

**STANDARD
BID & SPECIFICATIONS PACKAGE**

Hurricane Repair to the
City of Myrtle Beach Transfer Station
Bid # 17-B0073



Prepared for

THE CITY OF MYRTLE BEACH
HORRY COUNTY, SOUTH CAROLINA

Procurement Office
3231 Mr. Joe White Avenue
Myrtle Beach, SC 29577
Ph# (843) 918-2170

SECTION 0100

NOTICE TO BIDDERS

Bid #17-B0073

Hurricane Repair to the
City of Myrtle Beach Transfer Station

Owner: CITY OF MYRTLE BEACH
Post Office Drawer 2468
Myrtle Beach, South Carolina 29578

Architect: Tych & Walker Architects, LLP
PO Box 509
Pawleys Island, SC 29585

Date: June 7, 2017

Interested parties are invited to submit sealed bids to the Owner at the Procurement Office Conference Room located on 3231 Mr. Joe White Avenue, Myrtle Beach, South Carolina before 10:00am, July 18, 2017.

The work consists of: The existing Transfer Station is located on 10th Ave. North Extension adjacent to the purchasing building, and was originally constructed in approximately 1976. The existing facility had a metal roof structure that collapsed during Hurricane Matthew. The new project is to replace the existing metal building structure (enclosed on three sides with the fourth side open) that provides an enclosure for garbage truck dumping and processing of material for haul and transport to the Solid Waste Authority. The new structure will include new metal building columns supports that will be anchored into the existing perimeter low concrete wall. Existing perimeter low concrete wall was damaged during the collapse of the existing structure, and subsequent repairs to this wall will also be required, including the addition of concrete supports at the existing wall. The new metal structure will be anchored to this wall and additional low concrete supports via anchor bolts. The new structure will be designed to mitigate damage from future storms. Existing lighting damaged/lost with the previous metal roof structure will be replaced LED lighting for the new cover area. The control room structure (walls & roof) will also be replaced, which will include a mini split heat pump system, along with rewiring of the existing control panels located within the control room structure. The electrical panels serving the control room, located at the lower level, will be replaced due to water damage following the collapse of roof structure.

Bidders shall comply with the requirements set forth in Section 0200 - Instruction to Bidders.

Contract Documents may be obtained from the City of Myrtle Beach website, www.cityofmyrtlebeach.com, under the Purchasing Department.

Direct any questions on this matter to Lauren Harrelson, Tych & Walker Architects at 843-651-7151, or Lauren@tychwalker.com.

Refer to other bidding requirements described in Document 0200 - Instructions to Bidders.

Bidders are required to submit their bid on the Bid Form provided. Bidders may not supplement this form unless otherwise directed. The Owner reserves the right to accept or reject any or all bids. Lowest bid may

not prevail. Award of the bid will be based on the bid prices, references, past performance of bidder and any proposed subcontractor with projects of comparable scope, complexity, and time constraints.

Questions should be submitted in accordance with the timeline, following the mandatory pre-bid meeting scheduled on **Thursday June 28, 2017 at 10:00 AM at the Job Site**. All interpretations, clarifications, or changes will be made in the form of written Addenda. See 3.04.D. page 0200-4.

Bidders shall comply with the requirements set forth in Section 0200 - Instruction to Bidders.

Bidders shall include bid security in the sum of no less than five percent (5%) of the bid price.

Refer to other bidding requirements described in Document 0200 - Instructions to Bidders.

The Owner shall have the right to accept Alternates in any order or combination, and to determine the low bidder on the basis of the sum of the Base Bid and alternates accepted.

Questions shall be submitted in writing to: Lauren@tychwalker.com. A copy of the response will be provided to all parties requesting a copy of the bid package.

Time Line:

Item		Time	Location*
Advertised Date of Issue:	Wednesday, June 7, 2017	n/a	n/a
Mandatory Pre-Bid Conf & Site Inspection	Wednesday, June 28, 2017	10:00AM ET	ON SITE*
Material Substitution Cut-Off Time:	Tuesday, July 11, 2017	3:00PM ET	n/a
Inquiry Cut-Off Time:	Tuesday, July 11, 2017	3:00PM ET	n/a
Bids Must be Received on/or Before:	Tuesday, July 18, 2017	10:00AM ET	City Purchasing
Public Bid Opening:	Tuesday, July 18, 2017	10:00AM ET	City Purchasing

*** Project site address is 10th Avenue Extension North, Myrtle Beach, SC 29577, adjacent to the Public Works Facility.**

END OF SECTION

SECTION 0100A

SPECIAL INSTRUCTIONS TO BIDDERS

1. The work under this contract includes the furnishing of all material, labor, tools and equipment necessary for the project: Hurricane Repair to the City of Myrtle Beach Transfer Station
2. The successful contractor must have approval and coordinate with the City of Myrtle Beach their scheduled working hours. Once the project begins, work will be continuous and conducted without delay for any contractor reason (s).
3. The contractor shall provide any and barricades and signage for the project or portion of the project within which operations are being conducted. All operations and material and equipment stockpiles shall be adequately barricaded and lighted. Access all work areas must be maintained at all times.
4. The contractor shall take proper measures to protect adjacent and adjoining areas of the transfer station that might be damaged by any process of the work in the contract. In case of damage the contractor shall restore, at its expense, the property to a similar or equal condition to that existing before damage was done.
5. The contractor is wholly responsible for the safety of the project and associated hazards/liability of the work performed. Sound safety practices will be adhered to.
6. Upon completion of the work, the contractor shall clean the entire area to a normal level or "first class" condition.
7. Transfer Station operations are to be maintained and operational during construction, until the metal building structure is on site and ready for installation. At such time, the Transfer Station will be closed for the duration of installation. The remainder of the building and site needs to be secure and off-limits from construction work, and secure at night.

END OF SECTION

SECTION 0200

INSTRUCTIONS TO BIDDERS

1. SUMMARY

1.01 DOCUMENT INCLUDES:

- A. Invitation
 - 1. Bid Submission
 - 2. Work Identified in the Contract Documents
 - 3. Contract Time and Liquidated Damages
- B. Bid Documents and Contract Documents
 - 1. Definitions
 - 2. Availability
 - 3. Examination
 - 4. Queries/Addenda
 - 5. Product/System Substitutions
 - 6. Contract Documents
- C. Site Assessment
 - 1. Site Examination
- D. Qualifications
 - 1. Evidence of Qualifications
 - 2. Subcontractors/Suppliers/Others
- E. Bid Submission
 - 1. Submission Procedure
 - 2. Bid Ineligibility
- F. Bid Enclosures/Requirements
 - 1. Security Deposit
 - 2. Performance Assurance
 - 3. Bid Form Requirements
 - 4. Bid Form Signature
- G. Offer Acceptance/Rejection
 - 1. Duration of Offer
 - 2. Acceptance of Offer

1.02 RELATED DOCUMENTS

- A. Document 0100 - Notice to Bidders
- B. Document 0300 - Bid Forms
- C. Document 0550 - General Provisions
- D. Document 0650 - Architect/Engineer's Supplementary Conditions
- E. Document 0700 - Contract Forms

2. INVITATION

2.01 BID SUBMISSION

- A. Bids will be received by the City of Myrtle Beach (herein called the “Owner/Architect/Engineer”), at the Procurement Office located on 3231 Mr. Joe White Avenue, Myrtle Beach, South Carolina before **July 18, 2017 at 10 am**, at which time they will be publicly opened and read aloud.
- B. Bids submitted after the time and date set for the receipt will be returned to the Bidder unopened.
- C. Amendments to the submitted offer will be permitted if received in writing prior to Bid closing and if signed by the same party or parties who signed and sealed the original bid.

2.02 WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

- A. The work includes all work described in the Contract Documents.
- B. Location: City of Myrtle Beach Transfer Station, 10th Avenue Extension North.
- C. The Owner reserves the right, to reject any and/or all Bids or lines in the bids. Award will be to the lowest bid on the items accepted. The Owner shall have the right to accept Alternates in any order or combination, and to determine the low bidder on the basis of the sum of the Base Bid and alternates accepted.

2.03 CONTRACT TIME AND LIQUIDATED DAMAGES

- A. Contractor shall complete all work within 240 days. Liquidated damages of **\$250/ day** will be assessed for each day thereafter.

3. BID DOCUMENTS AND CONTRACT DOCUMENTS

3.01 DEFINITIONS

- A. Bid Documents: Contract Documents, Bid Forms, Supplements-to-Bid Forms, and Bid Securities identified herein.
- B. Contract Documents: Defined in the Agreement Form.
- C. Bid: Act of submitting a sealed offer.
- D. Bid Price: Total cost to perform the work submitted by the Bidder in the Bid Form.

3.02 AVAILABILITY

- A. Bid Documents may be obtained at Duncan Parnell, Myrtle Beach, SC.
- B. Bid Documents can be obtained by Bidders upon payment by cash or certified check. Such payment is non-refundable.
- C. Bid Documents are made available only for the purpose of submitting a bid for this project.

3.03 EXAMINATION

- A. Each Bidder must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site, a review of the drawings, and by reading and being thoroughly familiar with the Contract Documents including Addenda. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to its Bid.
- B. Bid Documents may be viewed at the office of the Architect/Engineer.
- C. Upon receipt of Bid Documents, verify that documents are complete. Notify Architect/Engineer should the documents be incomplete.
- D. Immediately notify the Architect/Engineer upon finding discrepancies or omissions in the Bid documents.

3.04 QUERIES/ADDENDA

- A. Direct all questions to the Architect via email at Lauren@tychwalker.com. A copy of the response will be provided to all parties requesting a copy of the bid package.
- B. Addenda may be issued during the Bidding period. All Addenda shall become part of the Contract Documents. Include any resultant cost adjustments in the Bid Price.
- C. Verbal instructions or comments are not binding on any party.
- D. Clarifications requested by Bidders must be in writing as per timeline. The reply will be in the form of an Addendum, a copy of which will be forwarded to known recipients.

3.05 PRODUCT/SYSTEM SUBSTITUTIONS

- A. Where the Bid Documents stipulate a particular product/system, substitutions will be considered unless otherwise stated in the Contract Documents. See Section 01600 Material/Product Substitution Form.
- B. Bidders shall include in their Bid, any changes required in the Work to accommodate such substitutions. A later claim by the Bidder for an addition to the Contract Time or Contract Price because of changes in Work necessitated by use of substitutions shall not be approved.

3.06 CONTRACT DOCUMENTS

- A. The Contract Documents contain the provisions required for the completion of the work. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the contract.

4. SITE ASSESSMENT

4.01 SITE EXAMINATION

- A. The Bidder is responsible to inspect the project site before submitting a Bid in order to

- become familiar with site and all existing conditions.
- B. The project site is open for examination by Bidders.
- C. Contractors shall be respectful of adjacent property owners and their concerns. The City will assist in coordinating in site investigations prior to bid opening and during construction.

5. QUALIFICATIONS

5.01 EVIDENCE OF QUALIFICATIONS

- A. Bidders must be licensed to perform work in the State of South Carolina and shall include their license number on the Bid Documents.
- B. Evaluation of Bidders will concentrate on their experience with projects of comparable scope and complexity. Bidders shall indicate prior projects that exhibit these qualities in their statement of experience. Additional attachments exhibiting such experience must be included with the bid.

5.02 SUBCONTRACTORS/SUPPLIERS/OTHERS

- A. The Owner reserves the right to reject a proposed Subcontractor.
- B. Information on subcontractors shall be furnished by the Bidder to the Owner as required in the Contract Documents.
- C. All Subcontractors must be approved in writing by the Owner prior to the performance of any work.

6. BID SUBMISSION

6.01 SUBMISSION PROCEDURE

- A. Each Bid must be submitted in a sealed envelope, addressed to the City of Myrtle Beach, at 3231 Mr. Joe White Ave, Myrtle Beach, South Carolina 29577. If delivered by hand the Bid shall be delivered to the Procurement Office at 3231 Mr. Joe White Avenue, Myrtle Beach, South Carolina.
- B. Each sealed envelope containing a Bid must be plainly marked on the outside as Bid for the City of Myrtle Beach, South Carolina and the envelope should bear on the outside the name of the Bidder, his address, his bidder's license number and the name of the project for which the Bid is submitted.
- C. Bidders shall be solely responsible for the delivery of their Bids in the manner and time prescribed.
- D. Bids mailed shall be enclosed in another envelope. Insert the closed and sealed Bid Form in the envelope to be mailed.
- E. A summary of submitted Bids will be made available to all Bidders within seven (7) working days.

6.02 BID INELIGIBILITY

- A. Bids that are incomplete, unsigned, improperly signed or sealed, conditional, illegible,

- obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, will at the discretion of the Owner, be declared non-responsive.
- B. Bid bonds and bids must be signed to be considered.

7. BID ENCLOSURES/REQUIREMENTS

7.01 SECURITY DEPOSIT

- A. Bids shall be accompanied by a security deposit as follows:
1. Bid Bond of a sum no less than **five (5%)** percent of the Bid Price. (Include Power of Attorney).
 2. Certified check in the amount of **five (5%)** percent of the Bid Price.
 3. Other types of security may be allowed if pre-approved in writing by the Owner.
- B. Bids shall be submitted on the required form and shall include: Bid Proposal, Non-collusion Affidavit, Bidder's Representation, Statement of License Certificate, and Statement of Experience of the Bidder, Project Superintendent, and List of Subcontractors.
- C. The Bid Bond shall name the Owner as obliged, and be signed and sealed by the Contractor as principal as well as the Surety.
- D. Bid securities will be returned to all Bidders upon receipt by the Owner of the required Insurance, Performance, and Payment Bonds from the successful Bidder.
- E. Include the cost of Bid security in the Bid Price.
- F. All Bid securities will be returned to the respective Bidders.
- G. If no contract is awarded, all Bid securities will be returned.

7.02 PERFORMANCE ASSURANCE

- A. Successful Bidder: Shall provide the stipulated insurance, along with the Performance and Payment Bonds as described in the Contract Documents.
- B. Include the cost of bonding in the Bid Price.
- C. Attorneys-in-Fact who sign bid bonds or payment bonds and performance bonds must file with each bond a certified and effective dated copy of their power of attorney.

7.03 BID FORM REQUIREMENTS

- A. Complete all requested information in the Bid Form and Appendices.
- B. All Bids shall be submitted on the required Bid Form. All blank spaces for Bid prices must be filled in, in ink or typewritten, and the Bid Form must be fully completed and executed when submitted. Only one copy of the Bid Form is required.
- C. Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the Contract Documents. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities or nature of the Work.

7.04 BID FORM SIGNATURE

- A. The Bid Form shall be signed by the Bidder, as follows:

1. Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature. Affix seal.
2. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature. Affix seal to each signature.
3. Corporation: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer's capacity in which the signing officer acts under each signature. Affix the corporate seal. If the Bid is signed by officials other than the President and Secretary of the company, or the President/Secretary/Treasurer of the company, a copy of the by-law resolution of the Board of Directors authorizing them to do so must also be submitted with the Bid Form.
4. Joint Venture: Each party of the joint venture shall execute the Bid Form under their respective seals in a manner appropriate to such party as described above, similar to the requirements of a Partnership.

8. OFFER ACCEPTANCE/REJECTION

8.01 DURATION OF OFFER

- A. Bids shall remain irrevocable for a period of **thirty (30) days** after the Bid closing date.
- B. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the owner and the successful Bidder.

8.02 ACCEPTANCE OF BID

- A. The Owner reserves the right to accept or reject any or all bids. Lowest bid may not prevail. Award of the bid will be based on the bid prices, references, past performance of bidder and any proposed subcontractor with projects of comparable scope, complexity, and time constraints.
- B. The Owner shall have the right to accept Alternates in any order or combination, and to determine the low bidder on the basis of the sum of the Base Bid and alternates accepted.
- C. After determining the lowest responsive bidder, but prior to the Notice of Award to any bidder, the City may elect to open negotiations with the selected responsive and responsible bidder in an effort to improve the bid for a period of 15 working days. In these negotiations, the City may address scope of work, unit pricing, or any other subject fairly contained within the bid documents. In the event that the apparent responsive and responsible low bidder should decline to negotiate or should negotiations commence but fail, the City shall reject all bids.
- D. The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the Work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the Work contemplated therein.
- E. The party to whom the contract is awarded will be required to execute the Agreement and obtain the Performance Bond, Payment Bond, and Certificate of Insurance within **ten (10) calendar days** from the date when Notice of Award is delivered to the Bidder. The Notice of Award shall be accompanied by the necessary Agreement, Bond forms, and Certificate of Insurance. In case of failure of the Bidder to execute the Agreement, the Owner may at his option consider the Bidder in default, in which case the Bid Bond accompanying the proposal shall become the property of the Owner.
- F. The Owner within ten (10) days of receipt of acceptable Performance Bond, Payment Bond, Certificate of Insurance and Agreement signed by the party to whom the Agreement was awarded

shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may by written notice withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

END OF SECTION

SECTION 0300

Hurricane Repair to the Transfer Station
Bid # 17-B0073
For the
CITY OF MYRTLE BEACH

BIDDER'S REPRESENTATION

By the act of submitting a bid for the proposed contract, the Bidder represents that:

1. The Bidder and all subcontractors the Bidder intends to use have carefully and thoroughly reviewed the Contract Documents and have found them complete and free from ambiguities and sufficient for the purpose intended; and
2. The Bidder and all workmen, employees and subcontractors the Bidder intends to use are skilled and experienced in the type of work represented by the Contract Documents; and
3. Neither the Bidder nor any of the Bidder's employees, agents, intended suppliers or subcontractors have relied upon any verbal representations, of the Owner, or the Owner's employees or agents including architects, Architect/Engineers or consultants, in assembling the bid; and
4. The bid figure is based solely upon the Contract Documents and not upon any other oral or written representation.

By: _____

Title: _____

Subscribed and sworn to before me

this _____ day of _____, 20____.

My commission expires on: _____.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of South Carolina)
County of Horry)

being first duly sworn, deposes and says that:

- (1) He is _____ of _____, the Bidder that has submitted the attached Bid:
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid:
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owners or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

(Title)

Subscribed and sworn to before me this _____ day of _____,
20____.

_____. My commission expires

on: _____ (Title) _____

STATEMENT OF LICENSE CERTIFICATE

EACH CONTRACTOR BIDDING SHALL FILL IN AND SIGN THE FOLLOWING:

This is to certify that _____ have fully complied with all the requirements of the South Carolina Licensing Board for Contractors. The Contractor's license number and date of registration shall appear on the envelope containing the bid, otherwise the bid will not be considered.

_____ was issued Certificate No. _____

on _____, 20____ by the State Board for licensing General Contractors.

Signed: _____

Title: _____

STATEMENT OF EXPERIENCE OF THE BIDDER

The bidder is requested to state below what work of similar scope and complexity he has completed, and to give references that will enable the Owner to judge his experience, skill and business standing and his ability to conduct the work as completely and as rapidly as required under the terms of the contract.

	<u>Project and Location</u>	<u>Reference with Current Phone No.</u>
1)	<hr/>	<hr/>
	<hr/>	<hr/>
2)	<hr/>	<hr/>
	<hr/>	<hr/>
3)	<hr/>	<hr/>
	<hr/>	<hr/>
4)	<hr/>	<hr/>
	<hr/>	<hr/>
5)	<hr/>	<hr/>
	<hr/>	<hr/>
6)	<hr/>	<hr/>
	<hr/>	<hr/>
7)	<hr/>	<hr/>
	<hr/>	<hr/>

Dated: _____ Bidder: _____

Signed: _____

Title: _____

PROJECT SUPERINTENDENCE

The Undersigned states that the following employee will assume the role of project superintendent representing the Contractor on this Project. The undersigned further states that this individual, whose qualifications are presented below (attach additional sheets, if necessary), will have authority to speak for the Contractor and will not be removed from this Project or temporarily substituted for on this Project without the written consent of the Owner and Project Architect/Engineer.

Project Superintendent's Name: _____

Years of Experience: _____

Brief but Complete Description of Experience Relevant to this Project: _____

References from Owners where work of similar scope, and complexity has been accomplished under Proposed Superintendent's direct supervision.

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

(Phone) (Phone) (Phone) (Phone) (Phone)

"I consent to the disclosure of my qualifications and other applicable personal data for the purpose of evaluating proposals under this solicitation."

Employee's Signature

Date

"I certify to this employee's role in this Project and that the qualifications presented herein are accurate, complete and current."

Bidder: _____

Date: _____

Signed: _____

Title: _____

LIST OF SUBCONTRACTORS

The undersigned states that the following is a full and complete list of the proposed subcontractors on this Project and the class of work to be performed by each, and that such list will not be added to nor altered without written consent of the Owner.

	<u>Subcontractor and Address</u>	<u>Class of Work to be Performed</u>
1)	<hr/>	<hr/> Metal Building Supplier
	<hr/>	<hr/>
2)	<hr/>	<hr/> Electrical Contractor
	<hr/>	<hr/>
3)	<hr/>	<hr/>
	<hr/>	<hr/>
4)	<hr/>	<hr/>
	<hr/>	<hr/>
5)	<hr/>	<hr/>
	<hr/>	<hr/>
6)	<hr/>	<hr/>
	<hr/>	<hr/>
7)	<hr/>	<hr/>
	<hr/>	<hr/>

Dated:

Bidder:

Signed:

Title:

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____ as PRINCIPAL, and _____ as SURETY are hereby held and firmly bound unto _____, as OWNER, in the penal sum of _____, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that Whereas the Principal has submitted to the City of Myrtle Beach a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the _____

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

THE SURETY, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

Surety

By: _____

Date: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

SECTION 0300

PROPOSAL

Proposal of _____ (hereinafter called "BIDDER"),
organized and existing under the laws of the State of _____
doing business as _____*.

To the City of Myrtle Beach, South Carolina, (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all
WORK for the hurricane repair to the Transfer Station
in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the
prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party
thereto certifies as to his own organization, that this BID has been arrived at independently, without
consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER
or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be
specified in the NOTICE TO PROCEED and to fully complete the PROJECT within the time constraints
as set forth in Section 0200, Paragraph 2.03 - Contract Time and Liquidated Damages; Section 0650,
Paragraph 1.20 - Project Schedule, and; as further stated herein. BIDDER further agrees to pay as
liquidated damages, the sum of **\$250** for each consecutive calendar day thereafter as provided in Section
0200, Paragraph 2.03 and Section 0650, Paragraph 1.20.

