area. Refer to Submittals paragraphs under this section and provide written certification that all necessary inspections and testing have been performed.

Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

SURFACE PREPARATION:

General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions as herein specified or otherwise noted, for each particular substrate condition.

Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

Fill small holes with appropriate filler as approved by the architect. Caulk all joints which are not specified to be filled by others.

Cementitious Materials: Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

Ferrous Metals: Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.

Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent.

APPLICATION:

General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.

Sand lightly between each succeeding coat.

Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.

Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

FIELD QUALITY CONTROL:

The right is reserved by Owner to invoke the following material testing procedure at any time, and any number of times during period of field painting:

- Engage services of an independent testing laboratory to sample paint being used. Samples of materials delivered to project site will be taken, identified and sealed, and certified in presence of Contractor.
- Testing laboratory will perform appropriate tests for any or all of following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.

If test results show that material being used does not comply with specified requirements, Contractor may be directed to stop painting work, remove non-complying paint; and, pay for testing.

CLEAN-UP AND PROTECTION:

Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.

Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

PART 4 - EXTERIOR PAINT SCHEDULE (INCLUDING INTERIOR SURFACES @ COVERED PLAY)

General: Provide the following paint systems for the various substrates, as indicated or selected by the architect.

Stucco/Concrete: (typical exterior body paint)

High Build Acrylic (semigloss) finish having two finish coats over base coat

- Base Coat:

SW: Loxon Acrylic Surfacers, A24W-200

- Second Coat and Third Coat:

SW: Resilience Premium Acrylic Exterior Latex

Ferrous Metal:

Semi-Gloss Alkyd Enamel: 2 finish coats over primer.

- Prime Coat: Non-lead based primer. (Primer is not required on items delivered properly shop primed.):

SW: Kem Kromik Universal Metal Primer B50NZ

- Second and Third Finish Coats: Semi-Gloss Alkyd Enamel (FS TT-E-529, Class A):

SW: Metalastic DTM B55

Zinc-Coated Metal:

High Gloss Alkyd Enamel: 2 finish coats over primer

- Prime Coat:

SW: Pro-Cryl Universal Metal Primer, B66-310

- Second and Third Finish Coats: High Gloss Alkyd Enamel (FS TT-E-489):

SW: Industrial Enamel HS, B54WZ

END OF SECTION 09 91 00

SECTION 13 34 19 METAL BUILDING SYSTEM

PART 1 - GENERAL

DESCRIPTION OF WORK:

The Covered Play and I.T. and Transportation Building Shell are specially-engineered single story, single span, rigid frame metal buildings of length, width, eave height and roof pitch indicated. Standard components may be used, providing structure conforms to design and specified requirements noted herein.

SUBMITTALS:

In accordance with Section 01 33 00, Submittals, provide and shop drawings signed and sealed by a structural engineer registered in the state where the structure is located and product data.

QUALITY ASSURANCE:

Design Criteria: Design loads are indicated on the drawings.

Design primary and secondary structural members and exterior covering materials for applicable loads in accordance with the Metal Building Manufacturer's Association's (MBMA) "Design Practices Manual".

Structural Steel Members: Comply with AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings".

Light Gage Steel Members: Comply with AISI "Specification for the Design of Cold Formed Steel Structural Members" and "Design of Light Gage Steel Diaphragms".

Welded Connections: Comply with AWS "Standard Code for Arc and Gas Welding in Building Construction".

Manufacturer's Qualifications: At least 5 years experience in fabrication of pre-engineered buildings.

Erector's Qualifications: Licensed by the manufacturer, and at least 5 years experience in the erection of specially-engineered metal buildings similar to those required.

PART 2 - PRODUCTS

METALS:

Hot-Rolled Structural Shapes: ASTM A36 or A529.

Tubing or Pipe: ASTM A500, Grade B, ASTM A501, or A53.

Members Fabricated from Plate or Bar Stock: 42,000 psi minimum yield strength. Comply with ASTM A529, A570, or A572.

Members Fabricated by Cold Forming: ASTM A607, Grade 50.

Galvanized Steel Sheet: ASTM A446 with G90 coating; "Class" to suit manufacturer's standards.

Bolts for Structural Framing: ASTM A307 or A325 as necessary for design loads and connection details. Shop painted, except zinc- or cadmium-plated when framing components are in direct contact with roofing and siding panels.