BIDDER acknowledges receipt of the following ADDENDUM:

Addendum No. _____,	Dated: _____
Addendum No. _____,	Dated: _____
Addendum No. _____,	Dated: _____

*Insert "a corporation", "a partnership", or "an individual" as applicable.

BIDDER agrees to perform the work described in the CONTRACT DOCUMENTS for the
following unit bid price.

BID SCHEDULE

Item	Description	Qty		Unit	Unit Price	Amount
Hurricane Repair to the Transfer Station						

LUMP SUM PRICE

TOTAL BID: _____
(In Words)

ALTERNATE #1 ADD Liner Panels at the inside of the new structure

ADD _____

ALTERNATE #2 ADD Replacing existing Panel "A"

ADD _____

ALTERNATE #3 ADD Concrete Repair at Landscape Trash Chute as indicated on S2.1

ADD _____

NOTE: Bids shall include sales tax and all other applicable taxes and fees.

Respectfully submitted:

Signature

Address

Title

Date

License Number (if applicable)

SEAL (if BID is by a corporation)

Attest: _____

SECTION 0550

CITY OF MYRTLE BEACH DEPARTMENT OF PUBLIC WORKS

GENERAL PROVISIONS

I. REQUIREMENTS

A. Definitions

Whenever used in these General Provisions or in the other Contract Documents, the following terms shall have the meanings indicated which are applicable to both the singular and plural thereof:

1. "Directed", "permitted", "reviewed", "accepted", "approved", or words of similar import mean the direction, requirements, permission, approval, or acceptance of Architect/Engineer, or Owner, unless stated otherwise.
2. "As shown", "as indicated", "as detailed", or words of similar import refer to the Drawings unless stated otherwise.
3. "Addenda", -- Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Contract Documents.
4. "Agreement", -- The written agreement between the Owner and Contractor outlining the work to be performed, the Contract Time, and the Contract Price.
5. "Application for Payment", -- The Periodical Estimate for Partial Payment Form which is to be used by Contractor in requesting progress or final payment and which is to include such supporting documentation as is required by the Contract Documents. A copy of the form is included with these Contract Documents.
6. "Bid", -- The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the work to be performed.
7. "Bonds", -- Bid, performances, and payment bonds and other acceptable instruments of security.
8. "Change Order", -- A written order to Contractor signed by Owner authorizing an addition, deletion, or revision in the work or an adjustment in the Contract Price or the Contract Time, issued on or after the effective date of the Agreement.
9. "Contract Price", -- The money payable by Owner to Contractor under the Contract Documents as stated in the Agreement (subject to the approximate quantities provisions in the Instructions to Bidders in the case of Unit Price Work).

10. "Contract Time", -- The number of days or the date stated in the Agreement for the completion of the Work.
11. "Contractor", -- The person, firm, or corporation with whom Owner has entered into the Agreement.
12. "Day", -- A calendar day of twenty-four hours measured from midnight to the next midnight.
13. "Defective", -- An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty, or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to Architect/Engineer's recommendation of final payment.
14. "Drawings", -- The Drawings which show the character and scope of the work to be performed and which have been prepared or approved by Architect/Engineer and are referred to in the Contract Documents.
15. "Effective Date of the Agreement", -- The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
16. "Architect/Engineer", -- City of Myrtle Beach Architect/Engineering Division.
17. "Field Order", -- A written order issued by Architect/Engineer which orders minor changes in the Work but which does not involve a change in the Contract Price or the Contract Time.
18. "Final Acceptance", -- The date when the construction of the project is complete in accordance with the Contract Documents so that the entire project can be utilized for the purposes for which it is intended and all monies due Contractor have been paid him in the final Application for Payment.
19. "General Requirements", -- Officially recognized materials and workmanship specifications of the Owner.
20. "Inspector", -- The Architect/Engineering or technical inspector duly authorized or appointed by Architect/Engineer or by Owner, limited to the particular duties entrusted to him.
21. "Major Equipment", -- The major equipment items listed by name in the Contract Documents which are to be furnished and installed under the Contract.
22. "Modification", -- (a) A written amendment of the Contract Documents signed by both parties, (b) a Change Order, or (c) a Field Order. A modification may only be issued after the effective date of the Agreement.
23. "Notice of Award", -- The written notice by Owner to the successful Bidder stating that upon compliance with the conditions precedent enumerated therein, and within the time specified, Owner will sign and deliver the Agreement.

24. "Notice to Proceed", -- A written notice given by Owner to Contractor, (with a copy to Architect/Engineer), fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform Contractor's obligation under the Contract Documents and the date on which all work scheduled under the Contract shall be completed.
25. "Owner", -- The City of Myrtle Beach, South Carolina.
26. "Project", -- The total construction of which the work to be provided under the Contract Documents may be the whole or a part, as indicated in the Contract Documents.
27. "Provide", -- As used in the Specifications means furnish and install.
28. "Shop Drawings", -- All drawings, diagrams, illustrations, schedules, and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams, and other information prepared by a supplier and submitted by Contractor to illustrate material or equipment for some portion of the Work.
29. "Specifications", -- Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.
30. "Sub-Contractor", -- An individual, firm, or corporation having a direct contract with Contractor or with any other Sub-Contractor for the performance of a part of the work.
31. "Substantial Completion", -- The Work (or a specified part thereof) which has progressed to the point where, in the written opinion of Architect/Engineer, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purpose for which it was intended. The terms "substantially complete" and "substantially completed" , as applied to any Work, refer to Substantial Completion thereof.
32. "Supplier", -- A manufacturer, fabricator, supplier, distributor, materialman, or vendor.
33. "Work", -- The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor, and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

B. ABBREVIATIONS

Wherever abbreviations are used in this Contract Document, each such abbreviation shall have the following listed meaning:

<u>UNIT OF MEASURE</u>	
CY	Cubic Yard
Ft.	Feet
Lbs.	Pounds
M	One Thousand

MFBM	One Thousand Feet Board Measure
C	Centigrade
F	Fahrenheit
HP	Horsepower
KVA	Kilovolt Ampere
BTU	British Thermal Unit
LF	Linear Feet

TYPES AND UNITS

DI	Ductile Iron
PVC	Polyvinyl Chloride
HDPE	High Density Polyethylene
MJ	Mechanical Joint
B & S	Beel and Spigot
T & G	Tongue and Groove
SS	Single Strength
DS	Double Strength
VC	Vitrified Clay
RC	Reinforced Concrete
MH	Manhole
CB	Catch basin
ES	Extra Strength

ORGANIZATIONS AND PUBLICATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AIEE	American Institute of Electrical Architect/Engineers
AISC	American Institute of Steel Construction
ASA	American Standards Association, Inc.
ASME	American Society of Mechanical Architect/Engineers
ASTM	American Society for Testing and Materials
AWWA	American Waterworks Association
AWS	American Welding Society
MISS	Manufacturers Standardization Society of the Valve and Fitting Industry
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
PCA	Portland Cement Association
UL	Underwriters Laboratory
UBC	Uniform Building Code

C. CONTRACTOR'S BONDS

- (1) Faithful Performance Bond: As a part of the execution of this Contract, the Contractor shall furnish to the Owner, a bond payable to the City of Myrtle Beach in the form of Faithful Performance Bond set forth herein, secured by a surety company acceptable to the Owner, conditioned upon the faithful performance of all covenants and stipulations

under this contract. Attorney in fact or Power of Attorney signature on bonds is permissible. The amount of the bond shall be not less than one hundred percent (100%) of the total contract amount as set forth in the Agreement.

- (2) Labor and Material Bond: As a part of the execution of this Contract, the Contractor shall furnish to the Owner, a bond of surety company acceptable to the Owner in a sum of one hundred percent (100%) of the total contract amount, as set forth in the Agreement for the payment in full of all persons, companies or corporations who perform labor upon or furnish material to be used in the work under this Contract.
- (3) Bid Bond: 5% of total Contract.
- (4) Notification of Surety Companies: The Contractor shall advise the surety companies and other signers of the bonds listed above to familiarize themselves with all of the conditions and provisions of this Contract, and they shall waive the right of special notification of any change or modification to this Contract or of extension of time, or of decreased or increased work, or of the cancellation of the Contract or of any other act or acts by the Owner or its authorized employees and agents, under the terms of this Contract and failure to so notify the aforesaid surety companies of changes shall in no way relieve the surety companies of their obligations under this Contract.

D. CONTRACTOR'S INSURANCE

- (1) Public Liability and Property Damage.

The Contractor shall purchase and thereafter maintain for the term of this Agreement and any subsequent extensions hereto, public liability insurance to protect Contractor from claims for bodily injury and/or property damage which may result from Contractor's performance of this Agreement. The policy shall provide a combined single limit of liability of \$1,000,000 per occurrence for bodily injury and property damage with an aggregate limit of not less than \$1,000,000.

- (2) Automobile Liability.

The Contractor shall purchase and thereafter maintain for the term of this Agreement and any subsequent extensions hereto, comprehensive automobile liability insurance to protect the Contractor from claims for bodily injury and property damage which may arise from Contractor's use of motor vehicles in the performance of this Agreement. The policy must provide coverage for "ANY AUTO (CODE 1)" and Contractual Liability (endorsement CA 0025). The policy shall provide for a combined single limit of \$1,000,000 per occurrence for bodily injury and property damage.

- (3) Workers' Compensation Insurance.

Prior to beginning the work, the Contractor shall take out full compensation insurance for all persons which may be employed directly or indirectly in the performance of this Agreement. The policy must provide Employers Liability coverage in the amount of \$500,000 each accident; \$500,000 bodily injury by disease each employee and \$500,000 bodily injury by disease policy limit and shall be maintained in full force and effect during the term of this Agreement and any subsequent extensions hereto.

(4) Excess Liability Policy.

At the option of the Contractor, the limits of the primary general liability, automobile liability and employer's liability policies may be less than stipulated herein, with an excess policy providing the additional limits required. This form of coverage must be approved by the Owner and will only be acceptable when both the primary and excess policies include the coverages and endorsements required herein.

(5) Builders Risk Insurance.

If applicable, the Owner shall provide and maintain Builders Risk coverage in an amount equal to 100% of the Project's completed value. Coverage shall include but not be limited to, fire, lightning, windstorms, hail, smoke, explosion, riot, riot attending a strike, civil commotion, aircraft, vehicles, vandalism, malicious mischief, glass breakage, falling objects, water damage, collapse, flood and earthquake. The policy shall include coverage, but not be way of limitation, for all damage or loss to the work and to appurtenances, materials and equipment to be used on the Project while same are stored on the work site or approved storage area. Coverage does not extend to any tools, equipment or materials which are not intended to become part of the Project. All losses will be adjusted with and be made payable to the Owner. The Owner shall provide the Contractor with a Certificate of Insurance reflecting the foregoing, and that coverage will remain in effect until the Project has been accepted by the Owner. The policy shall be endorsed with a "Waiver of Occupancy" to allow the Owner to use the property during the Project.

(6) Policy Endorsements.

The following clauses shall be endorsed to the policy(s) indicated below:

(a) General Liability and Automobile Liability

1. "It is understood and agreed that in consideration of the terms and conditions of this policy to which this endorsement is attached, the City of Myrtle Beach, its officials, agents and employees are recognized as additional named insureds under the policy and as such will be provided thirty (30) days written notice of non-renewal, exhaustion of aggregate limit, modifications of coverage or cancellation for any reasons and the company hereby agrees to provide such notice. Failure of the company to provide the required notice shall cause the coverage to continue in force for the benefit of the Owner, its officials, agents, and employees until proper notification as required herein is provided, the provisions of the policy or any certificate of insurance to the contrary notwithstanding."

Contractor's insurance shall be primary to any insurance or self-insurance maintained by the Owner, its officials, agents or employees, which is considered excess and non-contributing for the purpose of this Agreement".

3. "The company shall not have recourse against the Owner for payment of any premiums, deductibles or for payment of any premiums, deductibles

or for assessments under this policy."

4. "Failure of any named insured to comply with the reporting requirements of the policy shall not affect the coverage provided to the Owner as an additional insured."
5. If the Contractor, to meet the obligations of the Contract, obtains any endorsement to its General Liability Policy not specifically required by this Contract, the Contractor shall be required to have the Owner, as an additional insured, covered by the same endorsements or otherwise, including, but not limited to, completed operations coverage.

(b) Workers' Compensation

1. "Underwriters have no right of recovery of subrogation against the Owner for losses which result from work performed under this Agreement."
2. The cancellation provision is hereby amended to provide that the Owner will be provided thirty **(30) days** written notice in the event of coverage cancellation.

(7) Subcontractors.

Contractor shall not be required to name Subcontractors as additional insureds in any insurance policy required herein. Contractor will, however, secure certificates of insurance as evidence that each Subcontractor carries insurance to provide coverage under this Agreement in the same form as is required of the Contractor.

(8) Notifications of Insurance Companies.

It is the responsibility of the Contractor to notify all insurance companies to familiarize themselves with all terms and conditions of this Agreement. The insurance companies shall waive their right of notification by the Owner of any change or modification of this contract, or of decreased work or increased work, or of the cancellation of this Agreement or of any other acts by the Owner or its authorized employees or agents under the terms of this Agreement. The waiver by the insurance companies shall in no way relieve them of their obligations under this Agreement.

(9) Certificates of Insurance.

Contractor shall file with the Owner a certificate of insurance for approval by the Owner prior to the inception of any work. Renewal certificates shall be sent to the Owner 30 days prior to the expiration date of any policy required herein. The Owner reserves the right to require submission of certified copies of all insurance policies at its sole discretion.

(10) Coverage Cancellation or Unsatisfactory Coverage.

If at any time any of the foregoing policies shall be or become unsatisfactory to the Owner, as to form or coverage, or if a company issuing any such policy shall be or

become unsatisfactory to the Owner, the Contractor shall, upon notice to that effect from the Owner, promptly obtain a new policy and submit the same for approval to the Owner. Upon failure of the Contractor to furnish, deliver and maintain the insurance coverages required herein, this Agreement, at the sole discretion of the Owner, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor to take out and/or maintain any required insurance shall not relieve the Contractor from any liability under this Agreement, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations of the Contractor concerning indemnification.

(11) Hold Harmless.

Contractor agrees to protect, defend, indemnify and hold the Owner, its officers, employees and agents free and harmless from and against any and all claims, losses, fines, penalties, damages, settlements, costs, changes, attorney's fees and costs, professional fees or other expenses and liabilities of every kind and character arising in whole or in part, out of or relating to any and all claims, liens, demands, obligations, actions, proceedings, or causes of action of every kind in connection with or arising out of this Agreement and/or the performance hereof, without regard to fault or negligence of the Contractor or the Owner, that arise in whole or in part from any claim or actual action(s) of, or failure(s) to act by the Contractor, its officers, employees, subcontractors or agents. Contractor further agrees to investigate, handle, respond to, provide to, provide defense for and defend the same, regardless of fault of the Contractor or Owner or whether claims made are directly attributable to actions or inactions of the Contractor, at its sole expense and agrees to bear all other cost and expenses related thereto. The contractor shall protect, indemnify, defend and hold the Owner harmless regardless of any claimed or actual, negligence, breach of warranty of any kind, including warranties related to plans and specifications, against or by the Owner, its officers, employees and agents, professionals or Architect/Engineers. The Contractor also agrees to notify all insurers of claims made and demand defense of the Contractor and the Owner.

The Contractor also agrees to pay all attorney's fees, court fees, expert fees, and all other cost of litigation which are incurred by the Owner, which relate in whole or in part to any suit, arbitration, mediation, alternative dispute resolution, dispute, enforcement, default, declaratory judgment action, or other action in law or in equity, including appeals between Owner and Contractor, regardless of fault, which arise out of, in whole or in part, this agreement and or the performance hereof.

E. LOCATION OF EXISTING UTILITIES AND PIPING

The location of existing piping and underground utilities, as shown on the Drawings have been taken from existing record drawings, and information provided by other utilities. However, the Owner does not assume responsibility for the possibility that during construction utilities other than those shown may be different from the locations designated on the Drawings.

The Contractor shall proceed with caution in any excavation so that the exact location of underground utilities may be determined. Before excavation or boring is commenced, it shall be the duty of the Contractor to contact all utility companies to aid in locating their underground installations. The Contractor shall, at his own expense, furnish all labor and tools to verify and substantiate the indicated locations.

Any utility lines, services, poles or other structures which are damaged shall be repaired or

replaced by the Contractor at his expense and the Contractor shall indemnify the Owner from any claims resulting from such damage.

Due to the nature of the work, adjustments may be required in new construction to meet existing conditions. Such adjustments shall be made by the Contractor without additional cost to the Owner unless the scope of such adjustment(s) is approved by the Owner in the form of a Change Order.

F. LABOR PROVISIONS

The Contractor shall employ only competent and skilled workers and forepersons in the conduct of the Project. The Owner shall have the authority to order the Contractor to remove from the Project any of Contractor's employees who refuse to obey instructions relating to the carrying out of the provisions and intent of the provisions of the Contract, or who are incompetent, unfaithful, abusive, threatening or disorderly in their conduct, and any such person shall not again be employed on the Project.

G. NOTICE OF STARTING WORK

The Contractor shall notify the Architect/Engineer and Owner in writing forty-eight (48) hours before starting work at the Project Site. In case of a temporary suspension of work, he shall give reasonable notice before resuming work.

H. EFFECT OF EXTENSION OF TIME

The granting of any extension of time on account of delays which in the judgment of the Owner are avoidable delays shall in no way operate as a waiver on the part of the Owner of its rights under this Contract.

I. EXTRA WORK

If extra work is assigned in accordance with the provisions of this contract, such work shall be considered a part hereof and subject to all its terms and requirements. Any such extra work shall be in the form of a Change Order to the Contract.

J. ASSIGNMENT OF CONTRACT

The Contract may not be assigned in whole or in part except upon the written consent of the Owner.

L. DISCREPANCIES

Anything called for by one of the Contract Documents and not called for by others shall be of like effect as if required or called for by all. Any discrepancies between any parts of the Contract Documents shall be called to the attention of the Architect/Engineer by the Contractor, in writing, for a decision before proceeding with the work affected thereby.

M. LIABILITY OF OWNER'S REPRESENTATIVES AND OFFICIALS

No official or employee of the Owner, nor the Architect/Engineer, nor any authorized assistant or

agent of either, shall be responsible for construction means, methods, techniques, sequences or procedures, time of performance or for safety precautions and programs in connection with the work. The Architect/Engineer shall not be responsible for the failure of the Contractor to carry out the work in accordance with the Contract Documents. The Architect/Engineer shall not be responsible for acts or omissions of the Contractor, any Subcontractor(s), or any of their agents or employees, or any other persons performing the work.

N. EFFECT OF INSPECTION AND PAYMENT

Neither the inspection by the Architect/Engineer nor by any of his agents, nor by an inspector, nor any order, measurements, approved modification, certificate or payment of money, nor acceptance of any part or whole of work, nor any extension of time, nor any possession by the Owner or its agents, shall operate as a waiver of any provision of this Contract or of any power reserved therein to the Owner or any right to damages thereunder; nor shall the waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach. All remedies shall be construed as cumulative.

II. LEGAL RELATIONS AND RESPONSIBILITY

A. LAWS TO BE OBSERVED

The Contractor shall keep himself fully informed of all applicable Federal, State, County, and City laws, ordinances and regulations which in any manner affect those engaged or employed in the work or the materials used in the work or the conduct of the work or the rights, duties, powers, or obligations of the Owner or of the Contractor or which otherwise affect the Contract, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. He shall at all times observe and comply with, and shall cause all his agents, subcontractors and employees to observe and comply with, all such laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the Owner, the Architect/Engineer and all of their officers, agents and employees, against any claim, loss or liability arising or resulting from or based upon the violation of any such laws, ordinance, regulation, order or decree, whether by himself or by his agents, subcontractor or employees. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to such laws, ordinance, regulation, orders or decree, the Contractor shall forthwith report the same to the Architect/Engineer and the Owner.

B. PROVISIONS OF LAW

It is specifically provided that this Contract is subject to all applicable laws and that the rules of law shall prevail over any provision contained in any of the Contract Documents which may be in conflict thereto or inconsistent therewith.

III. RESPONSIBILITIES AND RIGHTS OF CONTRACTORS

A. ATTENTION TO WORK

The Contractor shall direct the work using his best skill and judgment and shall give his personal attention to and shall supervise the work to the end that it shall be performed faithfully, and when he is not personally present on the work, he shall at all times be represented by a competent superintendent or foreman who shall be present at the work and who shall receive and obey all

instructions or orders given under this Contract, and who shall have full authority to execute the same, and to supply materials, tools and labor without delay and who shall be the legal representative of the Contractor. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, time of performance and for safety precautions and programs and for coordinating all portions of the construction. The Contractor shall be liable for the faithful observance of any instructions delivered to him or to his authorized representative.

B. ACCESS TO WORK

The Contractor shall at all times provide facilities for access and inspection of the work by representatives of the Owner and of such official governmental agencies having jurisdictional rights to inspect the work.

C. WORK SITE

- (1) Use of Work Site. The Contractor shall confine his equipment, apparatus, the storage of materials, and operations of his workers to limits indicated by the law, ordinance, permit, Contract Documents or directions of the Owner.

The Contractors shall not load or permit any part of a structure to be loaded with weight that will endanger its safety. The Contractor shall observe and enforce the Owner's instructions regarding signs, advertisements, fires and smoke, unless such instructions are non-permissible in accordance within the jurisdiction of another authority.

- (2) Use of Private Land. The Contractor shall not use any vacant lot or private land as a plant site, depository for materials, or as a spill site, or for any other purpose without the written authorization of the person(s) owning the property and the written approval of the Owner for the use of such property. A copy of the written Agreement between the property owner and the Contractor shall be provided to the Owner.

- (3) The hard surfaced playground area is accessible for Contractor laydown area but must be protected to prevent damage to existing surface

D. SIGNS

The Contractor may place and maintain one sign board on the Project site. No other commercial or advertising signs will be allowed on the work site or on public property in the vicinity of the work. The layout and content of the sign shall be approved by the Owner.

E. LIABILITY OF CONTRACTOR

The Contractor shall do all of the work and furnish all labor, materials, tools and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the work herein required in the manner and within the time specified in the Contract Documents. The mention of any duty or liability imposed upon the Contractor shall not be construed as a limitation or restriction or any general duty or other liability imposed upon the Contractor by this Contract, said reference to any specific duty or liability being made merely for the purpose of explanation. The Contractor shall provide all items, materials, articles, operations or methods listed, noted, mentioned or scheduled on the drawings or in any of the Contract Documents, including all labor, materials, plant, equipment, transportation and incidentals required and necessary for the completion of the work, and unless specifically shown

otherwise herein, all plant, equipment and other works shall be completed in place and approved for operation. The Contractor shall be responsible to the Owner for the acts and omissions of all his employees, and all other persons performing any of the work under a contract with the Contractor.

F. ASSUMPTION OF RISKS

The Contractor shall rebuild, replace, repair, restore, and make good all injuries, damages, re-erection, and repairs occasioned or rendered necessary by causes of any nature whatsoever, to all or any portions of the work, except as otherwise stipulated, until completion and acceptance by the Owner.

G. RESPONSIBILITY FOR DAMAGE

The Contractor shall indemnify and save harmless the Owner, its officers, employees, and agents and the Architect/Engineer from any and all loss, liability or damage and from all suits, actions, damages, or claims, of every name and description arising from the acts and omission of the Contractor, its employees, agents, representatives, or subcontractors.

H. PROTECTION OF PERSONS AND PROPERTY

The Contractor will be solely and completely responsible for conditions of the work site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

The Contractor shall furnish such watchmen, guards, fences, warning signs, lights and walkways, and shall take all other precautions as shall be necessary to prevent damage to persons or property. All structures and improvements in the vicinity of the work shall be protected by the Contractor, and if such property is damaged, injured or destroyed by the Contractor, his employees, Subcontractors, or agents, it shall be restored to a condition as good as when he entered upon the work.

The safety provisions of applicable laws, including but not limited to building and construction codes, shall be observed. Machinery, equipment, and all hazards shall be eliminated or guarded in accordance with OSHA standards.

Any construction inspection conducted by the Owner and/or Architect/Engineer of the contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures.

I. PROTECTION OF CONTRACTOR'S WORK AND PROPERTY

The Contractor shall protect his work, supplies, and materials from damage due to the nature of the work, the action of the elements, trespassers or any cause whatsoever, until the completion and acceptance of the work.

Neither the Owner nor any of its officers, employees or agents nor the Architect/Engineer assumes any responsibility for collecting indemnity from any person or persons causing damage to the work of the Contractor.

J. PROTECTION OF EXISTING STRUCTURES

Unless otherwise indicated in the Contract Documents or unless otherwise taken care of by the Owner thereof, all utilities and all structures of any nature, whether below or above ground, that may be affected by the work shall be protected and maintained by the Contractor and shall not be disturbed or damaged by him during the progress of the work; provided that should the Contractor disturb, disconnect, or damage any utility or any structure, all expenses of whatever nature arising from such disturbance or the replacement or repair thereof shall be borne by the Contractor.

K. MAINTENANCE OF TRAFFIC

Throughout the performance of the work or in connection with this Contract, the Contractor shall construct and adequately maintain suitable and safe crossing over the trenches and such detours as are necessary to care for public and private traffic. The material excavated from trenches shall be compactly deposited along the side of the trench or elsewhere in such manner as shall give as little inconvenience as possible to the traveling public, to adjoining property owners, to other contractors or to the Owner. Where necessary or required, road detours must be approved by the Owner or other appropriate authorities at least 24 hours in advance of the proposed rerouting. MUTCD standards must be adhered to at all times.

L. PRESERVATION OF STAKES AND MARKS

The Contractor shall carefully preserve all bench marks, reference points, stakes, property pins, survey monuments and like items. In case he causes damage or disturbance, he will be charged with the resulting expense of replacement and shall be responsible for any mistakes that may be caused by their loss or disturbance.

M. APPROVAL OF CONTRACTOR'S PLAN

The approval by the Architect/Engineer or the Owner of any drawing or any method of work proposed by the Contractor shall not relieve the Contractor of any of his responsibility for any errors therein and shall not be regarded as any assumption of risk of liability by the Owner or any officer or employee thereof, and the Contractor shall have no claim under the Contract due to the failure or inefficiency of any plan or method approved. Such approval shall be considered to mean merely that the Architect/Engineer or Owner has no objection to the Contractor's using, upon his own full responsibility, the plans or methods proposed.

N. SUGGESTIONS TO CONTRACTOR

Any plan or method of work suggested by the Architect/Engineer or Owner to the Contractor, but not specified or required, if adopted or followed by the Contractor in whole or in part, shall be used at the risk and responsibility of the Contractor. The Architect/Engineer and the Owner shall assume no responsibility therefore.

O. LICENSES, PERMITS AND REGULATIONS

The Contractor shall secure all Federal, State, County and City licenses required by law. He shall obtain and pay for all necessary permits. He shall give all notices and comply with all laws, ordinances and regulations bearing on the conduct of the work as drawn and specified.

P. TAXES

Contractor shall, without additional expenses to the Owner, pay all applicable Federal, State and Local sales and other taxes, except taxes and assessments on the real property comprising the site of the Project.

Q. CONSTRUCTION UTILITIES

The Contractor shall provide and maintain all necessary utilities, including but not limited to water, electricity, telephones, roads, fences, sanitary facilities, suitable storage places, except as may be otherwise specifically stipulated in the Contract Documents. Sanitary facilities shall be suitable for those employed on this Contract and of a type that will not create a public nuisance. He shall provide and maintain an adequate potable water supply for use of employees at the site of the work. Sanitary facilities and potable water supply shall be subject to approval of Local and State regulatory agencies.

R. COORDINATION

The Contractor shall coordinate his schedule with all other contractors or employees of the Owner who may be working in the vicinity of the work site. He shall conduct his operation as to interfere to the least possible extent with the work of such contractors or employees.

S. SUBCONTRACTORS

The Contractor shall notify the Owner in writing of the names of all Subcontractors he proposed to employ on the Contract and shall not employ any Subcontractors until the Owner's approval in writing covering such Subcontractors has been obtained. Such approval shall not be unreasonably withheld.

The Contractor agrees to be fully and directly responsible to the Owner for all acts and omissions of his Subcontractors and of any other person employed directly or indirectly by the Contractor or Subcontractors, and this Contract obligation shall be in addition to the liability imposed by law upon the Contractor.

Nothing contained in the Contract Documents shall create any contractual relationship between Subcontractor and the Owner. It shall be further understood that the Owner will have no direct relations with any Subcontractor. Any such necessary relations between the Owner and the Subcontractor shall be handled through the Contractor.

The Contractor agrees to bind every Subcontractor by all terms of the Contract Documents as far as applicable to the Subcontractor's work.

T. UNSATISFACTORY SUBCONTRACTORS

Should any Subcontractor fail to perform in accordance with the provisions of this Contract, the Contractor shall be notified in writing to take proper corrective action, or the Owner may require that the Contractor terminate the Subcontractor.

U. REMOVAL OF CONDEMNED MATERIALS AND STRUCTURES

The Contractor shall remove from the work site all rejected or condemned materials or structures of any kind brought to the work site or incorporated in the work. Upon his failure to do so, or to make satisfactory progress in so doing within forty-eight (48) hours after the service of a written

notice from the Architect/Engineer or Owner, the rejected or condemned material or work may be removed by the Owner and the cost of such removal shall be subtracted from monies that may be due or may become due to the Contractor on account of or by virtue of this Contract. No such rejected or condemned material shall again be offered for use by the Contractor under this Contract.

V. ERRORS AND OMISSIONS

If the Contractor, in the course of the work, finds any errors or omissions in the Contract Documents or in the layout as given by survey points and instructions, or if he finds any discrepancy between the Contract Documents and physical conditions of the work site he shall immediately notify the Architect/Engineer, in writing for correction. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

W. PROOF OF COMPLIANCE WITH CONTRACT

In order that the Architect/Engineer and the Owner may determine whether the Contractor has complied with the requirements of the Contract Documents, compliance with which is not readily ascertainable through inspection and tests of the work and materials, the Contractor shall, at any time requested, submit to the Architect/Engineer and the Owner properly authenticated documents or other satisfactory proof as to his compliance with such requirements.

X. CLEANING UP

The Contractor shall not allow the work site to become littered with trash and waste materials, but shall maintain the same in a neat and orderly condition throughout the term of the Contract. The Contractor shall dispose of any such materials in accordance with all applicable laws. On or before completion of the work, the Contractor shall thoroughly clean all pits, pipes, chambers, or conduits which are a part of the work or premises which he has entered upon, shall bear down and remove all temporary structures built by him and shall remove rubbish of all kinds from any of the grounds he has occupied and leave them in a neat and clean condition.

Y. FINAL GUARANTY

All workmanship and materials shall be guaranteed by the Contractor for a period of one year from the date of final acceptance by the Owner, unless otherwise stipulated in the Contract Documents.

If, within said guaranty period, repair or changes are required in connection with the work, which, in the opinion of the owner, is rendered necessary as the result of use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract, the Contractor shall promptly upon receipt of written notice from the Owner, and without expense to the Owner: (a) place in satisfactory condition all of such work, correct all defects therein; and (b) make good all damage to the building, site, equipment or contents thereof, which in the opinion of the Owner, is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the Contract; and (c) make good any work or material, or the equipment and contents of building structure or site disturbed in fulfilling

any such guarantee.

If the Contractor fails to comply within ten (10) days after receipt of written notice with the terms of this guaranty, the Owner may have the defects corrected, and the Contractor shall be liable for all expenses incurred; provided, however, that in case of an emergency where in the opinion of the Owner, delay would cause serious loss or damage, repairs may be made without notice being given to the Contractor and the Contractor shall pay the cost thereof.

Z. PATENTS

1. Except as otherwise provided in these Contract Documents, Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless Owner, Architect/Engineer, and their duly authorized representatives or employees, from all suits at law, or actions of every nature for, or on account of the use of, any patented materials, equipment, devices, or processes.
2. Should Contractor, his agents, servants, or employees, be enjoined from furnishing or using any invention, article, material, or appliance supplied or required to be supplied or used under this Contract, Contractor shall promptly offer other articles, materials, or appliances in lieu thereof, of equal efficiency, quality, finish, suitability, and market value, for review by Architect/Engineer. If Architect/Engineer should disapprove the offered substitutes and should elect, in lieu of a substitution, to have supplied, and to retain and use, any such invention, article, material, or appliance as may by this Contract be required to be supplied, Contractor shall pay such royalties and secure such valid licenses as may be requisite and necessary for Owner and officers, agents, and employees, or any of them, to use such invention, article, material, or appliance without being disturbed or in any way interfered with by any proceeding in law or equity on account thereof. Should Contractor neglect or refuse to make any approved substitution promptly, or to pay such royalties and secure such licenses as may be necessary, then in that event Architect/Engineer shall have the right to make such substitution, or Owner may pay such royalties and secure such licenses and charge the cost thereof against any money due Contractor from Owner, or recover the amount thereof from him and his sureties notwithstanding that final payment under this Contract may have been made.

AA. LEGAL RESPONSIBILITY OF CONTRACTOR IN PERFORMING WORK

The Contractor shall be required to comply with all Local, State, and Federal laws or regulatory requirements applicable to the performance of this Contract, to include any laws promulgated or enacted during the Contract Time. Lack of knowledge of such laws or regulations shall not relieve the Contractor of this duty. Any losses resulting to the Owner because of the failure of the Contractor to comply with this duty shall be borne by the Contractor.

BB. WARRANTY OF TITLE

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials supplied and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all

improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

IV. RESPONSIBILITIES AND RIGHTS OF OWNER

A. RIGHTS-OF-WAY

The Owner will provide all necessary rights-of-way and easements.

B. AUTHORITY OF THE ARCHITECT/ARCHITECT/ENGINEER

All work performed under this Contract shall be in accordance with the Contract Documents and in a good workmanlike manner. To prevent disputes and determine acceptability and fitness of the several kinds of work and materials which are to be paid for under this Contract the Architect/Architect/Engineer shall: (a) decide all questions relative to the true construction meaning, and intent of the Contract Documents; (b) decide all questions which may arise relative to the classifications and measurements of quantities and materials and the fulfillment of this Contract; (c) and have the authority to reject or condemn all work or material which does not conform to the terms of this Contract. The Architect/Architect/Engineer's estimate and decision in all matters shall be a condition precedent to an appeal to the Owner for other compensation under this Contract, and a condition precedent to any liability on the part of the Owner to the Contractor on account of this Contract.

D. INSPECTION

The Architect/Engineer, Owner, and their representatives shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and for inspection.

If the Contract Documents, the Architect/Engineer's instructions, laws, or ordinances require any work to be specifically tested or approved, the Contractor shall give the Architect/Engineer and the Owner timely notice of the date and time fixed for the inspection or test.

If any work for which inspection is required in accordance with the Contract is covered without the approval and consent of the Architect/Engineer, the work shall be uncovered for inspection and restored at the Contractor's expense. Any work for which inspection is not specifically required by the Contract may be uncovered for inspection by the Architect/Engineer. If such work is found to be in accordance with the Contract Documents, the Owner will pay the cost of re-examination and replacement. If such work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

Properly authorized inspectors shall be considered to be the representatives of the Owner, limited

to the duties and power entrusted to them. Inspectors shall be authorized to inspect materials and workmanship of those portions of the work to which they are assigned, either individually or collectively, and under instructions of the Architect/Engineer and Owner are to report any and all deviations from the Contract Documents which may come to their notice. Any inspector shall have the right to order the work stopped if, in his judgment, such action is necessary to (a) allow proper inspection, (b) avoid irreparable damage to the work, or (c) avoid subsequent condemnation of work which could not be readily replaced or restored to an acceptable condition. Such stoppage shall be for a period reasonably necessary for a determination by the Architect/Engineer that the work will in fact proceed in due fulfillment of all Contract requirements.

E. RETENTION OF DEFECTIVE WORK

If any portion of the work performed or material furnished under this Contract shall prove defective, and if the imperfection in the same shall not be of sufficient magnitude or importance to make the work dangerous or wholly undesirable, or if the removal of such work is impracticable or will create conditions which are dangerous or undesirable, the Architect/Engineer, with the approval of the Owner, shall have the right and authority to retain such work instead of requiring the defective work to be removed and reconstructed. The Architect/Engineer shall recommend to the Owner such deductions therefore in the payments due or to become due the Contractor as may be just and reasonable, and the Owner may make such deductions as are reasonable.

F. CHANGES IN WORK

The Owner shall have the right to order additions to, omissions from, or corrections, alterations and modifications in the line, grade, form dimensions, plan or kind or amount of work or materials herein contemplated, or any part thereof, either before or after the beginning of construction. Changes involving an increase or decrease in the cost of the work, the time permitted for the work, or inconsistencies within the Contract Documents, shall be approved in accordance with terms set forth in "Alterations, Omissions and Extra Work" of these General Provisions, and such order will be binding upon the Contractor. Such alterations shall in no way affect, vitiate, or make void this Contract or any part thereof, except that which is necessarily affected by such alterations.

In any case of neglect or refusal by the Contractor to perform any extra work which may be authorized by the Owner or to make satisfactory progress in the execution of the same, the Owner may employ any person or persons to perform such work and the Contractor shall not in any way interfere with the person or persons so employed.

G. ADDITIONAL DRAWINGS

The Owner may furnish, through the Architect/Engineer, additional drawings during the progress of the work as are necessary to make clear or to define in greater detail the intent of the Contract Documents. The Contractor shall make his work conform to all such drawings.

H. EMERGENCY PROTECTION

In the event of any emergency which threatens loss, damage or injury to persons or property, and which requires immediate action to remedy, the Owner, with or without notice to the Contractor,

may provide suitable protection to the said property and persons by causing such work to be performed and such material to be furnished as shall provide such protection as the Owner may consider necessary and adequate. The cost and expense of such work and material so furnished shall be borne by the Contractor, and if the same shall not be paid on presentation of the bills therefore, such costs shall be deducted from any amounts due or to become due the Contractor.

The performance of such emergency work under the direction of the Owner shall in no way relieve the Contractor from any damages or liability which may arise during or after such precautions have been taken by the Owner.

I. SUSPENSION OF WORK

The Owner may at any time suspend the work, or any part thereof by giving written notice to the Contractor. The work shall resume by the Contractor on a date fixed in a written notice from the Owner to the Contractor. If such stoppage is due to no fault of the Contractor, and not otherwise authorized by other provisions of the Contract Documents, the Owner shall reimburse the Contractor for reasonable expenses and adjust the time allowed for Contract completion; provided that there shall be no reimbursement if the period of suspension occurs after expiration of the time allowed for completion of the work, exclusive of any extension of time.

J. RIGHT OF OWNER TO TERMINATE CONTRACT

In the event that any of the provisions of the Contract Documents are violated by the Contractor or by any of his Subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate this Contract. Such notice shall contain the reasons for intention to terminate this Contract. Unless within ten (10) days after the serving of such notice upon the Contractor, such violation shall cease or satisfactory arrangements for correction be made in writing, the Contract shall cease and terminate. In event of such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the right to perform the Contract. If the Surety does not commence performance thereof within thirty (30) days from the date of the mailing to such Surety of said notice of termination, the Owner may take over the work and prosecute the same to completion by contract or force account at the expense of the Contractor, and his Surety shall be liable to the Owner for any excess cost to the Owner.

Where the Contractor has failed to complete minor items of work within the time set for completion of the Contract, but limited to cases where the value of such minor work does not exceed five percent (5%) of the total construction cost of the work, the Owner shall have the right, without terminating this Contract, of completing said items of work and then deducting from the sums due the Contractor under this Contract, the total cost incurred in completing such minor items of work. In such cases, the Owner may complete such minor items of work by force account or by employing some other Contractor. If the Owner adopts this procedure, it shall deliver to the Contractor a written statement, describing the items not completed, or imperfectly completed, and shall in such statement, demand that the Contractor complete the work in conformity with the Contract and within a time to be fixed by the Owner. If the Contractor neglects to comply within the time stated, the Owner may proceed, as herein above set forth. The time within which the Contractor shall be required to complete the items set forth in such statement will depend on the amount of time required for the performance of said work, but shall not in any event be less than ten (10) days, nor more than thirty (30) days.

K. PLACING PORTIONS OF WORK IN SERVICE

If desired by the Owner, portions of the work may be placed in service as completed, and the Contractor shall give proper access to the work for this purpose. Use and operation shall not constitute an acceptance of the total Project.

V. WORKMANSHIP, MATERIALS AND EQUIPMENT

A. WORKMANSHIP

All workmanship shall be of the highest quality, performed by persons skilled in the applicable trades, and shall be subject to the inspection, approval, or rejection by the Owner in accordance with the requirements and intent of the Contract Documents. The Owner or Architect/Engineer shall have the right to order the Contractor to correct or replace unacceptable workmanship. Any other portions of the work disturbed or damaged by such correction or replacement shall be made good at the Contractor's expense.

B. INTERPRETATION OF SPECIFICATIONS AND DRAWINGS

The Technical Specifications and the Drawings are intended to be explanatory of each other. Any work indicated on the Drawings and not in the Technical Specifications, or vice versa, shall be brought to the attention of the Architect/Engineer for verification of the actual intent. Contradictions of this nature not brought to the attention of the Architect/Engineer for correction or verification, and acted upon by the Contractor shall be considered "At the Contractor's Risk", and if necessary, corrected by the Contractor at his expense. All work shown on the Drawings, the dimensions of which are not labeled, shall be determined by the Architect/Engineer. Should it appear that the work to be done, or any of the matters relative thereto, is not sufficiently detailed or explained in these Contract Documents, including the Drawings, the Contractor shall apply to the Architect/Engineer for such further explanations as may be necessary and shall conform thereto as part of this Contract. In the event of any doubt or question arising respecting the true meaning of the Contract Documents, reference shall be made to the Owner and the decisions thereon shall be final.

C. GENERAL QUALITY OF MATERIALS

Materials and equipment shall be new and of a quality equal to that specified or approved. Whenever under this Contract it is provided that the Contractor shall furnish materials or manufactured articles, or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be approved by the Owner upon recommendation of the Architect/Engineer. In general, the work performed shall be in full conformity and harmony with the intent to secure the best standard of construction and equipment of the work as a whole or in part.

D. MATERIALS AND EQUIPMENT SPECIFIED BY NAME

Except as hereinafter otherwise provided, whenever any material or equipment is indicated or specified by patent or proprietary name, or by the name of the manufacturer, such specification shall be considered as used for the purpose of describing the material or equipment desired and shall be considered as followed by the words, "or approved equal", and the Contractor may offer

any material or equipment which shall be approved by the Owner and Architect/Engineer and be equal in every respect to that specified; provided, that written approval is obtained from the Owner prior to incorporation into the work.

E. APPROVAL OF MATERIALS AND EQUIPMENT

All materials and equipment offered to be furnished for the work are subject to inspection and approval or rejection by the Architect/Engineer or Owner. Approval shall be obtained prior to purchase and delivery of materials and equipment to the work site.

F. DRAWINGS OF EQUIPMENT AND FABRICATED MATERIALS

As soon as possible after execution of the Contract, the Contractor shall submit to the Architect/Engineer a complete listing of the manufacturers of each item of equipment or assembly fabricated off the site which he proposes to furnish on the Project, together with sufficient information, including shop assembly and detail drawings, manufacturers' specifications and performance data to demonstrate clearly that the materials and equipment to be furnished comply with the provisions and intent of the Contract Documents. If the information shows any deviation from the Contract Documents, the Contractor shall, by a statement in writing accompanying the submittal, advise the Architect/Engineer of the deviation and reason. The Contractor shall also submit to the Architect/Engineer shop drawings showing details of structural steel and concrete reinforcing steel, banding details, piping details, and of other items necessary for the proper installation of material into the completed work.