PAINT & COATING:

Primary Members:

Shop Primer for Ferrous Metal: FS TT-P-645; fast-curing lead-free, "universal" primer compatible with finish paint.

Shop Primer for Galvanized Metal Surfaces: FS TT-P-641; zinc dust-zinc oxide primer compatible with substrate.

Secondary Members:

Shop Painting: Clean surfaces of loose mill scale, rust, dirt, oil, grease, and other matter. Follow procedures of SSPC-SP3 for power tool cleaning, SSPC-SP7 for brush-off blast cleaning, and SSPC-SP1 for solvent cleaning.

Prime framing members with rust-inhibitive primer.

Prime galvanized members, after phosphoric acid pretreatment with zinc dust-zinc oxide primer.

Finish Coating:

Refer to Section 09 91 00 and paint all primed exposed exterior surfaces as noted.

FRAMING:

Rigid Frames: Factory welded, shop painted built-up "I-beam" with tapered or parallel flange beams and parallel columns, fabricated from hot-rolled structural steel, complete with attachment plates, bearing plates and splice members. Factory drill for bolted field assembly. Provide length of span and spacing indicated.

End Wall Columns: Factory welded, shop painted minimum 14 ga. built-up "I" shape or cold-formed sections.

Wind Bracing: Minimum 1/2" diameter threaded steel rods; ASTM A36 or A572, Grade D at Transportation Building and rigid moment frames at Covered Play. Locate bracing where indicated.

Secondary Framing: 16 ga. minimum shop painted rolled formed sections for purlins, eave struts, endwall beams, and flange and sag bracing. 14 ga. minimum cold-formed galvanized steel sections for base channels, sill angles, purlin spacers and endwall structural members except beams and columns.

Fabrication: Design components and connections required to permit easy assembly and disassembly. Mark each piece to correspond with previously prepared erection drawings and instruction manuals.

Structural Framing: Fabricate framing components to size and section shown or if not shown as required to sustain the loading requirements, complete with base, bearing and other plates required for erection, welded in place. Provide required holes for anchoring or connections shop drilled or punched to template dimensions.

- Shop Connections: Provide power riveted, bolted or welded shop connections.

- Field Connections: Provide bolted field connections.

ROOFING & SIDING PANELS:

Siding Panels: Factory formed zinc-coated steel sheets minimum 26 ga. structural quality hot-dip galvanized steel sheets. Basis of Design is the American Long Span Panels by the American Buildings Company.

Standing Seam Roof Panels (**Transportation/IT Building**): Factory-formed 24 ga. galvanized steel system designed for mechanical attachment to roof purlins with 16 ga. concealed clips. Basis of Design is the American Standing Seam 11 or 360 System by the American Buildings Company.

Cleats: 24 ga. factory caulked, mechanically seamed galvanized steel cleats.

Ribbed Roof Panels (**Covered Play**): Factory formed 24 ga. galvanized steel system designed for mechanical attachment to roof purlins. Basis of Design is the American Long Span Panels by the American Building Company.

Finish: Both roof and siding panels shall have a factory-applied, baked-on thermo-setting synthetic enamel, color as selected by architect, to achieve a minimum dry film thickness of one mil. minimum applied to pretreated steel sheets.

ACCESSORIES AND MISCELLANEOUS:

Fasteners: Self tapping screws, bolts, nuts, self-locking rivets, self-locking bolts, end-welded studs, and other fasteners designed to withstand design loads. Use aluminum or stainless steel for exterior application and galvanized or cadmium plated for interior applications. Provide metal-backed neoprene washers under heads of fasteners bearing on weather side of panels.

Provide heads matching color of roofing or siding sheets.

Accessories: Flashings, closers, fillers, metal expansion joints, ridge covers fascias and other accessories formed of the same material and finish as the roofing and siding.

Flexible Closure Strips: Closed-cell, expanded cellular rubber, self-extinguishing, cut or premolded to match corrugation of roofing and siding sheets.

Sealing Tape: Permanently elastic, non-sag, non-toxic, non-staining, pressure sensitive, 100 percent solids, grey polyisobutylene compound tape 1/2" wide, 1/8" thick with release paper backing.

Joint Sealant: One-part elastomeric polyurethane, polysulfide or silicone rubber sealant.

Gutters: Form in sections 8 feet in length, with end pieces, outlet tubes and special pieces required. Join sections with riveted and soldered or sealed joints. Provide expansion-type slip joint at center of runs. Space supports at 36" o.c., of same metal as gutters. Provide bronze, copper, or aluminum wire ball strainers at each outlet. Finish to match roof fascia and rake.

Downspouts: Form in sections 10 feet long, with elbows and offsets. Join sections with 1 1/2" telescoping joints. Provide fasteners, designed to hold 1" away from walls; locate fasteners at top and bottom and at approximately 5 feet on center in between. Finish to match wall panels.

Thermal Roof Insulation (**Transportation/IT Building**): Glass fiber blanket/roof insulation faced with 2 mil. vinyl and .0007" thick aluminum foil reinforced with glass fiber scrim, not less than 0.5 lb. per cu. ft. density, 12" thickness minimum, UL flamespread classification of 25 or less, and 2" wide continuous vapor tight edge tabs. Provide 26 ga. formed galvanized steel retainer strips.

Hollow metal doors and frames, finish hardware, overhead and roll up doors and windows are specified in other sections of this specification.

Erection:

Framing: Erect framing true to line, level and plumb, rigid and secure. Level base plates to an even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use non-shrinking grout to obtain uniform bearing and maintain a level base line elevation. Moist cure grout for 7 days after placement.

Purlins and Girts: Provide rake or gable purlins with tight fitting closure channels and fascias. Locate and space wall girts to suit door and window arrangements and heights. Secure to framing and hold rigidly to a straight line by sag rods.

Bracing: Provide diagonal rod or angle bracing in roof and sidewalls or movement resisting frames as indicated or as required to resist the loads if not shown. Where diaphragm strength of roof or wall covering is adequate to resist wind forces and the current foundation design is adequate for such, other forms of bracing will not be required.

Framed Openings: Provide shapes of proper design and size to reinforce openings and carry loads and vibrations imposed, including equipment furnished under mechanical or electrical work. Securely attach to building structural frame.

Roofing and Siding: Nest sidelap joints. Lap sheets one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid application not true to line. Provide weatherseal under ridge cap. Flash and seal roof panels at eave and rake with rubber or neoprene closures. Protect finishes from damage.

Standing Seam Roof Panel System: Fasten panels to purlins with concealed clips. Install clips at each support using self-drilling fasteners. At end laps install tape caulk between panels. Install factory-caulked cleats at standing seam joints. Machine seam cleats to panels to provide a weather-tight joint.

Wall Sheets: Apply sealant continuously between metal base channel (sill angle) and concrete and elsewhere as necessary for waterproofing. Handle and apply sealant and back-up in accordance with the manufacturer's recommendations.

- Align bottoms of wall panels and fasten with blind rivets, bolts or self-tapping screws. Fasten flashings, trim around openings, and similar elements with self-tapping screws. Fasten window and door frames with machine screws or bolts. When building height requires two rows of panels at gable ends, align lap of gable panels over wall panels at eave height.

- Install screw fasteners with power tool having controlled torque adjusted to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.

Sheet Metal Accessories: Install gutters, downspouts, louvers, ventilators and other sheet metal accessories in accordance with manufacturer's recommendations. Adjust operating mechanism for precise operation.

Thermal Insulation: Install concurrently with roof panels and wall, straight and true in one-piece lengths with both sets of tabs sealed to provide a vapor barrier. Locate on the underside of roof sheets, extending across the top flange of purlin members, held taut and snug to roofing panels with retainer clips. Install retainer strips at each longitudinal joint nesting with roof rib.

Thermal Blocking: Install concurrently with thermal insulation to isolate roof from purlins.

Dissimilar Materials: Keep aluminum surfaces from direct contact with ferrous metal or other incompatible materials by applying one coat of zinc chromate primer to the other material followed by two coats of aluminum paint, SSPC-Paint 10.

Field Painting: Apply finish coats to factory primed and other items to receive paint in accordance with Section 09 91 00, Painting. Contractor may elect to have finish painting accomplished at the factory and field touch-up any areas in need of same after erection.

END OF SECTION 13 34 19