All drawings and details described herein, when submitted, shall bear the stamp of the Contractor and initials of his authorized representative indicating that the Contractor has reviewed and approved such drawings as meeting his interpretation of the requirements of the Contract.

The Submittal shall be made in triplicate plus the number of copies that the Contractor desires to be returned to him. Upon review, the Architect/Engineer will return all but three copies, which will be stamped or marked either approved, approved subject to minor designated changes, or disapproved. In the latter case an explanation will be given as to why the material or equipment is unsatisfactory.

The Contractor shall make any indicated corrections on the drawings returned and shall resubmit corrected drawings until final approval. Approval by the Architect/Engineer of shop drawings and other data submitted by the Contractor shall not relieve the Contractor from responsibility for errors or omissions therein, or for furnishing the materials and equipment of proper dimension, size, quantity, quality, and all performance characteristics to meet the requirements and intent of the Contract Documents.

The Contractor shall have no claim for damages or extension of time on account of any delay in the work resulting from the reasonable and timely rejection of material, revision and resubmittal of drawings and other data for approval.

G. SUBSTITUTIONS

If the Contractor proposes to substitute any equipment, facilities or processes in place of those specified in the Contract Documents, the Contractor shall prepare and submit to the Architect/Engineer detailed drawings showing any modifications, including, but not limited to structures, reinforcing steel, piping, electrical and mechanical work, to adapt the Drawings to

the alternate equipment or facilities. The Architect/Engineer, with the Owner, will review such Drawings and may approve, reject, or indicate thereon changes necessary to comply with the project requirements.

H. SAMPLES

Whenever requested by the Architect/Engineer or Owner, or when called for by the Contract Documents, sample or test specimens of the materials to be used or offered for use in the work shall be obtained or prepared by and at the expense of the Contractor. The samples shall be representative in all respects of the material offered or intended to be used, shall be supplied in such quantities and sizes as may be required for proper examination and tests, and shall be delivered to the Architect/Engineer freight prepaid along with identification as to their sources and types or grades. All samples shall be submitted and approved before shipment of the material to the work site.

No materials or equipment of which samples are required to be submitted for approval shall be incorporated into the work until such approval has been given by the Architect/Engineer.

Substitutions and Product Options

Written requests for changes in products, materials, equipment and methods of construction required by the Contract Documents shall be submitted to the Owner prior to bidding in accordance with the timeline provided and using the Material Substitution Request form provided As Exhibit L and in accordance with *The Project Manual, Division 1, Section 01600, Product Requirements Section 1.6*.

I. TESTS

Unless otherwise stipulated in the Contract Documents, all testing required shall be provided by and at the sole expense of the Contractor. All laboratory tests required shall be made by a testing laboratory approved by the Owner.

All tests shall be performed in accordance with specific procedures identified in the Contract Documents, or if not therein specified, they shall be performed in accordance with applicable recognized standard practice. Reports of tests provided by the Contractor shall be promptly submitted to the Architect/Engineer and the Owner, or if provided by the Architect/Engineer, copies shall be promptly submitted to the Contractor.

The Contractor shall give the Architect/Engineer and the Owner sufficient notice of the time and place of any test to be made at the point of manufacture, assembly, or fabrication in order that the Architect/Engineer or the Owner may witness the test.

J. MATERIAL TESTS

All materials incorporated in the work shall be subject to inspection and test as follows: All tests, except as noted, shall be made by a laboratory, employed and paid for by the Contractor. The laboratory shall be approved by the Owner prior to being retained by the Contractor. Samples at the place of manufacture shall be taken by a representative of the laboratory. Samples of construction materials from the site of the work, such as sand, gravel, concrete cylinders, and pipes for which laboratory tests are required, shall be taken, assembled or prepared

on the site of the work by representatives of the laboratory or Owner. Signed copies of test reports on laboratory forms or letterheads shall be delivered to the Architect/Engineer as soon as available.

K. STORAGE OF MATERIALS & EQUIPMENT

Materials shall be stored so as to ensure the preservation of their quality and fitness for the work and to allow access for proper inspection.

L. OPERATING AND MAINTENANCE DOCUMENTATION

Before final acceptance of the work, the Contractor shall deliver to the Architect/Engineer a complete set of suitable operating and maintenance instructions and parts list documentation for each piece of equipment or equipment assembly. These instructions and lists shall be assembled in an orderly arrangement and shall be accompanied by a tabulation of the information provided for each item of equipment.

M. COMPLIANCE WITH STATE SAFETY CODE

All necessary machinery guards, railings, and other protective devices and equipment shall be provided as specified by the OSHA, or other regulatory agencies or departments.

VI. PROSECUTION OF WORK

A. EQUIPMENT AND METHODS

The work under the Contract shall be prosecuted with all materials, tools, machinery, apparatus and labor, and by such methods as are necessary to complete the work. If at any time, any part of the Contractor's plant or equipment or any of his methods of execution of the work appear to the Owner or the Architect/Engineer to be unsafe, inefficient or inadequate to insure the required quality or rate of progress of the work, he may order the Contractor to increase or improve his facilities or methods and the Contractor shall comply promptly with such orders; but neither compliance with such orders nor failure of the Architect/Engineer or Owner to issue such orders shall relieve the Contractor from his obligation to secure the degree of safety, the quality of the work and the rate of progress required. The Contractor alone shall be responsible for the safety, adequacy and efficiency of his plant, equipment and methods.

If the Contractor fails to promptly comply with the order of the Owner or Architect/Engineer issued in accordance with this Paragraph, the Owner shall have the right to terminate the Contract.

B. TIME OF COMPLETION

The Contractor shall promptly begin the work under the Contract, and all portions of the project made the subject of this Contract shall begin and be so prosecuted that they shall be completed and ready for full use within the time specified elsewhere in the Contract Documents.

C. AVOIDABLE DELAYS

Avoidable delays in the prosecution or completion of the work shall include all delays which

might have been avoided by the exercise of care, prudence, foresight or diligence on the part of the Contractor.

Delays in the prosecution of parts of the work, which may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of other parts of the work nor the whole work within the time herein specified, will be deemed avoidable delays within the meaning of this Contract.

D. UNAVOIDABLE DELAYS

Unavoidable delays in the prosecution or completion of the work under this Contract shall include all delays which may result through causes beyond the control of the Contractor and which he could not have prevented by the exercise of care, prudence, foresight or diligence. Orders issued by the Owner changing the amount of work to be done, the quantity of materials to be furnished, or the manner in which the work is to be prosecuted, failure of the Owner to provide rights-of-way and unforeseen delays in the completion of other contractors under contract with the Owner will be considered unavoidable delays, so far as they necessarily interfere with the Contractor's completion of the whole of the work. Delays due to adverse weather conditions, unless of an extreme nature such as hurricanes, floods, or tornados will not be regarded as unavoidable delays as the Contractor should understand that such conditions are to be expected and plan his work accordingly.

E. NOTICE OF DELAYS

Whenever the Contractor anticipates or experiences any delay in the prosecution of the work he shall immediately notify the Owner and Architect/Engineer, in writing, of such delay and its cause in order that the Owner may take immediate steps to prevent, if possible, the occurrence or continuance of the delay, or, if this cannot be done, may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the work is to be delayed thereby.

After the completion of any part or the whole of the work, the Owner, in approving the amount due the Contractor, will assume that any and all delays which have occurred in its prosecution and completion have been avoidable delays, except such delays as shall have been called to the attention of the Owner at the time of their occurrence and later found by the Owner to have been unavoidable. The Contractor will make no claims that any delay not called to the attention of the Owner at the time of its occurrence has been an unavoidable delay.

F. EXTENSION OF TIME

- (1) UNAVOIDABLE DELAYS: For delays which are unavoidable, as determined by the Owner, the Contractor will be allowed, upon Contractor application, an extension of time beyond the time specified for completion elsewhere in the Contract Documents, proportionate to the length of such unavoidable delay. No liquidation damages or Architect/Engineering and inspection costs as are charged in the case of extensions of time for avoidable delays, will be assessed for unavoidable delays.
- (2) AVOIDABLE DELAYS: If the work called for under this Contract is not finished and completed in all parts and in accordance with all requirements, within the time specified for completion in the Contract Documents (including extensions of time granted because of unavoidable delay), or if at any time it shall appear to the Owner that the Contractor will be unable to finish and complete the work, the Owner may grant the Contractor such

extensions of time as the Owner deems in its best interest.

If such extension of time for Avoidable Delay is not granted, the provisions of the Contract Document, at the discretion of Owner, may be followed. However, at the option of the Owner and where the delay may be of such a duration not to inflict serious injury to the operations of the Owner in regard to the project, the Owner may assess liquidated damages for each calendar day delay exceeding the contract completion date. The sum of liquidated damages on a per day basis will be stipulated in the Contract Documents.

G. UNFAVORABLE WEATHER AND OTHER CONDITIONS

During unfavorable weather and other unfavorable conditions, the Contractor shall pursue only such portions of the work as shall not be damaged thereby. No portions of the work whose satisfactory quality or efficiency will be affected by an unfavorable condition shall be constructed while these conditions exist unless by special means or precautions approved by the Owner and Architect/Engineer.

VII. PAYMENTS AND CONTRACT COMPLETION

A. PROGRESS ESTIMATES AND PAYMENTS

Immediately upon execution and delivery of the Contract and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule.

No payments under the Contract will be made except upon the presentation by the Contractor of a Periodical Estimate for Payment approved by the Architect/Engineer. Payment forms, supplied by the Owner, shall show that the work covered by the payments has been completed and the payments therefore are due in accordance with the Contract. Such payment forms shall be submitted to the Architect/Engineer, by the Contractor, by the 25th day of a calendar month to permit review. Upon presentation of certified copies of purchase bills and freight bills, the Owner will include in such monthly estimate, payments for materials that will eventually be incorporated in the work, providing that such material is suitably stored on the work site or other Owner approved site, at the time of submission of the estimate. Such materials, when so paid for by the Owner, will become the property of the Owner and, in case of default on the part of the Contractor, the Owner may use or cause to be used by others these materials in construction of the work. However, the Contractor shall be responsible for safeguarding such materials against loss or damage of any nature whatsoever, and in case of any loss or damage, the Contractor shall replace such lost or damaged materials at no cost to the Owner.

Except as otherwise provided, the first estimate shall be of the value of the work performed and materials delivered and suitably and safely stored at the work site or other Owner approved site. Every subsequent estimate, except the final estimate, shall be for the value of the work performed and materials delivered and suitably stored since the preceding estimate was made; and provided, also, that materials delivered for the Project for which payment is included in the estimate, shall not be removed from the work site or approved storage site without the written consent of the

Owner.

The estimates shall be signed by the Architect/Engineer and approved by the Owner, and after such approval, the Owner, subject to the foregoing provisions, will pay or cause to be paid to the Contractor, in the manner provided by law, an amount equal to ninety percent (90%) of the estimated value of the work performed and the full value of the materials furnished, delivered, unused and suitably and safely stored as provided above.

B. ALTERATIONS, OMISSIONS AND EXTRA WORK

The Owner reserves the right to increase or decrease by 15% the quantity of any item or portion of the work, or to omit portions of the work as may be deemed necessary or advisable by the Owner and, also, to make such alterations or deviations, additions to, or omissions as may be deemed necessary during the progress of the work. Upon written order of the Owner, the Contractor shall proceed with the work as increased, decreased or altered.

The Architect/Engineer is authorized to order, on behalf of the Owner, minor changes in the work which do not involve extra cost or an extension of time to the Contract and which does not change the character of the work. The Architect/Engineer is not authorized to order any other changes, alterations, omissions, additions, or extra work unless the same is approved by a written Change Order properly authorized in writing by the Owner. No claim of Contractor for extra compensation because of any change, alteration, omission, addition or extra work shall be paid or be payable unless a written order to the same change is signed by the Owner.

All adjustments, if any, in the Contract Price to be paid to Contractor because of any such change, alteration, deletion, addition, or extra work shall be made only to the extent and in the manner provided in the Contract Documents. Such alteration shall in no way affect, vitiate, or make void this Contract or any part thereof, except that such is necessarily affected by such alterations and is clearly the evident intention of the parties to this Contract. Any such work performed by the Contractor prior to execution of the Change Order by the Owner shall be at the risk of the Contractor. In case of neglect or refusal by the Contractor to perform any extra work which may be authorized by the Owner, the Owner may employ any person or persons to perform such work and the Contractor shall not in any way interfere with the person or persons so employed.

When any changes decrease the amount of work to be done, such changes shall not constitute a basis or reason for any claim by Contractor for extra compensation or damages on account of any anticipated profits which he thereby loses on the omitted work, and Contractor shall not be entitled to any compensation or damages therefore.

C. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS

The Owner may withhold from payments to the Contractor, in addition to the retained percentage, such an amount or amounts as may be necessary to cover:

- (1) Payments that may be earned or due for just claims for labor or materials furnished in and about the work.
- (2) Defective work not remedied.
- (3) Failure of the Contractor to make proper payments to a subcontractor.

- (4) Reasonable doubt that this Contract can be completed for the balance then unpaid.
- (5) Damage to another Contractor, where there is evidence thereof.
- (6) The Contractor's failure to resolve bodily injury or property damage claims of any person or entity.

The Owner will have the right to act as agent for the Contractor in disbursing such funds as have been withheld, pursuant to this Paragraph, to the party or parties who are entitled to payment there from. The Owner shall render to the Contractor a proper accounting of all such funds disbursed in behalf of the Contractor.

The Owner also reserves the right to refuse payment of the final estimate due to the Contractor until it is satisfied that all subcontractors, material suppliers, and employees of the Contractor have been paid in full.

D. UNIT PRICE CONSTRUCTION ITEMS

No work shall be performed by the Contractor on any unit price items beyond the quantity as set forth in the Contract, unless specifically approved by the Owner and directed by the Architect/Engineer in writing to do so. It is anticipated that the quantities as set forth for such unit price items are reasonable and that said quantities will not be exceeded by more than 10%. The Contractor shall carefully study the Contract Documents to determine the extend and scope of the work included under lump sum items in the Contract. It may be that work under some of such unit price items is in addition to similar work to be performed under lump sum items and paid for thereunder.

E. COMPENSATION FOR EXTRA WORK AND WORK OMITTED

Whenever corrections, additions, or modifications in the work under this Contract change the amount of work to be performed or the amount of compensation due the Contractor, the Owner will have prepared a written Change Order, setting forth the extra work to be performed or work omitted. Such a Change Order will also set forth the method of computing the added or reduced compensation to be due the Contractor. The method of computing the added or reduced compensation to be due the Contractor. The method of computing the added or reduced compensation will be determined under one or more of the following methods as selected by the Owner:

- (1) By Unit Price contained in the Contractor's original Proposal and incorporated in the Contract with a change in quantity.
- (2) By a supplemental schedule of prices contained in the Contractor's original Proposal and incorporated in the Contract.
- (3) By an acceptable lump sum of the following five items as full and proper compensation:
 - (a) The necessary reasonable cost to the Contractor of the material required for the work as furnished and delivered by the Contractor at the site of the work.
 - (b) The necessary cost to the Contractor of the labor required to incorporate all of

said material into the work and to finish the work in accordance with directions.

- (c) The necessary reasonable cost to the Contractor for the use of equipment used for the work.
- (d) The cost of Workers' Compensation, insurance premiums, State Unemployment and Federal Social Security payments on the labor included in Item (b).
- (e) Fifteen percent (15%) of the sum of items (a), (b), (c), and (d), which shall be considered as covering all other expenses and profit.

Under method (3) described above, in order that a proper determination may be made by the Architect/Engineer of the cost of labor and materials incorporated into extra work, the Contractor shall furnish weekly an itemized statement of material and labor supplied, together with the cost vouchers for quantities and prices of such labor, materials or work. In the event the Contractor fails to comply with the above provisions, no claim for compensation shall be made against the Owner.

F. ACCEPTANCE OF WORK

The work will be accepted in writing by the Owner when completed in accordance with the terms of the Contract Documents as verified by the Architect/Engineer. Such acceptance, however, will be predicated upon the approval of State and/or Federal regulatory agencies having concurrent jurisdiction on the work or worksite.

G. FINAL ESTIMATE AND PAYMENT

The Contractor shall, as soon as practicable after the final acceptance of the work under this Contract, submit a final estimate for payment.

Such final estimate shall be checked, approved and signed by the Architect/Engineer and the Owner. After such approval, the Owner shall pay or cause to be paid to the Contractor the entire sum found to be due after deducting therefrom all previous payments and amounts as the terms of the Contract prescribe.

Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the Owner a complete release of all claims or liens arising out of this Contract and an affidavit that, so far as he has knowledge or information, the release includes all the labor and materials for which a lien or claim could be filed. The Contractor may, if a Subcontractor refuses to furnish a release in full, furnish a bond satisfactory for the full amount of the Subcontractor's lien to the Owner indemnifying the Owner against any claim or lien. If any claim or lien remains unsatisfied after all payments are made, the Contractor shall reimburse the Owner all money that it may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

END OF GENERAL PROVISIONS OF CONTRACT

SECTION 0650

ARCHITECT/ENGINEER'S SUPPLEMENTARY CONDITIONS

1.01 PROJECT DESCRIPTION: Hurricane Repairs to the Transfer Station

1.02 DEFINITIONS:

- A. Owner: City of Myrtle Beach
Post Office Drawer 2468
Myrtle Beach, S.C. 29578
- B. Architect: Tych & Walker Architects, LLP
PO Box 509
Pawleys Island, SC 29585

1.03 SCOPE OF WORK: The existing Transfer Station is located on 10th Ave. North Extension adjacent to the purchasing building, and was originally constructed in approximately 1976. The existing facility had a metal roof structure that collapsed during Hurricane Matthew. The new project is to replace the existing metal building structure (enclosed on three sides with the fourth side open) that provides an enclosure for garbage truck dumping and processing of material for haul and transport to the Solid Waste Authority. The new structure will include new metal building columns supports that will be anchored into the existing perimeter low concrete wall. Existing perimeter low concrete wall was damaged during the collapse of the existing structure, and subsequent repairs to this wall will also be required, including the addition of concrete supports at the existing wall. The new metal structure will be anchored to this wall and additional low concrete supports via anchor bolts. The new structure will be designed to mitigate damage from future storms (see attached letter from Weatherly Architect/Engineering). Existing lighting damaged/lost with the previous metal roof structure will be replaced LED lighting for the new cover area. The control room structure (walls & roof) will also be replaced, which will include a mini split heat pump system, along with rewiring of the existing control panels located within the control room structure. The electrical panels serving the control room, located at the lower level, will be replaced due to water damage following the collapse of roof structure.

1.04 PLANS & SPECIFICATIONS: The Successful Contractor will receive two (2) sets of exhibits and specifications to complete the work.

1.05 CONSTRUCTION STAKE OUT:

- A. Alignment and Control: The Architect/Engineer will provide a base line for construction alignment and a bench mark for the elevation datum.
- B. Stake Out: The Contractor shall furnish and perform all construction stake out from the Control Points furnished, and shall be totally responsible to construct the work in

accordance with the plans and specifications. The Architect/Engineer's checking of grade and offset stake out shall in no way relieve the Contractor of this responsibility.

1.06 WORK SCHEDULE: The Contractor shall, upon notice of award, or as otherwise requested, furnish the Architect/Engineer a job schedule showing the various components of work and the anticipated beginning and completion date for each particular phase of the project.

1.08 REQUIRED RECORDS ON SALES AND USE TAX: In order that the Owner may substantiate a refund claim for sales and use taxes, the Contractors shall furnish certified statements in triplicate, setting forth the cost of construction materials, supplies and fittings, and equipment which becomes a part of, or are annexed to any building or structure being erected, altered, or repaired under contract, with the Owner and the amount of sales and/or use taxes paid thereon.

1.09 EXISTING CONDITIONS: The Contractor, in submitting a proposal and in signing this contract, acknowledges that he has thoroughly investigated the existing conditions and has examined the plans and specifications, understanding clearly their requirements and the requirements necessary to construct all to completion the improvements contracted for; that he is fully prepared to sustain all losses and damages incurred by the actions of elements; is prepared to provide all necessary tools, appliances, machinery, skilled and unskilled workmen, and all necessary materials to successfully complete the work.

1.12 PROJECT SCHEDULE: The Contractor is hereby made aware that time is of the essence in that the timely completion of the work is essential. The Contractor is also made aware that the Owner has priorities in the completion of the work. All that work shown in the Contract Documents must be completed and accepted within **240 days**. In the event that the Contractor does not complete the project in the prescribed time, he agrees to pay liquidated damages in the sum of **\$250** for each consecutive calendar day thereafter.

1.13 ENVIRONMENTAL REGULATIONS: Contractor is responsible for ensuring that his forces comply with environmental regulations on site. Should construction forces violate laws, ordinances or regulations causing delays or adverse consequences on the site, the Contractor shall be held responsible for said actions.

1.14 UNIT PRICES: Unit prices in the bid package are to be used only in paying for items by the unit installed, constructed, and completed for periodic payment purposes and for preparing change orders. This contract will be awarded as a **lump sum**.

1.15 CONSTRUCTION STAGING AREA: The Construction Staging Area for this Project will be located at the discretion of the Contractor with prior written consent by the Owner.

1.16 RESOLUTION OF CLAIMS AND DISPUTES: The Architect/Engineer will review claims and take one or more of the following preliminary actions within ten (10) calendar days of receipt of a claim: (1) Request additional supporting data from the claimant; (2) Submit a schedule to the parties indicating when the Architect/Engineer expects to take action; (3) Reject the claim in whole or in part, stating the reason for rejection; (4) Recommend approval of claim by the other party or (5) Suggest a compromise. The Architect/Engineer may also, but is not obligated to, notify the surety, if any, of the nature and amount of the claim.

If a claim has been resolved, the Architect/Engineer will prepare or obtain appropriate documentation.

If a claim has not been resolved, the party making the claim shall, within ten (10) days after the Architect/Engineer's preliminary response, take one (1) or more of the following actions: (1) Submit additional supporting data requested by the Architect/Engineer; (2) Modify the initial claim or (3) Notify the Architect/Engineer that the initial claim stands.

If a claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Architect/Engineer, the Architect/Engineer will notify the parties in writing that the Architect/Engineer's decision will be made within seven (7) days, which decision shall be final and binding on the parties but subject to resolution through the South Carolina judicial system. Upon expiration of such time period, the Architect/Engineer will render to the parties the Architect/Engineer's written decision relative to the claim, including any change in Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Architect/Engineer may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

When functioning as interpreter and judge under the preceding paragraphs, the Architect/Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

1.17 SALES TAX: The sales tax within the City of Myrtle Beach is 9%.

1.18 PERMITS: The building permit issued by the City of Myrtle Beach is a **NO COST** permit. All Contractors and Subcontractor's must obtain a Business License from the City of Myrtle Beach

1.19 WORKING HOURS: will be 8am -8pm. Any exceptions will require prior approval from the Architect/Engineer.

1.20 EXISTING EQUIPMENT: The Owner will be responsible for moving all moveable equipment and supplies. Any fixed equipment will remain in place and must be protected by the General Contractor.

1.21 ON SITE ARCHITECT/ENGINEERING: Any on site Architect/Engineering and or structural inspection will be the responsibility of the Owner / Design Team.

END OF SECTION

AGREEMENT

**FOR
City of Myrtle Beach
Bid # 17-B0073**

This AGREEMENT, made this _____ day of _____, 20____, by and between City of Myrtle Beach, hereinafter called "OWNER", and _____ doing business as (an individual,) or (a partnership,) or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of: Hurricane Repairs to the Transfer Station, herein after called "PROJECT".
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within Ten (10) calendar days after the date of the NOTICE TO PROCEED and will complete the same within **240 days calendar days**, or unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of \$ _____ or as shown in the BID schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:
 - A. Notice to Bidders
 - B. Instructions to Bidders
 - C. Proposal
 - D. Bid Bond
 - E. Agreement
 - F. General Provisions
 - G. Architect/Engineer's Supplementary Conditions
 - H. Contract Forms - Payment/Performance Bonds
 - Insurance Certificates
 - Tentative Notice of Award
 - Notice of Award
 - Notice to Proceed
 - Change Orders
 - I. GENERAL REQUIREMENTS prepared or issued by The City of Myrtle Beach.
 - J. TECHNICAL SPECIFICATIONS prepared or issued by The City of Myrtle Beach.
 - K. ADDENDA:
No. _____, dated _____
No. _____, dated _____

No. _____, dated _____

L. CONTRACT DRAWINGS prepared by Tych & Walker Architects, LLP.

6. The OWNER will pay to the CONTRACTOR in the manner and at such times and in such amounts as required by the CONTRACT DOCUMENTS.
7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.
8. CONTRACTOR agrees to commence WORK under the contract on or before a date specified in the NOTICE TO PROCEED and to fully complete the PROJECT within **240 days calendar days**. CONTRACTOR further agrees to pay as liquidated damages, the sum of **\$250** for each consecutive calendar day thereafter as provided in the Contract Document.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in four (4) counter parts, each of which shall be deemed an original on the date first above written.

CITY OF MYRTLE BEACH:

BY: _____
Name: _____
Title: _____

(SEAL)

ATTEST: _____
TITLE: _____

BY: _____
Name: _____
Title: _____

(SEAL)
ATTEST: _____
TITLE: _____

NOTICE OF AWARD

To: _____

PROJECT Description: Hurricane Repair to the Transfer Station

The OWNER has considered the BID submitted by you for the above described WORK in response to its Notice to Bidders dated _____ and Instruction to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of
\$ _____.

You are required by the Instruction to Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, Payment BOND, and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 20 ____.

Owner: **The City of Myrtle Beach**
Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

by _____
this the _____ day of _____, 20 ____.

By _____ Title _____

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called Principal, and
(Corporation, Partnership or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of

which shall be deemed an original, this the _____ day of _____, 20____

_____.

ATTEST:

_____	_____
(Principal) Secretary	Principal

[SEAL]	By _____ (S)
--------	--------------

	(Address)

Witness as to Principal

(Address)

_____	_____
	Surety

ATTEST:	By _____
	Attorney-in-Fact

_____	_____
Witness as to Surety	(Address)

_____	_____
(Address)	

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called Principal,
and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the sum of _____
_____ Dollars,(\$ _____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we

bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a

certain contract with the OWNER, dated the _____ day of _____,
20____,

a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20____.

ATTEST:

Principal

By _____(s)

(Principal) Secretary

[SEAL]

(Witness as to Principal)

(Address)

(Address)

Surety

ATTEST:

(Surety) Secretary [SEAL]

By

Witness as to Surety

Attorney-in-Fact

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Contract.

If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

NOTICE TO PROCEED

To: _____

Date: _____

Project: Hurricane Repair to the Transfer Station

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 20_____, on or before _____, 20_____, and you are to complete the work within _____ 240 _____ consecutive calendar days thereafter.
The date of completion of all WORK is therefore _____, 20_____.

The City of Myrtle Beach
Owner

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED
is hereby acknowledged by:

_____ this the _____ day of _____, 20_____.

By _____

Title _____

MATERIAL/PRODUCT SUBSTITUTION REQUEST

BID #17-B0073 Hurricane Repair to Transfer Station (Mandatory Bid Submittal Form)

Date: _____

We hereby submit for your review the following PRODUCT SUBSTITUTION of the specified material for the above listed project.

Section: _____

Paragraph: _____

Specified Material: _____

Attached is complete technical data of the PRODUCT SUBSTITUTION. Included is complete information on changes to the Project Manual Documents required by the proposed PRODUCT SUBSTITUTION for its proper installation.

A request constitutes a representation that Trade Contractor:

- Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
- Will provide same warranty for Substitution as for specified product.
- Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
- Waives claims for additional costs or time extension which may subsequently become apparent.
- Will reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities having jurisdiction or additional time expended by Architect/Engineer to review information.

It is understood that if the Architect approves an approved substitution prior to receipt of bids in accordance with the project timeline, such approval will be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner. If substitution requests are not addressed in the addendum, the substitution request shall be considered not approved. Architect's decision of approval or disapproval of proposed substitution shall be final without dispute.

THE UNDERSIGNED Trade Contractor states that the function, appearance, and quality of the PRODUCT SUBSTITUTION are equivalent or superior to the specified item. In addition, I, as the Trade Contractor will assume all responsibility for any impact or delay the review and evaluation of the alternate product may cause. Your approval of the Substitute Product in no way will relieve me as the Trade Contractor of my responsibilities to conform with all requirements of the Contract Documents.

Submitted By: _____



1

Clean Wall

Repair Concrete as per structural drawings and as per Section 03930 Maintenance of Concrete.



2

Repair Wall

Repair Concrete as per structural drawings and as per Section 03930 Maintenance of Concrete.

Remove/cut off existing rebar



3

Repair Wall

Remove/cut off existing rebar

Repair Concrete as per structural drawings and as per Section 03930 Maintenance of Concrete.



4

Remove miscellaneous items prior to construction.



5

Repair Wall

Repair Concrete as per structural drawings and as per Section 03930 Maintenance of Concrete

Remove/cut off existing rebar

Relocate and reattach electrical conduit



6

Repair Wall

Repair Concrete as per structural drawings and as per Section 03930 Maintenance of Concrete

Remove/cut off existing rebar

Relocate and reattach electrical conduit



7

Repair Concrete as per structural drawings and as per Section
03930 Maintenance of Concrete
Remove/cut off existing rebar
Relocate and reattach electrical conduit



8

Repair Concrete as per structural drawings and as per Section
03930 Maintenance of Concrete
Remove/cut off existing rebar
Relocate and reattach electrical conduit



9

Repair concrete spalling at rebar and holes.
Repair Concrete as per structural drawings and as per Section
03930 Maintenance of Concrete



10

Repair concrete spalling at rebar and holes.
Repair Concrete as per structural drawings and as per Section
03930 Maintenance of Concrete

Repair Wall

Repair Concrete as per structural drawings and as per Section
03930 Maintenance of Concrete

Remove/cut off existing rebar



SECTION 1000

COORDINATION AND MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Coordination.
- B. Field Engineering.
- C. Alteration of Project Procedures.
- D. Preconstruction Conference.

1.02 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections and Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Coordinate regular meetings with Owner's Representative to discuss job progress, amendments, change orders, and conflicts.
- C. Contractor is responsible for coordination of materials, delivery for general and subcontractors, and shall ensure that there is no interference between trades on the project which would jeopardize expedient completion of the project.
- D. Coordinate completion and site work clean up between all subcontractors to ensure that the job site is properly maintained.
- E. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.03 FIELD ENGINEERING

- A. Contractor shall provide field engineering services, establish elevations, lines and levels, utilizing recognized engineering survey practices.

1.04 ALTERATION OF PROJECT PROCEDURES

- A. Materials: Submittals to the Engineer must be approved in writing before any materials may be substituted or altered.

1.05 PRECONSTRUCTION CONFERENCE

- A. Engineer will schedule a conference after Notice of Award.
- B. Attendance Required: Owner Representative, and Inspector, and Contractor or his Superintendent.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of shop drawings and other submittal data regarding materials, methods of construction.

5. Designation of personnel representing the parties in Contract and the Engineer.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders and Contract closeout procedures.
7. Scheduling.

END OF SECTION

SECTION 1050

APPLICATIONS FOR PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of Applications for Payment.

1.02 RELATED SECTIONS

- A. Section 0550 - General Provisions.
- B. Sections 0700 - Contract Forms.
- C. Section 1700 - Contract Closeout.

1.03 FORMAT

- A. Application for Payment Form: Use form provided in the Contract Forms, Section 0700

1.04 PREPARATION OF APPLICATIONS

- A. Present required information in typewritten form.
- B. Execute certification by signature of authorized officer.
- C. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
- D. List each authorized Change Order listing Change Order number and dollar amount as for an original item of Work. Include a copy of approved change order form.
- E. Prepare Application for Final Payment as specified in Section 1700.

1.05 SUBMITTAL PROCEDURES

- A. Submit three (3) copies of each Application for Payment.

1.06 SUBSTANTIATING DATA

- A. When Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one copy of data with cover letter for each copy of submittal. Show Application number and date, and line item by number and description.

END OF SECTION

SECTION 01200
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cash allowances.
- B. Contingency allowances.
- C. Testing and inspection allowances.
- D. Schedule of values.
- E. Applications for payment.
- F. Change procedures.
- G. Defect assessment.
- H. Unit prices.
- I. Alternates.

1.2 CASH ALLOWANCES

- A. Costs Included in Cash Allowances: Cost of product to Contractor or Subcontractor, less applicable trade discounts.
- B. Costs Not Included in Cash Allowances But Included in Contract Sum/Price: Handling at site, including unloading, uncrating, and storage; protection of products from elements and from damage.
- C. Architect/Engineer Responsibilities:
 - 1. Consult with Contractor for consideration and selection of products, suppliers, and installers.
 - 2. Select products in consultation with Owner and transmit decision to Contractor.
 - 3. Prepare Change Order.
 - 4. Assist to obtain proposals from suppliers and installers and offer recommendations. All proposals will be delivered and/or copied to the office of the Architect prior to final decisions.
- D. Contractor Responsibilities:
 - 1. Assist Architect/Engineer in selection of products, suppliers and installers.
 - 2. Upon notification of selection by Architect/Engineer, execute purchase agreement with designated supplier and installer. The Contractor shall not execute any agreements with an allowance supplier or subcontractor without written approval from the Architect.
 - 3. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
 - 4. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

- E. Differences in costs that are approved by Architect will be adjusted by Change Order. Any amounts remaining at close out will be refunded to the Owner.
- F. Allowances Schedule: The Architect reserves the right to assign a contract or purchase order to the General Contractor/Subcontractor. The General Contractor shall not issue a contract on the allowance without the prior approval of the Architect and Owner. The Owner will have no financial responsibility to the General Contractor if the above referenced procedures are not followed.

Owner Contingency

A stipulated sum/price for use by the Owner to address unforeseen conditions. Written approval from the Architect must be obtained prior to any authorized allocation of funds. **\$36,450.00**

ALLOWANCE TOTAL \$36,450.00

1.3 CONTINGENCY ALLOWANCES

- A. Include in the Contract, a stipulated sum/price for use upon Owner's instruction (as indicated on item 10 Owner Contingency above).
- B. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will not be included in Change Orders authorizing expenditure of funds from this Contingency Allowance. This shall be in base bid.
- C. Funds will be drawn from Contingency Allowance only by Change Order.
- D. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.4 TESTING AND INSPECTION - As provided by General Contractor

- A. Costs Included in Testing and Inspecting: Cost of engaging testing and inspecting agency; execution of tests and inspecting; and reporting results.
- B. Costs Not Included in Testing and Inspecting But Included in Contract Sum/Price:
 - 1. Costs of incidental labor and facilities required to assist testing or inspecting agency.
 - 2. Costs of testing services used by Contractor separate from Contract Document requirements.
 - 3. Costs of retesting upon failure of previous tests as determined by Architect/Engineer.
- C. Payment Procedures:
 - 1. Submit one copy of inspecting or testing firm's invoice with next application for payment.
 - 2. Pay invoice on approval by Architect/Engineer.

1.5 SCHEDULE OF VALUES

- A. Submit printed schedule on AIA Form G703 - Continuation Sheet for G702. Contractor's standard form or electronic media printout will be considered.
- B. Submit Schedule of Values in duplicate within fifteen days after date established in Notice to Proceed.
- C. Format: Utilize Table of Contents of this Project Manual. Identify each line item with number and title of major specification Section. Identify site mobilization, bonds and insurance as separate line items. Architect will require a breakdown of major items, i.e. rough-in electric below slabs, above slabs, fixtures, trim etc.
- D. Include in each line item, amount of Allowances specified in this section.
- E. Contractor overhead and profit shall be displayed as a separate line item and not incorporated within each line item.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.6 APPLICATIONS FOR PAYMENT – See: Bidding and Contracting Requirements.

1.7 CHANGE PROCEDURES – See: Bidding and Contracting Requirements.

1.8 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Architect/Engineer, it is not practical to remove and replace the Work, the Architect/Engineer will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Architect/Engineer.
- D. Defective Work will be partially repaired to instructions of Architect/Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Architect/Engineer.
- E. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. Authority of Architect/Engineer to assess defects and identify payment adjustments is final.
- G. Non-Payment For Rejected Products: Payment will not be made for rejected products for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.9 UNIT PRICES – See: Bidding and Contracting Requirements

1.10 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work.
- C. The Owner shall have the right to accept Alternates in any order or combination, and to determine the low bidder on the basis of the sum of the Base Bid and alternates accepted.
- D. Schedule of Alternates:
See: Bidding and Contracting Requirements, Article 9.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Contractor's Use of Architect's CADD Files.
- C. Construction progress schedules.
- D. Proposed products list.
- E. Product data.
- F. Shop drawings.
- G. Samples.
- H. Design data.
- I. Test reports.
- J. Certificates.
- K. Manufacturer's instructions.
- L. Manufacturer's field reports.
- M. Erection drawings.
- N. Construction photographs.

1.2 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Architect/Engineer accepted form attached.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Architect/Engineer at business address. Coordinate submission of related items.
- F. For each submittal for review, allow thirty (30) working days excluding delivery time to and from Contractor.

- G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- H. Allow space on submittals for Contractor and Architect/Engineer review stamps.
- I. When revised for resubmission, identify changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- K. Submittals not requested will not be recognized or processed.
- L. Provide submittal in groupings that will be required for proper coordination. IE, electrical and mechanical submittals should be at the same time frame or one submittal will be held for proper coordination.
- M. The Architect will take the following actions upon receipt of submittal:
 - 1. Check each submittal for Contractor's signature. If a submittal does not bear the Contractor's signature, return submittal without review for resubmittal by the Contractor.
 - 2. Log in the submittal and distribute to appropriate consultant, if applicable.
 - 3. Check the submittal to make sure it is in the proper form, and that all information required to be filled in by the Contractor has been completed.
 - 4. Review the submittal for conformance with the requirements of the Contract Documents.
 - 5. The Contractor will provide the Architect with six sets of shop drawings. Two sets will be returned to the Contractor after review, or a pdf file is acceptable.
 - 6. Stamp each item in the submittal, and indicate Architect's Action (+/-). Make sure consultant has indicated recommended action (+/-) as well, if applicable.
 - 7. If a resubmittal appears to be the result of a misunderstanding of a requirement of the Contract Documents, add notes of guidance to expedite a correct resubmittal wherever practicable.
 - 8. Fill in date of review.
 - 9. Sign full name of reviewer. If consultant reviewed the submittal, make sure his signature appears as well.
 - 10. Note the distribution of the reviewed submittal.
 - 11. Log the submittal out.
 - 12. Return the submittal by mail (or, if requested by Contractor, hold for pick-up, or an email with pdf file is acceptable).

1.3 CONTRACTOR'S USE OF ARCHITECT'S CADD FILES

- A. CADD Drawings: CADD files on electronic media are available to the Contractor from the Architect at fees stipulated and in accordance with the "CADD File Letter of Agreement" attached at the end of this Section. Only architectural plan files will be available; detail sheet files will not be available. Consultant drawings are not made available on electronic media, including but not limited to Structural, Plumbing/Fire Protection, Mechanical and Electrical.
- B. CADD files are provided as available information only and are not to be considered Contract Documents as defined by the Contract for Construction.

- C. Contractor shall submit written request for CADD files, accompanied by signed copy of the attached CADD File Letter of Agreement prior to release of these documents.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedules within twenty days after date established in Notice to Proceed. After review, resubmit required revised data within ten days.
- B. Submit revised Progress Schedules with each Application for Payment.
- C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Submit computer generated network analysis diagram as specified in Section 01323 - Network Analysis Schedules.
- F. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Submit separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products and products identified under Allowances, and dates reviewed submittals will be required from Architect/Engineer. Indicate decision dates for selection of finishes.
- I. Indicate delivery dates for Owner furnished products and products identified under Allowances.
- J. Revisions To Schedules:
 - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
 - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
 - 3. Prepare narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect including effect of changes on schedules of separate contractors.

1.5 PROPOSED PRODUCTS LIST

- A. Within fifteen days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

- A. Product Data: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of copies Contractor requires, plus two copies Architect/Engineer will retain.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01700 - Execution Requirements.

1.7 SHOP DRAWINGS

- A. Shop Drawings: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
 - 1. Include signed and sealed calculations to support design from an engineer registered in the State of South Carolina.
 - 2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit in form of one reproducible transparency and two opaque reproductions, or a pdf file via email is acceptable.
- E. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01700 - Execution Requirements.

1.8 SAMPLES

- A. Samples: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Samples For Selection as Specified in Product Sections:
 - 1. Submit to Architect/Engineer for aesthetic, color, or finish selection.

- 2. Submit samples of finishes from full range of manufacturers' standard colors, in custom colors selected, textures, and patterns for Architect/Engineer selection.
 - C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - D. Include identification on each sample, with full Project information.
 - E. Submit number of samples specified in individual specification sections; Architect/Engineer will retain one sample.
 - F. Reviewed samples which may be used in the Work are indicated in individual specification sections.
 - G. Samples will not be used for testing purposes unless specifically stated in specification section.
 - H. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01700 - Execution Requirements.
- 1.9 DESIGN DATA
- A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.
 - B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
- 1.10 TEST REPORTS
- A. Submit for Architect/Engineer's knowledge as contract administrator and to the Owner.
 - B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
- 1.11 CERTIFICATES
- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Architect/Engineer, in quantities specified for Product Data.
 - B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
 - C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.
- 1.12 MANUFACTURER'S INSTRUCTIONS
- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to

Architect/Engineer for delivery to Owner in quantities specified for Product Data.

- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.13 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for Architect/Engineer's benefit as contract administrator or for Owner.
- B. Submit report in duplicate within five days of observation to Architect/Engineer for information.
- C. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.14 ERECTION DRAWINGS

- A. Submit drawings for Architect/Engineer's benefit as contract administrator and to the Owner.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by Architect/Engineer or Owner.

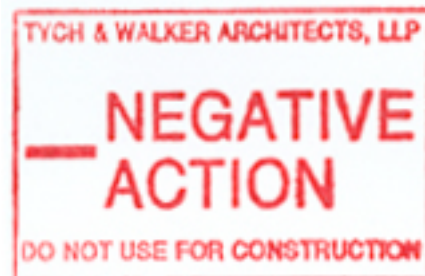
PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

ATTACHMENTS:

SA Form

SAMPLE ARCHITECT'S APPROVAL STAMPS:



END OF SECTION 01330

SUBMITTAL ACTION

CONTRACTOR'S SUBMITTAL

DATE OF SUBMITTAL _____

SUBMITTAL NUMBER _____
provide separate form for
each Section

SPECIFICATION
SECTION NUMBER _____

for use by contractor

FROM:

FORM OF SUBMITTAL

P Prints **Cx** Calculations
S Sepia or other **L** Letter
transparency
CC Catalog cuts **C** Certificate
Sa Sample **M** Maint. mat.
or extrastock
T Test of Inspect.
Other _____

SUBMITTED BY:
____MAIL ____HAND ____EXPRESS

ITEM (a, b, c, etc.)	NO. OF COPIES	FORM	SECTION PARAGRAPH NO. OR DWG. & DET. REF. NO.	DESCRIPTION OF SUBMITTAL	SOURCE (NAME OF MNF., FABRICATOR, OF GEN. CONTR.

THIS SUBMITTAL DEVIATES FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS IN THE
FOLLOWING WAYS: _____

ATTACH ANOTHER SHEET IF REQUIRED

I/WE HAVE CHECKED, COORDINATED, AND APPROVED THIS SUBMITTAL. THIS SUBMITTAL, EXCEPT
FOR THE DEVIATIONS NOTED ABOVE, IS IN CONFORMANCE WITH THE CONSTRUCTION
DOCUMENTS

CONTRACTOR APPROVAL BY:

FULL SIGNATURE, NOT INITIALS

ARCHITECT'S REVIEW

SA

FROM: **TYCH & WALKER ARCHITECTS, LLP**
P.O. Box 1507
4645 Highway 17
Murrells Inlet, SC 29576
(843) 651-7151

PROJECT: **City of Myrtle Beach**

PROJECT NO. **TWA-2017-01**

NOTE: UPPER PORTION OF BOX
DENOTES CONSULTANT'S ACTION;
LOWER PORTION DENOTES
ARCHITECT'S ACTION.

ACTION REQ'D. OF CONTRACTOR ARCHITECT'S ACTION/CONSULTANT'S ACTION

+ DO NOT RESUBMIT (OK)	-- REVISE AND RESUBMIT (RR)	-- MAKE NEW CONFORM. SUBMITTAL (NS)	+ CONFORM S (C)	+ CONFORMS NOTE COMMENTS (CC)	-- REJECTED (R)

ARCHITECTS REVIEW IS ONLY FOR CONFORMANCE WITH DESIGN CONCEPT
AND INFORMATION IN THE CONTRACT DOCUMENTS

Contractor shall inform Architect of deviations in writing. Request substitutions only
by the specified procedures, not by the submittal process. Marks and comments
shall not relieve the Contractor from responsibility for deviations therefrom, nor from
any responsibility for errors and omissions in his submittal. Approval of a specific
item does not include approval of the assembly of which the item is a component.
Contractor is responsible for details and accuracy, for confirming quantities,
dimensions and fit, for fabrication process, for the means, methods, sequences and
techniques of assembly and construction, for safe performance of the work, and for
the coordination of the work of all trades. Contractor shall not fabricate or install
unless positive action is granted by the Architect.

TYCH & WALKER ARCHITECTS, LLP

reviewed by: _____ Date: _____ Consultant reviewed by: _____ Date: _____

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary Controls: Barriers, enclosures, and fencing, protection of the Work, and water control.
- B. Construction Facilities: Parking, progress cleaning, and project signage.

1.02 RELATED SECTIONS

- A. N/A

1.03 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades and walkways required by governing authorities for public right-of-ways.
- C. Provide suitable barriers and such warning lights as will effectively prevent the occurrence of any injury to person or property.
- D. Lights shall be maintained between the hours of sunset and sunrise.
- E. Provide protection for plant life designated to remain. Replace damaged plant life.
- F. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.04 FENCING

- A. Construction: Contractor's option.

1.05 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

1.06 PROTECTION OF INSTALLED WORK

- A. Protect installed work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.

1.07 SECURITY

- A. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.08 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 1600

MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.02 RELATED SECTIONS

- A. Section 0200 - Instructions for Bidders

1.03 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

1.04 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.05 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weather-tight, climate-controlled enclosures.
- B. For exterior storage of fabricated Products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Provide equipment and personnel to store Products by methods to prevent soiling,

- disfigurement, or damage.
- G. Arrange storage of Products to permit access for inspection. Periodically inspect to assure Products are undamaged and are maintained under specified conditions.

1.06 PRODUCT OPTIONS

- A. Products specified by reference standards or by description only: Any product meeting those standards or description.
- B. Products specified by naming one or more manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products specified by naming one or more manufacturers with a provision for substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.07 PRODUCT SUBSTITUTION PROCEDURES

- A. The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.
1. **No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.**
 2. If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner. **If substitution is not addressed in an Addendum, it shall be considered not approved.**
 3. No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.
- B. Substitutions after award of Contract may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that Contractor:
1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 2. Will provide same warranty for Substitution as for specified product.
 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent.
 5. Will reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities having jurisdiction or additional time expended by Architect/Engineer to review information.
- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.
- F. Substitution Submittal Procedure:
1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 2. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
 3. Architect/Engineer will notify Contractor in writing of decision to accept or reject request.
 4. Architect/Engineer will notify the Contractor if redesign services or additional review services will be charged to the Contractor.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

MATERIAL/PRODUCT SUBSTITUTION REQUEST
City of Myrtle Beach Pelican Stadium Renovation

Date: _____

We hereby submit for your review the following PRODUCT SUBSTITUTION of the specified material for the above listed project.

Section: _____

Paragraph: _____

Specified Material: _____

Attached is complete technical data of the PRODUCT SUBSTITUTION. Included is complete information on changes to the Project Manual Documents required by the proposed PRODUCT SUBSTITUTION for its proper installation.

A request constitutes a representation that TradeContractor:

1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
2. Will provide same warranty for Substitution as for specified product.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension which may subsequently become apparent.
5. Will reimburse Owner and Architect/Engineer for review or redesign services associated with re-approval by authorities having jurisdiction or additional time expended by Architect/Engineer to review information.

It is understood that if the Architect approves an approved substitution prior to receipt of bids in accordance with the project timeline, such approval will be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner. If substitution requests are not addressed in the addendum, the substitution request shall be considered not approved. Architect's decision of approval or disapproval of proposed substitution shall be final without dispute.

THE UNDERSIGNED Trade Contractor states that the function, appearance, and quality of the PRODUCT SUBSTITUTION are equivalent or superior to the specified item. In addition, I, as the Trade Contractor will assume all responsibility for any impact or delay the review and evaluation of the alternate product may cause. Your approval of the Substitute Product in no way will relieve me as the Trade Contractor of my responsibilities to conform with all requirements of the Contract Documents.

Submitted By: _____

SECTION 1700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Closeout Procedures.
- B. Final Cleaning.
- C. Adjusting.
- D. Project Record Documents.
- E. Spare Parts and Maintenance Materials.

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected and that Work is complete in accordance with Contract Documents and ready for Engineer's inspection.
- B. Submit Final Application for Payment identifying total adjusted Contract Sum, previous payments and sum remaining due.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean site; sweep paved areas, rake clean landscaped areas.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.04 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.05 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the work:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish elevation.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible feature of the Work.
4. Field changes of dimension and detail.
5. Details not on original Contract Drawings.
- E. Submit documents to Engineer with claim for final Application for Payment.

1.06 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to Project site and place in location as directed.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 1720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work:
 - 1. Maintenance of Record Documents
 - 2. Information Required for Record Documents
 - 3. Submittal of Record Documents

1.02 MAINTENANCE OF RECORD DOCUMENTS

- A. At the Pre-Construction Conference the Contractor will be provided as part of the construction package one set of Contract Documents to maintain a record of construction progress for the duration of the project. These documents will be labeled "PROJECT RECORD" and will be kept on site throughout the construction process.
- B. The Contractor will maintain at the job site, one record copy of:
 - 1. Reviewed Shop Drawings.
 - 2. Change Orders.
 - 3. Other Modifications to Contract.
 - 4. Field Test Records.
 - 5. Inspection Certificates.
 - 6. Manufacturer's Certificates.
- C. Store record documents and samples in the Contractor's field office apart from documents used for construction. Provide files, racks, and secure storage for record documents and samples.
- D. Label and file record documents and samples in accordance with Specification Section number listing in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- E. Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- F. Record documents will be reviewed monthly by the Engineer as part of the monthly project progress review associated with review and recommendation of partial payment requests. Payment requests will be denied if the Contractor does not maintain adequate record document.

1.03 RECORDING

- A. Record and update daily "as-built" information from field notes, on Drawings and in Specifications provided at the Pre-Construction Conference in accordance with the requirements provided herein.
- B. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
- C. Record information concurrently (daily) with construction progress. Do not conceal work until required information is recorded.

1.04 INFORMATION TO BE DOCUMENTED

- A. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:
1. General Information
 - a. Contractor's Name, Address, Telephone Number, Contact Person
 - b. Measured horizontal and vertical locations of underground utilities and appurtenances (electric, cable, telephone, gas, etc.), referenced to permanent surface improvements. Include vertical and horizontal separation distances, depth of cover and pipe materials.
 - c. Field changes of dimension and detail.
 - d. Changes made by Change Order or Field Order.
 - e. Details not on original Drawings.
 - f. References to related shop drawings and Modifications.
 2. Sewer Utilities
 - a. Manhole rim and invert elevations at mean sea level (MSL). Indicate distance of line segment from center of manhole to center of manhole, pipe size, material, and grade.
 - b. Tie-down locations of manholes to permanent structures (fire hydrants, buildings, property corners, etc.). A minimum of two (2) tie-down dimensions are required.
 - c. Manhole stationing from the downstream manhole going upstream, with all manholes reverting to "0+00" for the next line tangent.
 - d. Detail dimensions of services. Indicate distance from building, adjacent property corners, and main line. Delineate service location based on sewer station.
 - e. Bearings and distances for all sewer lines installed. All manholes shall be tied to State Plane Coordinates (1983 Datum). The Contractor shall, as part of his contract employ the services of a Registered Land Surveyor to provide this documentation.
 3. Wastewater Pump Stations
 - a. Elevations (MSL) of influent line invert, bottom of wetwell, bottom of air bubbler line, bottom of all pump suction legs, pump suction intakes, pump room floor, top slab over wetwell, top slab over pump room, control room floor, horizontal storage invert, and existing grade around station.
 - b. Elevation (MSL) on top of force main connection to manhole or tie-in to force main manifold.
 - c. Building corners tied to State Plane Coordinates (1983 Datum). The Contractor shall, as part of his contract employ the services of a Registered Land Surveyor to provide this documentation.
 4. Water Utilities
 - a. Tie-down locations of all water appurtenances (valves, fittings, fire hydrants, etc.) to permanent structures (manholes, buildings, property corners, etc.). Fire hydrants may be used as a tie-down structure for other water appurtenances. A minimum of two (2) tie-down dimensions are required. Where appurtenances (valves, fittings, etc.) are clustered together, indicate distances between said appurtenances. Provide depth of cover for each appurtenance (valves, fittings, etc.).
 - b. Detail dimensions of fire hydrant assemblies. Indicate distance from hydrant to

- gate valve, distance from gate valve to hydrant tee. Include depth of burial for hydrant.
- c. Detail dimensions of water services/meters. Indicate distance from building and adjacent property corners. If sewer is installed as part of project, delineate service/meter location based on sewer stationing. If service/meter extends beyond the last manhole, extend the bearing of the final line segment to continue stationing.
 - d. Waterline materials used and locations of changes in materials.
 - e. Bearings and distances of total water system installed. All water appurtenances (valves, hydrants, fittings, meters,) shall be tied to State Plane Coordinates (1983 Datum). The Contractor shall, as part of his contract employ the services of a Registered Land Surveyor to provide this documentation.

4. Stormwater Utilities

- a. Catch basin and junction box rim and invert elevations at mean sea level (MSL). Indicate distance of line segment from center of basin/box to center of basin/box, pipe size, material, and grade.
- b. Tie-down locations of basins/boxes to permanent structures (fire hydrants, manholes, buildings, property corners,). A minimum of two (2) tie-down dimensions are required.
- c. Basin/box stationing from the downstream basin/box going upstream, with all basin/boxes reverting to "0+00" for the next line tangent.
- d. Bearings and distances for all storm sewer lines installed. All basins/boxes shall be tied to State Plane Coordinates (1983 Datum). The Contractor shall, as part of his contract employ the services of a Registered Land Surveyor to provide this documentation.

B. Specifications and Addenda: Legibly mark up each Section to record:

- 1. Manufacturer, trade name, catalog number and supplier of each product.
- 2. Changes made by Change Order or Field Order.
- 3. Other matters not originally specified.

1.05 SUBMITTALS

- A. At Contract closeout, transmit Record Documents and Samples with cover letter in duplicate, listing:
- 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name, address, and telephone number.
 - 4. Number and title of each Record Document.
 - 5. Certification that each document as submitted is complete and accurate.
 - 6. Signature of Contractor or authorized representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED) **END OF SECTION**

SECTION 01750
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Starting of systems.
- D. Demonstration and instructions.
- E. Testing, adjusting and balancing.
- F. Protecting installed construction.
- G. Project record documents.
- H. Operation and maintenance data.
- I. Manual for materials and finishes.
- J. Manual for equipment and systems.
- K. Spare parts and maintenance products.
- L. Product warranties and product bonds.
- M. Maintenance service.
- N. Moisture and Mold Control

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's review.
- B. Provide submittals to Architect/Engineer required by authorities having jurisdiction.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces,

vacuum carpeted and soft surfaces. Vacuum in accordance with carpet manufacturer's recommendation. Use appropriate approved equipment to remove all construction dirt.

- C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- D. Replace filters of operating equipment. Filters shall be MERV rated.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 STARTING OF SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect/Engineer seven days prior to start-up of each item.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable manufacturer's representative or Contractors' personnel in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01330 - Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.5 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of final inspection. The demonstration will be documented by the Contractor with a full sign-in sheet of all in attendance.
- B. Demonstrate Project equipment and instruct in classroom environment located at project site and instructed by qualified manufacturer's representative who is knowledgeable about the Project.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

- D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- E. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at designated location.
- F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- G. Required instruction time for each item of equipment and system is specified in individual sections.

1.6 TESTING, ADJUSTING AND BALANCING

- A. Contractor will appoint and employ services of independent firm to perform testing, adjusting, and balancing the new system. Contractor shall pay for services.
- B. Reports will be submitted by independent firm to Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with requirements of Contract Documents.

1.7 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.8 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.

- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish first main floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.
- G. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.9 OPERATION AND MAINTENANCE DATA

- A. Submit data bound in 8-1/2 x 11 inch (A4) text pages, three D side ring binders with durable plastic covers. Submit data in digital form on three DVDs.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.

- f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
- 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Originals of warranties and bonds.

1.10 MANUAL FOR MATERIALS AND FINISHES

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes fifteen days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within ten days after final inspection.
- E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations.
- F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
- H. Additional Requirements: As specified in individual product specification sections.
- I. Include listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.11 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

- C. Submit one copy of completed volumes fifteen days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within ten days after final inspection.
- E. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- F. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- G. Include color coded wiring diagrams as installed.
- H. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and special operating instructions.
- I. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- J. Include servicing and lubrication schedule, and list of lubricants required.
- K. Include manufacturer's printed operation and maintenance instructions.
- L. Include sequence of operation by controls manufacturer.
- M. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- N. Include control diagrams by controls manufacturer as installed.
- O. Include Contractor's coordination drawings, with color coded piping diagrams as installed.
- P. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- Q. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- R. Include test and balancing reports as specified in Section 01400 - Quality Requirements.
- S. Additional Requirements: As specified in individual product specification sections.

- T. Include listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

1.12 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.13 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include Table of Contents and assemble in three D side ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time Of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 - 2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

1.14 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in specification sections for one year from date of Substantial Completion during warranty period.
- B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.
- D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

1.15 MOISTURE AND MOLD CONTROL

- A. General: Coordinate requirements in Contractor's approved Material and Mold Control Plan as describe in Section 01600 "Product Requirements". Avoid trapping water in finished work. Document visible signs of mold that may appear during construction. Comply with recommendations contained in Associated General Contractors (AGC) document "Managing the Risk of Mold in the Construction of Buildings," including the following:
1. Exposed Phase of Construction
 - a. Protect porous materials from water damage.
 - b. Protect stored and installed material from flowing or standing water.
 - c. Keep porous and organic materials from coming into prolonged contact with concrete.
 - d. Remove standing water from decks.
 - e. Keep deck openings covered or dammed.
 - f. Use dunnage to create space between concrete decks and stored drywall.
 2. Partially Enclosed Phase of Construction:
 - a. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - b. Keep interior spaces reasonably clean and protected from water damage.
 - c. Periodically collect and remove waste containing cellulose or other organic matter.
 - d. Discard or replace water-damaged material.
 - e. Do not install material that is wet.
 - f. Discard, replace or clean stored or installed material that begins to grow mold.
 - g. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
 3. Controlled Phase of Construction:
 - a. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 - b. Utilize permanent HVAC system to control humidity.
 4. No interior finish work shall be allowed without the roof and exterior being completely enclosed.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION 01700

SECTION 03930

MAINTENANCE OF CONCRETE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Concrete reinforcement repair.
 - 2. Concrete surface repair.
 - 3. Concrete crack repair.
- B. Related Sections:
 - 1. Section 09960: High Performance Coatings.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - 2. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
 - 4. ASTM C33 - Standard Specification for Concrete Aggregates.
 - 5. ASTM C109/C109M - Standard Test Method for Compressive strength of Hydraulic Cement Mortars (Using 2-in. or (50 mm) Cube Specimens).
 - 6. ASTM C150 - Standard Specification for Portland Cement.
 - 7. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 - 8. ASTM C293 - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading).
 - 9. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
 - 10. ASTM C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear.
 - 11. ASTM C1042 - Standard Test Method for Bond Strength of Latex Systems Used With Concrete By Slant Shear.
 - 12. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
 - 13. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.
 - 14. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- B. ACI-American Concrete Institute :

1.3 SUBMITTALS

- A. Section 01300 - Submittal procedures.
- B. Product Data: Submit product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.
- C. Manufacturer's Instructions: Submit mixing instructions.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Procedures for submittals.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with State of South Carolina standard.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Applicator: Company specializing in concrete repair with minimum 5 years documented experience and or approved by manufacturer.

1.7 MOCK-UP

- A. Section 01400 - Quality Requirements: Requirements for mockup.
- B. Construct mockup panel 2 feet long by 2 feet wide, illustrating patching method, color and texture of repair surface.
- C. Prepare one mockup of each type of injection and patching procedure.
- D. Locate where directed by Architect/Engineer.
- E. Incorporate accepted mockup as part of Work.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Product storage and handling requirements.
- B. Comply with instructions for storage, shelf life limitations, and handling.

PART 2 PRODUCTS

2.1 EPOXY ADHESIVE INJECTION MATERIALS

- A. Manufacturers:
 - 1. Sika Corporation Model SIKADUR 52.

2. Substitutions: Section 01600 - Product Requirements.

2.2 CEMENTITIOUS MORTAR MATERIALS

- A. Manufacturers:
 1. Sika Corporation Model SIKATOP 122 PLUS and SIKATOP 123 PLUS.
 2. Substitutions: Section 01600 - Product Requirements.
- B. Portland Cement: ASTM C150, Type ____ gray color
- C. Sand: ASTM C33 ,C404; uniformly graded, clean.
- D. Water: Clean and potable.
- E. Air Entrainment Admixture: ASTM C260.
- F. Calcium Chloride: Not permitted.
- G. Bonding Agent: Polyvinyl acetate emulsion, dispersed in water while mixing, non-coagulant in mix, water resistant when cured.
- H. Cleaning Agent: Commercial muriatic acid .

2.3 PENETRATING CORROSIVE INHIBITER

- A. Manufacturers:
 1. Sika Corporation Model SIKAFERROGARD 903.
 2. Substitutions: Section 01600 - Product Requirements.

2.4 BONDING AGENT and REINFORCEMENT PROTECTION

- A. Manufacturers:
 1. Sika Corporation Model SIKAFARMATEC 110 EPOCEM
 2. Substitutions: Section 01600 - Product Requirements.

2.5 MIXING EPOXY MORTAR

- A. Mix epoxy mortars to consistency for purpose intended.
- B. Mix components in clean equipment or containers. Conform to pot life and workability limits.

2.6 MIXING CEMENTITIOUS MORTAR

- A. Mix cementitious mortar to consistency required for purpose intended.
- B. Include bonding agent as additive to mix.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify surfaces are ready to receive work.
- C. Beginning of installation means acceptance of existing surfaces and substrate.

3.2 PREPARATION

- A. Clean concrete surfaces of dirt, laitance, corrosion, or other contamination; wire brush using water; rinse surface and allow to dry.
- B. Flush out cracks and voids with water to remove laitance and dirt. Chemically neutralize by rinsing with water.
- C. Provide temporary entry ports spaced to accomplish movement of fluids between ports; no deeper than depth of crack to be filled or port size diameter no greater than thickness of crack. Provide temporary seal at concrete surface to prevent leakage of adhesive.
- D. For areas patched with epoxy mortar, remove broken and soft concrete 1/4inch deep. Remove corrosion from steel. Clean surfaces mechanically; wash and rinse with water.
- E. Sandblast clean exposed reinforcement steel surfaces. Mechanically cut away damaged portions of bar.
- F. Repair reinforcement by welding new bar reinforcement to existing reinforcement with sleeve splices. Strength of welded splices and reinforcement to exceed original stress values.
- G. Repair exposed structural, shrinkage, and settlement cracks of concrete as indicated on Drawings by epoxy injection method.
- H. Repair spalling. Fill voids flush with surface. Apply surface finish.

3.3 INJECTION - EPOXY RESIN

- A. Inject epoxy resin adhesive into prepared ports under pressure using equipment appropriate for particular application.
- B. Begin injection at lower entry port and continue until adhesive appears in adjacent entry port. Continue from port to port until entire crack is filled.
- C. Remove temporary seal and excess adhesive.
- D. Clean surfaces adjacent to repair and blend finish.

3.4 APPLICATION - EPOXY MORTAR

- A. Trowel apply mortar mix to average thickness. Tamp into place filling voids at spalled areas.
- B. For patching honeycomb, trowel mortar onto surface, work mortar into honeycomb to bring surface flush with surrounding area. Finish trowel surface to match surrounding area.
- C. Cover exposed steel reinforcement with epoxy mortar, feather edges to flush surface.

3.5 APPLICATION - CEMENTITIOUS MORTAR

- A. Apply brush coating of bonding agent to dry concrete surfaces. Provide full surface coverage.
- B. Apply cementitious mortar by steel trowel to average thickness. Tamp into place filling voids at spalled areas. Work mix into honeycomb.
- C. Damp cure cementitious mortar for four 4 days.

3.6 FIELD QUALITY CONTROL

- A. Section 01400 - Quality Requirements: Testing, inspection and analysis requirements.
- B. Test concrete for calcium chloride content during execution of the Work.

3.7 GENERAL SURFACE PREPARATION NOTES

- A. All identified and marked locations to be repaired shall be prepared and completed in accordance with industry standard requirements, ACI and ICRI guidelines. Procedures are as follows:
 - 1. Saw cut the perimeter of all patch locations to a depth of not less than 1/4" inch. Utilize simple uniform geometry with 90 degree angle corners.
 - 2. Mechanically remove loose and deteriorated concrete to a depth that ensures sound, firm, and solid concrete.
 - 3. At all exposed reinforcing, blast clean and remove all rust and corrosion. Concrete removal around the perimeter of reinforcing bars shall be a minimum depth of 3/4" inch.
 - 4. Upon completion of mechanical chipping operations and the removal of the entire patched area: water blast and or sand blast the area to ensure that no partial fracture concrete remains in place. Visual inspection of the prepared areas shall be completed prior to the patching operation. Saw cut edges shall be prepared to a sand paper like texture.
 - 5. All expose reinforcing bars shall be coated with (2) two coats of SIKA ARMATEC 110 EPOCEM.
 - 6. Prior to placement of concrete repair material, all patches shall be thoroughly saturated with water for a minimum of (2) two hours to ensure a proper SSD condition.
 - 7. Prior to placing repair materials ensure that no standing water exists from saturating the patches.

8. All hand applied repair locations shall utilize a scrub coat of the repair material as a bonding agent. Scrub coats shall not be allowed to dry prior to the placement of repair material.
 9. Upon completion of repair material placement, all repairs shall be wet cured and protected with polyethelene sheets for a minimum of (3) three days. Patches shall not be allowed to dry out during the curing process.
- B. Chip and Patch Repairs
1. IN areas where concrete deterioration and corrosion of reinforcing has taken place, concrete shall be removed from the reinforcing by the use of hand and pneumatic chipping equipment. Care should be taken to leave the reinforcing intact. To the extent practical the concrete should be removed along areas of rusting reinforcing to the point in which the corrosion is minimal. This would be indentified as negligible loss of reinforcing area and corrosion fragments are no longer present along the reinforcing. All exposed reinforcing shall be coated with (2) two coats (40) forty mils of SIKa ARMATEC 110 EPOCEM. The surface should be repaired with the appropriate concrete repair material.
- C. Concrete Repair Material
1. Concrete repair materials shall be used to replace concrete removed from structure material is to be compatible with Cathodic repair. Use the following repair materials unless noted otherwise:
 - a. For full depth repairs deeper than (2) two inches that are formed: Use SIKACRETE 211
 - b. For vertical or Overhead (3) three inches or less in depth that are hand applied. Use SIKa REPAIR 223
 - c. For horizontal repairs less than (2) two inches> Use SIKa QUICK 1000
- D. Hairline Cracks
1. For concrete cracks that are hairline to 3/16" in width: The concrete in these areas should be sounded by tapping lightly to moderately with a hammer. If the sounding indicates that there are no delaminated areas, the cracks shall be injected using SDIKADUR 52 and SIKa ANCHOR FIX 3. If the sounding indicates voids, that portion of the crack should be exposed by chipping and repair techniques.

3.8 SCHEDULE

- A. SIKADUR 52: Epoxy Injection Adhesive for all cracks at steel embed connections that are greater than 1/8" inch in width
- B. SIKa FERRA GARD 903: At any concrete surfaces that are requiring repair.
- C. SIKATOP 122 PLUS: for repair on all horizontal surfaces
- D. SIKATOP 123 PLUS: for repair on all vertical surfaces
- E. SIKa ARMATEC 110 EPOCEM: to coat any exposed rebar during the repair of the concrete.

END OF SECTION

SECTION 04810
UNIT MASONRY SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Concrete masonry units.
- B. Reinforcement, anchorage, and accessories.
- C. Mortar and grout for masonry.
- D. Pea gravel at base of cavity wall.

1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Section 07620 - Sheet Metal, Flashing and Trim: Placement of reglets for flashings.
- B. Section 08111 - Standard Steel Frames: Placement of frame anchors in masonry.

1.3 RELATED SECTIONS

- A. Section 01400 - Quality Requirements: Testing Laboratory Services.
- B. Section 01700 – Execution Requirements
- C. Section 03200 - Concrete Reinforcement: Reinforcing bars.
- D. Section 07900 - Joint Sealers: Rod and sealant at control and expansion joints.

1.4 REFERENCES

- A. ANSI/ASTM A82 - Cold-Drawn Steel Wire for Concrete Reinforcement.
- B. ANSI/ASTM C55 - Concrete Building Brick.
- C. ANSI/ASTM C216 - Facing Brick (Solid Masonry Units Made From Clay or Shale).
- D. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- E. ASTM A525 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.
- F. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- G. ASTM C90 - Hollow Load Bearing Concrete Masonry Units.
- H. ASTM C129 - Non-Load Bearing Concrete Masonry Units.
- I. IMIAC - International Masonry Industry All-Weather Council: Recommended

Practices and Guide Specification for Cold Weather Masonry Construction.

- J. UL - Underwriters' Laboratories.
- K. ASTM B370 - Copper Sheet and Strip for Building Construction
- L. NCMA - National Concrete Masonry Association--NCMA Tech Notes
- M. ASTM C5 - Quickline for Structural Purposes.
- N. ASTM C91 - Masonry Cement.
- O. ASTM C94 - Ready-Mixed Concrete.
- P. ASTM C144 - Aggregate for Masonry Mortar.
- Q. ASTM C150 - Portland Cement.
- R. ASTM C207 - Hydrated Lime for Masonry Purposes.
- S. ASTM C270 - Mortar for Unit Masonry.
- T. ASTM C387 - Packaged, Dry, Combined Materials for Mortar and Concrete.
- U. ASTM C404 - Aggregates for Masonry Grout.
- V. ASTM C476 - Grout for Masonry.
- W. ASTM C595 - Blended Hydraulic Cement.
- X. ASTM C780 - Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
- Y. ASTM C1019 - Method of Sampling and Testing Grout.
- Z. ASTM A510 - Wire Rods and Coarse Round Wire, Carbon Steel

1.5 SUBMITTALS

- A. Submit product data for each different masonry unit, accessory and other manufactured products indicated under provisions of Section 01330.
- B. Submit samples under provisions of Section 01330. Samples to be used in field mock-up.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.
- B. Fire Rated Wall Construction: Rating as indicated on Drawings.
 - 1. Tested Rating: Determined in accordance with ASTM E119.
- C. Surface Burning Characteristics:
 - 1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

- D. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation insert.
- E. Perform Work in accordance with State of South Carolina standards.
- F. Maintain one copy of each document on site

1.7 PRE-INSTALLATION CONFERENCE

- A. Convene one (1) week prior to commencing work of this Section, under provisions of Section 01300 – Administrative Requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 01600.
- B. Store and protect products under provisions of Section 01600.
- C. Accept concrete masonry units on site. Inspect for damage.
- D. Store and handle masonry units off the ground, under cover, and in a dry location. If unit becomes wet, do not place units until they are in an air dried condition.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Maintain materials and surrounding air temperature to minimum 50 degrees F prior to, during, and 48 hours after completion of masonry work.
- B. Cold-weather requirements: IMIAC--Recommended practices and specifications for cold-weather masonry construction.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate work under provisions of Division 1.
- B. Coordinate all masonry work with all other disciplines.

PART 2 PRODUCTS

2.1 CONCRETE MASONRY UNITS

- A. Hollow and Solid Load Bearing Block Units: ASTM C90, Grade N, Type II – Non-Moisture Controlled; light weight, with a minimum average net area compressive strength of 2000 psi, D-3 classification @ fire rated assemblies.
 - 1. Sizes: 8 x 8 x 16 or as indicated on documents.
- B. General: Comply with requirements indicated below applicable to each form of concrete masonry unit required.
 - 1. Provide special shapes where indicated and as follows:
 - a. For lintels, jambs, sash, control joints, headers, bonding, and other special conditions.
 - b. Square-edged units for outside corners.
 - 2. Size: Provide concrete masonry units complying with requirements indicated below for size that are manufactured to specified face dimensions within tolerances specified in the applicable references ASTM specification for concrete masonry units.
 - a. Concrete Masonry Units: Manufactured to specified dimensions of 3/8 inch less than nominal widths by nominal lengths indicated on drawings.

2.2 MORTAR MIXES

- A. Mortar for Reinforced Masonry: ASTM C270, Type M or S using the Property Method:
 - 1. For masonry below grade and in contact with earth, and where indicated, use type indicated below:
 - a. Type: M or S
 - 2. For exterior, above-grade load bearing and non-load bearing walls and parapet walls; and for other applications where another type is not indicated, use type indicated below:
 - a. Type: M or S
- B. Pointing Mortar: ASTM C270, Type N using the Property Method.
- C. Stain Resistant Pointing Mortar: One part Portland cement, 1/8 part hydrated lime, and two parts graded (80 mesh) aggregate, proportioned by volume. Add aluminum tristearate, calcium stearate, or ammonium stearate equal to 2 percent (2%) of Portland cement by weight.
- D. Grout for Unit Masonry: Comply with ASTM C476 and referenced unit masonry standard:
 - 1. 3000 psi strength at twenty-eight (28) days: Eight (8) inch slump

2.3 MORTAR MIXING

- A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C94 / C 94M.
- B. Add mortar color and admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.

- D. If water is lost by evaporation, re-temper only within two hours of mixing.
- E. Use mortar within two hours after mixing at temperatures of 80 degrees F (26 degrees C), or two-and-one-half hours at temperature under 50 degrees (10 degrees C).

2.4 REINFORCING AND ANCHORAGE

- A. Provide adjustable wall ties by Durowall DA-213 S System; hot dipped galvanized with screws of same coating, D/A 807 – 1 ½" long screws with neoprene washer.
- B. Provide anchors at 16" o.c. vertically and horizontally, as well as at each opening, jamb, and control joint.

2.5 JOINT REINFORCEMENT

- A. General: Provide joint reinforcement complying with requirements of referenced unit masonry standard and this article, formed from the following:
 - 1. Galvanized Carbon Steel Wire: ASTM A82, coating class as follows:
 - a. Where installed in interior walls unless specified otherwise: ASTM A641, Class 1
 - b. Where installed in exterior walls and interior walls at toilets, showers: ASTM A153, Class B-2.
- B. Description: Welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet, with prefabricated corner and tee units, and complying with requirements indicated below:
 - 1. Wire Diameter for Side Rods: 0.1483 inch (9 gage).
 - 2. Wire Diameter for Cross Rods: 0.1483 inch (9 gage).
 - 3. For single-wythe masonry, provide type as follows with single pair of side rods:
 - a. Pencil rod – hot dipped galvanized at 16" o.c.
- C. Manufacturers: Subject to compliance with requirements, provide joint reinforcement by one of the following:
 - 1. AA Wire Products
 - 2. Dur-O-Wal, Inc.
 - 3. Heckman Building Products, Inc.
 - 4. Hohmann & Barnard, Inc.
 - 5. Masonry Reinforcing Corp. of America
 - 6. National Wire Products Industries
 - 7. Southern Construction Products, Inc.

2.6 ADJUSTABLE MASONRY VENEER ANCHORS

- A. General: Provide two-piece assemblies allowing vertical or horizontal differential movement between wall and framework parallel to plane of wall, but resisting tension and compression forces perpendicular to it; for attachment over sheathing to metal studs or for embedment in masonry back-up; and with the following structural performance characteristics:
 - 1. Structural Performance Characteristics: Capable of withstanding a 100 lb/ft load in either tension or compression without deforming over, or developing play in excess of, 0.05 inch.

- B. Masonry Veneer Anchors for Metal Stud Back-Up: consisting of 3/16" rectangular wire section for embedment in masonry back-up with eye ends sections protruding from masonry beyond masonry cavity insulation (if any) and 3/16" rectangular wire section with turned-down ends to fit into eyes in back-up section and allowing approximately 1-1/4" vertical adjustment; hot-dip galvanized.
- C. Neoprene Gaskets: For use at screw-attached masonry veneer anchor. Manufacturer's standard closed cell neoprene gaskets manufactured to fit behind anchor plate and to prevent moisture from penetrating through screw holes to steel studs behind sheathing.

2.7 ACCESSORIES

- A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints, manufactured by No. AA1000 AA Wire Products.
- B. Joint Filler: Closed cell rubber; oversized 50 percent to joint width; self-expanding; 2 inches wide by maximum lengths.
- C. Weeps: Provide the following:
 - 1. Wicking Material: material as indicated below, required to produce 2 inches exposure on exterior and up into cavity between wythes:
 - a. Cotton sash cord.
- D. Cleaning Solutions: Non-acidic, not harmful to masonry work or adjacent materials.
- E. Building Paper: #15 asphalt saturated felt.

2.8 FLASHING

For all thru-wall flashing and sill pan flashing:

- A. York Flashings: Cop-R-Tex Duplex 5 oz copper bonded on both sides to heavy creped kraft paper reinforced with heavy fibers. Use Cop-R-Mastic at all splices.
- B. Substitutions under provisions of Section 01600.
- C. All masonry surfaces receiving thru-wall flashing shall be free from loose materials, and reasonably smooth. There shall be no slopes that will form pockets or prevent free drainage of water to the exterior surfaces of the wall.

The metal drip edge the forms the exposed edge of all the through wall flashing shall be 26 gauge stainless steel as defined on the contract documents (reference the wall sections)

- 1. Foundation Sill Flashing: The flashing for foundation sills shall be laid in a slurry of fresh mortar and topped with a fresh full bed of mortar. Flashing shall be left flush with the exterior face of the masonry and turned up on the inside not less than 2" or be carried upward across the cavity a minimum of 6". Flashing will then be secured in the back wall in a reglet or mortar joint. Where sill and column meet, flashing shall be brought a minimum of 10" up the column and be secured with Cop-R-Tite Mastic.
- 2. Cavity Wall Flashing: Flashing shall be laid in a slurry of fresh mortar

and topped with a fresh full slurry of mortar. Flashing shall be left flush with the exterior face of the masonry wall and carried through the wall, upward across the cavity a minimum of 6" and secured in the back wall mortar joint or reglet.

3. Head and Sill Flashing: The flashing shall start with the outside of the wall or lintel angle, then carried through or up the wall as indicated. Flashing shall extend 6" beyond each side of the opening and be turned up at the sides forming a pan. All corners shall be folded, not cut.
4. Weep Holes: All flashing installed through masonry shall be provided with proper drainage to the outside. Weep holes shall be provided in the head joint, the first course immediately above the flashing. Weep holes shall be kept free of mortar droppings.
5. Joining of Material: Joints shall be made by lapping a minimum of 4" and coating the contacting surfaces with Cop-R-Tite Mastic.
6. Mortar Deflection: A mortar deflection device should be installed at all flashing locations to ensure proper weepage.
7. Inspection: In each area where membrane flashing has been installed, a minimum of three locations in the wall joint above the flashing shall be left clean of mortar for water to be forced into the opening to determine if flashing has been installed properly and weep holes provided in accordance with these specifications. All flashing that has been left exposed to the exterior should be trimmed flush with the exterior masonry at this time and in coordination with stainless steel metal drip edge.
8. All Cop-R-Tex Duplex 5 oz ,flashing shall extend past the brick veneer edge by 1/4" and be cut and hemmed to form a clean straight, plumb condition. The Stainless Steel metal drip flashing shall be placed below the through wall flashing to form an exposed edge condition. This condition will be reviewed at the mock-up panel.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Verify items provided by other Sections of work are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.
- D. Beginning of installation means installer accepts existing conditions.
- E. Verify the actual locations of piping prior to installation.

3.2 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied to other Sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place

until building structure provides permanent bracing.

- C. Cut masonry units with water driven blade saws to provide clean, sharp, unchipped edges. Wash units immediately after cutting to remove saw slurry. Use full size units without cutting where possible.
- D. Comply with referenced unit masonry standard and other requirements indicated applicable to each type of installation included in Project.
- E. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated.
- F. Leave openings for equipment to be installed before completion of masonry. After installation of equipment, complete masonry to match construction immediately adjacent to the opening.
- G. Install mortar in accordance with ASTM C780. Install grout in accordance with ASTM C475.

3.3 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Lay concrete masonry units in running bond. Course one unit and one mortar joint to equal 8 inches. Form concave mortar joints. Lay brick units in running bond course three brick units and three mortar joints equal to 8 inches from concave mortar joints.
- D. For starting course to be placed on footings where cells are not grouted spread out full mortar bed including areas under cells.
- E. Tool exposed joints slightly concave using a joint larger than the joint thickness unless noted otherwise.

3.4 PLACING AND BONDING

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
- D. Remove excess mortar as Work progresses.
- E. Interlock intersections and external corners.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform job site cutting of masonry units with proper tools to provide straight,

clean, unchipped edges. Prevent broken masonry unit corners or edges.

- H. Build cavity walls and other masonry construction to the full thickness shown.
- I. During erection of cavity wall, cover tops of walls and sills with waterproof sheeting at the end of each days work. Cover partially completed masonry when construction is not in progress, extend cover, and work in place furring that work day or a minimum of 24" below non work a minimum of 24 inches down both sides and secure cover in place. All in place masonry work during the installed work day shall be covered a minimum of 24" below new work.
- J. Do not apply uniform load (roof or floor) for a minimum of 12 hours and concentrated loads for at least 3 days after erecting masonry wall or columns.

3.5 WEEPS AND VENTS

- A. Install weep vent holes in veneer at 24 inches on center horizontally above through-wall flashing above shelf angles and at bottom of walls.
- B. Install weeps in the head joints in exterior wythes of the first course of masonry immediately above embedded flashings and as follows:
 - 1. Install weeps with product specified in Part 2 of this Section.
 - 2. Space weeps 24 inches o.c. unless otherwise indicated.
 - 3. Install weeps to extend 6" up into cavity and to allow 2" extension beyond exterior face of veneer.
 - 4. In all exterior cavities/air spaces place pea gravel to a height equal to height of first course but not less than 2 inches immediately above flashing embedded in the wall, as masonry construction progresses, to splatter any mortar droppings and to maintain drainage.

3.6 CAVITY WALL

- A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep holes.
- B. Build inner wythe ahead of outer wythe to receive cavity insulation air/vapor barrier adhesive.

3.7 HORIZONTAL JOINT REINFORCEMENT

- A. General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere; lap reinforcing a minimum of 6 inches.
 - 1. Space horizontal joint reinforcement 16" o.c. vertically, unless otherwise indicated.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.
- D. Place masonry reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

3.8 LINTELS

- A. Install loose steel lintels over door openings. (Not to be used over the overhead door openings)
- B. Provide masonry lintels where shown and wherever openings of more than 2'-0" for block size units are shown without structural steel or other supporting lintels. Provide precast or formed-in-place masonry lintels. Continuity of vertical jamb reinforcing must be provided at precast lintels. Temporarily support formed-in-place lintels.
- C. Use single piece reinforcing bars only.
- D. Support and secure reinforcing bars from displacement. Maintain position within ½ inch of dimensioned position.
- E. Place and consolidate concrete fill without displacing reinforcing.
- F. Allow masonry lintels to attain specified strength before removing temporary supports.
- G. Maintain minimum 8 inch bearing on each side of opening.

3.9 GROUTED COMPONENTS

- A. Reinforce wall components as indicated on drawings.
- B. Lap splices minimum 48 bar diameters.
- C. Support and secure reinforcing bars from displacement. Maintain position within ½ inch of dimensioned position.
- D. Place and consolidate grout fill without displacing reinforcing.
- E. At bearing locations, fill masonry cores with grout for minimum 12 inches either side of opening.

3.10 SINGLE WYTHER MASONRY VENEER ATTACHED TO METAL STUD BACK-UP

- A. Erect interior wythe first with specified joint reinforcement and ties.
 - 1. Secure exterior wythe to metal stud back-up with masonry veneer anchors spaced not more than 16" o.c. vertically and 16" o.c. horizontally. Stagger in alternate vertical courses between horizontal joint reinforcing.
- B. Place at maximum 3" o.c. each way around perimeter of opening within 12" o.c. of openings and center joints.
- C. Do not "strike-off" mortar and allow it to drop into cavity.

3.11 FLASHINGS

- A. General: Install embedded through-wall flashing and weeps in masonry at shelf angles, lintels, ledges, other obstructions to the downward flow of water in the wall, and where indicated.
- B. Prepare masonry surfaces so that they are smooth and free from projections that could puncture flashing. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with adhesive/sealant/tape as recommended by flashing manufacturer before covering with mortar.

3.12 TOLERANCES (as specified in AGI 530.1 or as indicated whichever is stricter)

- A. Maximum Variation From Unit to Adjacent Unit: 1/32 inch.
- B. Maximum Variation From Plane of Wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.
- C. Maximum Variation From Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- D. Maximum Variation From Level Coursing: 1/8 inch in 3 feet and 1/4 inch in 10 feet; 1/2 inch in 30 feet.
- E. Maximum Variation of Joint Thickness: 1/8 inch in 3 feet.
- F. Maximum Variation From Cross Sectional Thickness of Walls: 1/4 inch.

3.13 CLEANING

- A. Clean work under provisions of Section 01700.
- B. Remove excess mortar and mortar smears.
- C. Replace defective mortar. Match adjacent work.
- D. Clean soiled surfaces with cleaning solution.
- E. Use non-metallic tools in cleaning operations.

3.14 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of Section 01500.
- B. Without damaging completed work, provide protective boards at exposed external corners which may be damaged by construction activities.
- C. Prevent grout, mortar and soil from staining the face of masonry to be left exposed or painted. Remove immediately any grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on the ground and over the wall surface.
 - 2. Protect sills, ledges and projections from mortar droppings.

END OF SECTION 04810

SECTION 06100
ROUGH CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Grounds, nailers, blocking, furring, sheathing.
- B. Preservative treatment of wood.
- C. Miscellaneous framing and sheathing.
- D. Telephone and electrical panel boards.
- E. Concealed wood blocking for support of toilet and bath accessories, wall cabinets, and wood trim.

1.2 RELATED SECTIONS

- A. Section 04200 - Unit Masonry System: Cavity Wall System.
- B. Section 06193 - Plate Connected Wood Trusses.
- C. Section 07620 - Sheet Metal Flashing and Trim

1.3 REFERENCES

- A. ALSC - American Lumber Standards Committee: Softwood Lumber Standards.
- B. APA: American Plywood Association.
- C. AWWA (American Wood Preservers Association) C1 - All Timber Products Preservative Treatment by Pressure Process.
- D. NFPA: National Forest Products Association.
- E. SPIB: Southern Pine Inspection Bureau.
- F. WWPA: Western Wood Products Association.
- G. ANSI A117.1: Providing Accessibility and Usability for Physically Handicapped People.
- H. American Disability Act.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01330.
- B. Product Data: Provide technical data on wood preservative materials, and application instructions.
- C. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
 - 1. Lumber Grading Agency: Certified by DOC PS 20.
 - 1. Wood Structural Panel Grading Agency: Certified by EWA - The Engineered Wood Association.
 - 2. Lumber: DOC PS 20.
 - 3. Wood Structural Panels: DOC PS 1 or DOC PS 2.
- B. Surface Burning Characteristics:
 - 1. Fire Retardant Treated Materials: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- C. Apply label from agency approved by authority having jurisdiction to identify each preservative treated material.
- D. Perform Work in accordance with State of South Carolina standards.
- E. Maintain one copy of each document on site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.

PART 2 PRODUCTS**2.1 LUMBER MATERIALS**

- A. Lumber Grading Rules: NFPA, SPIB, and WWPA as applicable.
- B. Non-Structural Light Misc. Framing and Blocking: Southern Yellow Pine species, No. 2 grade, 19 percent maximum moisture content.
- C. Grounds and Blocking: Preservative; Wolman CCA Type C: Arch Wood Protection above ground, Southern Yellow Pine species, No. 2 grade, NIST PS 20, 19 percent maximum moisture content.

2.2 SHEATHING MATERIALS

- A. Plywood Roof Sheathing: APA Rated Sheathing, Span Rating 42/20; Exposure Durability 1; unsanded.
- B. Plywood Wall Sheathing: APA Rated Sheathing, Span Rating 32/16; Exposure Durability 1; unsanded.
- C. Plywood Floor Sheathing: APA Rated Sheathing, Span Rating 36/16; Exposure Durability 1, sanded.
- D. Telephone and Electrical Panel Boards: Plywood.

2.3 SHEATHING LOCATIONS

- A. Sloped Roof Sheathing: 5/8 inch thick, 48 x 96 inch sized sheets, square edges.
- B. Flat Roof Sheathing: 3/4 inch thick, 48 x 96 inch sized sheets, tongue and groove edges.
- C. Wall Sheathing: 1/2 inch thick, 48 x 96 inch sized sheets, square edges.
- D. Floor Sheathing: 3/4 inch thick, 48 x 96 inch sized sheets, tongue and groove edges.

2.4 ACCESSORIES

- A. Nails, Fasteners and Anchors:
 - 1. Nails and Fasteners; hot dipped galvanized or stainless steel see Structural Drawings. Must be compatible with wolmanized lumber (preservative treated).
 - 2. Anchors: Unless otherwise noted the following applies; Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.
- B. Joists Hangers and Connectors: Hot-dipped galvanized steel, size to suit framing conditions (U.N.O.).
- C. Glue: APA AFG-01, waterproof of water solvent base, air cure type, cartridge dispensed.
- D. Building Paper: ASTM D226, Type I and Type II asphalt saturated felt, plain untreated cellulose building paper. 15# on walls, roof will receive a weatherproofing membrane. Plain untreated cellulose building paper.
- E. Straps and Connectors - By Simpson Strong Tie, galvanized with approved fasteners. Provide as noted on drawings and as required to meet uplift requirements.
- F. **Window and Door Opening Flashing: Perma-A-Barrier Wall Seam Tape by W.R. Grace and Co.. A 30 mil, cold applied self adhering membrane composed of a 2-1/2" mil high density, cross laminated polyethylene film coated on one side with a 27-1/2' mil layer of rubberized asphalt adhesive.**

PART 3 EXECUTION

3.1 FRAMING - COORDINATE NAILING PATTERN WITH STRUCTURAL NOTES AND COMPLY WITH THE MOST STRINGENT.

- A. Set structural members level and plumb, in correct position.
- B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until alignment until completion of erection and installation of permanent bracing.
- C. Place horizontal members flat, crown side up.

- D. Construct framing members full length without splices
- E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists. Frame rigidly into joists.
- F. Bridge framing in excess of 8 feet span and/or at mid-span. Fit solid blocking and bridging at ends of members.
- G. Contractor is to confirm any cutting or drilling of joists, rafters, or studs with Architect prior to any installation of Electrical, Mechanical, or Plumbing work.
- H. Coordinate installation of wood blocking for support of all bathroom accessories with Architect prior to installation of Gypsum board.
- I. Contractor shall provide a continuous path of uplift resistance from the roof to the foundation.
- J. Provide solid bridging at all wall and floor framing, at all plywood joints, glue and nail to sheathing.
- K. Draftstop/Firestop all holes in top plates of framed wall.
- L. Building Felt - Provide 15 lb. felt for walls. Place building felt horizontally over wall sheathing weather lap edges a minimum of 2" and lap ends a minimum of 6". Fasten to wall with corrosive resistant nails. Provide an additional lap of felt to extend 12" from each corner at both the inside and outside. Provide a positive resistance to water flow with lapping.
- M. **At all window and door openings install Perm-A-Barrier wall seam tape as indicated on the opening details in accordance with the manufactures recommendation. The tape when install on the exterior casing flange of the window opening shall be set back from the exterior edge of the flange to assure proper sealant compatibility between the window casing and the wood trim. Submit data that illustrates that there compatibility with the sealant and the window casing. (see Section 07900).**
- N. Install all straps, connectors and fasteners as required by manufacturer.

3.2 SHEATHING

- A. Roof Sheathing: Install with the long dimensions or strength axis of the panel across supports, and with panel continuous over two or more spans. Allow 1/8" spacing at panel ends and edges. Fasten in accordance with Structural Drawings.
- B. Wall sheathing: Install with long dimensions or strength axis across supports. Allow 1/8" spacing at panel ends and edges. Fasten in accordance with the Structural Drawings - wall sheathing shall bridge discontinuities in all wall framing; i.e. plywood seam shall not align with seam of joint.
- C. Plywood subfloor: Install with long dimensions of strength axis across supports. Allow 1/8" spacing at panel ends and edges. Glue and nail and fasten in accordance with Structural Drawings. Stagger panel end joints. Panel end joints shall occur over framing.
- D. Place building paper horizontal over wall sheathing, weather lap edges and ends.

- E. Install telephone and electrical panel boards with plywood sheathing material where required. Over sized the panel by 12 inches on all sides.

3.3 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor; 1/4 inch in 10 feet maximum, and 1/2 inch maximum in 30 feet.

END OF SECTION 06100

SECTION 07311
ASPHALT SHINGLE ROOFING SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Granule surfaced asphalt shingle roofing.
- B. Moisture shedding underlayment, eaves, valley and ridge protection
- C. Associated metal flashing

1.2 RELATED SECTIONS

- A. Section 06100 – Rough Carpentry: Plywood Roof Sheathing
- B. Section 07600 – Flashing and Sheet Metal.
- C. Section 086200 – Unit Skylights

1.3 REFERENCES

- A. ASTM A 653/A 653M – Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron-Alloy-Coated (Galvannealed) by the Hot-Dip Process
- B. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- C. ASTM B 370 – Standard Specification for Copper Sheet and Strip for Building Construction.
- D. ASTM D 225 – Standard Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules.
- E. ASTM D 226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
- F. ASTM D 1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials used as Steep Roofing Underlayment for Ice Dam Protection.
- G. ASTM D 3018 – Standard Specification for Class A Shingles Surfaced with Mineral Granules.
- H. ASTM D 3161 – Standard Test Method for Wind Resistance of Asphalt Shingles (Fan-Induced Method).
- I. ASTM D 3462 – Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
- J. ASTM D 4586 – Standard Specification for Asphalt Roof Cement, Asbestos-Free.

- K. ASTM D-4869 – Standard Specification for Asphalt-Saturated Organic Felt Shingle Underlayment Used in Roofing.
- L. ASTM D 6757 – Standard Specification for Inorganic Underlayment for Use with Steep Slope Roofing Products.
- M. ASTM E 108 – Standard Test Methods for Fire Test of Roof Coverings
- N. ASTM G 21 – Determining Resistance of Synthetic Polymers to Fungi

1.4

SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide manufacturer's printed product information indicating material characteristics, performance criteria and product limitations.
- C. Manufacturer's Installation Instructions: Provide published instructions that indicate preparation required and installation procedures.
- D. Certificate of Compliance: Provide Certificate of Compliance from an independent laboratory indicating that the asphalt fiberglass shingles made in normal production meet or exceed the requirements of the following:
 - 1. ASTM E 108/UL 790 Class A Fire Resistance
 - 2. ASTM D 3161/UL 997 Wind Resistance.
 - 3. ASTM D 3462
- E. Shop Drawings: Indicate specially configured metal flashing, jointing methods and locations, fastening methods and locations and installation details as required by project conditions indicated.

1.5

QUALITY ASSURANCE

- A. Installer Minimum Qualifications: Installer shall be licensed or otherwise authorized by all federal, state and local authorities to install all products specified in this section. Installer shall perform work in accordance with NRCA Roofing and Waterproofing Manual. Work shall be acceptable to the manufacturer.
- B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by architect
 - 2. Do not proceed with remaining work until workmanship, color and pattern are approved by Architect.

3. Rework Mock-Up area as required to produce acceptable work.

- C. Pre-Installation Meeting – Conduct a pre-installation meeting at the site prior to commencing work of this section: Require attendance of entities directly concerned with roof installation. Agenda will include:
 - 1. Installation procedures and manufacturer's recommendations
 - 2. Safety procedures
 - 3. Coordination with installation of other work
 - 4. Availability of roofing materials.
 - 5. Preparation and approval of substrate and penetrations through roof.
 - 6. Other items related to successful execution of work
- D. Maintain one copy of manufacturers application instructions on the project site.
- E. Verify that manufacturer's label contains references to specified ASTM standards

1.6

DELIVERY, STORAGE, AND HANDLING

- A. Store Products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials and materials used with solvent based materials, in accordance with requirements of local authorities having jurisdiction.
- C. Deliver shingles to site in manufacturer's unopened labeled bundles. Promptly verify quantities and conditions. Immediately remove damaged products from site.

1.7

PROJECT CONDITIONS

- A. Anticipate and observe environmental conditions (temperature, humidity and moisture) within limits recommended by manufacturer for optimum results. Do not install products under environment conditions outside manufacturer's absolute limits.
- B. Extra Material – Furnish under provision of section 017000
- C. Provide 100 square feet of extra shingles of each color specified.
- D. Take special care when applying Winterguard Waterproofing Shingle Underlayment and shingles when ambient or wind chill temperature is below 45 degrees F (7 degrees C). Tack WinterGuard in place if it does not adhere immediately to the deck.

1.8 WARRANTY

- A. Manufacturer's Warranty: Furnish shingle manufacturer's warranty for the product listed below:
 - 1. CertainTeed Landmark Lifetime limited warranty
- B. Warranty Supplement: Provide manufacturer's supplemental warranty CertainTeed's Surestart Plus to cover labor and materials in the event of a material defect for the following period after completion of application of shingles:
 - 1. First Ten Years (All Lifetime Warranty products)
- C. Extended Warranty Protection (must be provided by a CertainTeed Credentialed Contractor): Provide NON-PRO-RATED SureStart Plus protections as follows:
 - 1. 3Star Coverage (20 years) material and labor costs for repair or replacement
 - 2. 4Star Coverage (50 years) material and labor costs for repair or replacement tear off and disposal costs.
 - 3. 5Star Coverage (50 years) material and labor costs for repair or replacement, tear off protection, disposal costs and workmanship defects.
- D. Warranty Transferability Clause: Make available to Owner shingle manufacturer's standard option for transferring warranty to a new owner.
- E. Wind Warranty Upgrade to 130 mph for first 15 years provided all manufacturers' conditions and instructions are met by contractor.

PART 2 PRODUCTS

2.1 MANUFACTURERS

Acceptable Manufacturer: Provide products manufactured by the CertainTeed Corporation. Contact Sales Support Group P.O. Box 860 Valley Forge, PA 19482 Toll Free 800-233-8990

- A. Substitutions: Not permitted
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600

2.2 ASPHALT FIBERGLASS SHINGLES

- A. CertainTeed Landmark Shingle: Conforming to ASTM D 3018 Type I – Self-Sealing, UL Certification of ASTM D 3462, ASTM D 3161/UL997 70-mph Wind Resistance and UL Class A Fire Resistance, glass fiber mat base, ceramically colored/UV resistant mineral surface granules across entire face of shingle, two piece laminate shingle.
- B. Weight: 240-245 pounds per square (100 square feet)

- C. Color: Weatherwood

2.3 SHEET MATERIALS

- A. Waterproofing Underlayment: CertainTeed "WinterGuard"; ASTM D 1970 sheet barrier of self-adhering rubberized asphalt membrane shingle underlayment having internal reinforcement, and "split" back plastic release film; Use on entire roof; provide material warranty with equal in duration to that of shingles being applied .
 - 1. CertainTeed WinterGuard Granular

2.4 FLASHING MATERIALS

- A. Sheet Flashing: ASTM B 370; cold rolled copper; 16 ounces per square foot, natural finish.
- B. Bitumious Paint: Acid and alkali resistant type; black color.
- C. Tinner's Paint: Color as selected by Architect to coordinate with shingle color.

2.5 ACCESSORIES

- A. Nails: Standard round wire type roofing nails, corrosion resistant; hot dipped zinc coated steel, aluminum or chormated steel; minimum 3.8 inch head diameter; minimum 11 or 12 gage shank diameter; shank to be sufficient length to penetrate through the roof sheathing or ¾ inch into solid wood, plywood or non-veneer wood decking. Only hand driven nails will be allowed.
- B. Asphalt Roofing Cement: ASTM D 4586, Type I or II
- C. Powered Attic Ventilators as indicated on drawings by Broan or equal model #349BR provide finish paint color to blend in with roof shingles. Provide with leaf guard to prevent from fallen leaves collecting in ventilator. Model 69V single function control. Coordinate electrical connections in accordance with manufacturer's recommendations.
- D. Ridge Vent as indicated on drawings by Cor-A-Vent Model X-5 Enhanced Ridge Vent. Ridge vent to provide 17 sq inches of NFVA per linear foot. Provide with EC-400 end caps in accordance with manufacturer's recommendation. Install shingles on top of the ridge vent in accordance with manufacturer's recommendations.

2.6 FLASHING FABRICATION

- A. Form flashing to profiles indicated on Drawings and to protect roofing materials from physical damage and shed water.

- B. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing site conditions under provisions of Section 01700.
- B. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surfaces.
- C. Verify deck surfaces are dry and free of ridges, warps or voids.

3.2 ROOF DECK PREPARATION

- A. Follow shingle manufacturer's recommendations for acceptable roof deck material
- B. Broom clean deck surfaces under eave protection and underlayment prior to their application

3.3 INSTALLATION – WEATHERPROOFING PROTECTION

- A. Place eave edge and gable metal edge flashing tight with fascia boards. Weather-lap joints 2 inches. Secure flange with nails spaced 8 inches on center.
- B. Apply CertainTeed "WinterGuard" Waterproofing Shingle Underlayment on entire roof in accordance with manufacturer's instructions.
- C. Extend eave protection membrane minimum 24 inches up slope beyond interior face of exterior wall.

3.4 INSTALLATION – VALLEY PROTECTION

- A. For "closed-cut," "woven," and "open" valleys, first place one ply of WinterGuard, minimum 36 inches (910 mm) wide, centered over valleys. Lap joints minimum of 6 inches (152 mm) Follow instructions of shingle an waterproofing membrane manufacturer.

3.5 INSTALLATON – METAL FLASHING

- A. Weather-lap joints minimum 2 inches (50 mm).
- B. Seal work projecting through or mounted on roof with asphalt roofing cement and make weather tight.

3.6 INSTALLATION- ASPHALT SHINGLES

- A. General:
 - 1. Install in accordance with CERTAINTEED's instructions and local building

codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.

2. Minimize breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F (4 degrees C).
3. Handle carefully in hot weather to avoid scuffing the surfacing, or damaging the shingle edges.

B. Placement and Nailing:

1. For maximum wind resistance along rakes & eaves, install any CERTAINTeed starter strip containing sealant or cement shingles to underlayment and each other in a 4" width of asphalt plastic roof cement.
2. Secure with six nails per shingle per CERTAINTeed's instructions.
3. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
4. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails. **All nails shall be driven by hand only. Use of power equipment will not be acceptable.**

C. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

1. Placement and Nailing: Beginning with the starter strip, trim shingles so that they "nest" within the shingle located beneath it. This procedure will yield a first course that is typically 3" to 4" rather than a fully exposed shingles.
1. For maximum wind resistance along rakes, install any CERTAINTeed starter strip containing sealant or cement shingles to underlayment and each other in a 4" width of asphalt plastic roof cement
2. Laterally, offset the new shingles from the existing keyways, to avoid waves or depressions caused by excessive dips in the roofing materials.
3. *Note: DO NOT install standard sized shingles (5" exposure) over metric (5 5/8" exposure) shingles, as it will overexpose the shingles and reveal the nails. Use standard alignment methods to assure proper shingle placement.
4. Secure with six nails per shingle per CERTAINTeed's instructions.
5. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
6. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
7. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

D. Valleys

1. Install valleys using the "closed cut valley" method:
 - a Run the first course of shingles from the higher roof slope across the valley at least 12 inches
 - b Run succeeding courses of shingles from the lower roof slope across

the valley at least 12 inches and nail not closer than 6 inches to center of valley.

- c Run shingles from the upper roof slope into the valley and trim 2 inches from the center line.

E. Penetrations

- 1. All Penetrations are to be flashed according to CERTAINTEED, ARMA and NRCA application instructions and construction details.

3.7 INSTALLATION OF ATTIC VENTILATION

A. General

Ventilation must meet or exceed current IRC codes

B. Ridge / Soffit ventilation

- 1. Install ridge vent along the entire length of ridges:
- 2. Cut continuous vent slots through the sheathing, stopping 6 inches from each end of the ridge.
- 3. On roofs without ridge board, make a slot 1 inch wide, on either side of the peak (2" overall).
- 4. On roofs with ridge board, make two slots 1-3/4 inches wide, one on each side of the peak (3 1/2" overall).
- 5. Install ridge vent material along the full length of the ridge, including uncut areas.
- 6. Butt ends of ridge vent material and join using roofing cement.
- 7. Install eaves vents in sufficient quantity to equal or exceed the ridge vent area.

3.8 FIELD QUALITY CONTROL – ROOF INSPECTION

- A. Field inspection will be performed under provisions of Section 014516.
- B. Visual inspection of the work will be provided by Owner. If conditions are unacceptable, Owner will notify the Architect.
- C. The work for the roof inspection allowances is to be completed by:

Shepard & Associates, LLC
3547 Dreher Shoals Road
Irmo, SC 29063
(803) 407-8284

3.9 PROTECTION OF FINISHED WORK

- A. Protect finished work under provisions of Section 01600.
- B. Do not permit traffic over finished roof surface.

END OF SECTION

SECTION 08114
STANDARD STEEL DOORS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes non-rated, fire rated, thermally insulated steel doors.
- B. Related Sections:
 - 1. Section 08115 - Standard Steel Frames.
 - 2. Section 08710 - Door Hardware.
 - 3. Section 08800 - Glazing: Glass for doors.
 - 4. Section 09900 - Paints and Coatings: Field painting of doors.
 - 5. Division 17 - Security Systems.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
- B. ASTM International:
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM C1363 - Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
 - 3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 4. ASTM E413 - Standard Classification for Rating Sound Insulation.
- C. Hollow Metal Manufacturers Association:
 - 1. HMMA 810 - Hollow Metal Doors.
- D. National Fire Protection Association:
 - 1. NFPA 80 - Standard for Fire Doors, Fire Windows.
 - 2. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
 - 3. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
- E. Steel Door Institute:
 - 1. SDI 108 - Recommended Selection and Usage Guide for Standard Steel Doors.
- F. Underwriters Laboratories Inc.:
 - 1. UL 10B - Fire Tests of Door Assemblies.
 - 2. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
 - 3. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
 - 4. UL 1784 - Air Leakage Tests of Door Assemblies.

- G. Uniform Building Code:
 - 1. UBC Standard 7-2 - Fire Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, louvers, and finishes.
- C. Product Data: Submit door configurations, location of cut-outs for hardware reinforcement.
- D. Samples: Submit two samples of door face metal, 12 x 12 inch in size illustrating shop finish colors and surface texture.
- E. Manufacturer's Installation Instructions: Submit special installation instructions.
- F. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ANSI A250.8.
- B. Fire Rated Door and Panel Construction: Conform to one of the following:
 - 1. NFPA 252; with neutral pressure level at 40 inches maximum above sill at 5 minutes into test.
 - 2. UL 10C.
 - 3. 20-Minute Fire Rated Corridor and Smoke Barrier Doors: Fire tested without hose stream test.
- C. Fire Rated Stair Doors: Rate of rise of 450 degrees F across door thickness.
- D. Installed Fire Rated Door and Panel Assembly: Conform to NFPA 80 for fire rated class as indicated on Drawings.
- E. Smoke and Draft Control Doors: Tested in accordance with UL 1784.
 - 1. Air Leakage: Maximum 3.0 cfm/sf of door opening with 0.10 inch water gage pressure differential.
- F. Attach label from agency approved by authority having jurisdiction to identify each fire rated door.
 - 1. Indicate temperature rise rating for stair doors.
 - 2. Attach smoke label to smoke and draft control doors.
- G. Surface Burning Characteristics:
 - 1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

- H. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation board.
- I. Perform Work in accordance with State of South Carolina standards.
- J. Maintain one copy of each document on site.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum ten years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Protect doors with resilient packaging sealed with heat shrunk plastic.
- C. Break seal on site to permit ventilation.

1.7 COORDINATION

- A. Section 01300 - Administrative Requirements: Requirements for coordination.
- B. Coordinate Work with door opening construction, door frame, and door hardware installation.
- C. Coordinate installation to accommodate door hardware electric wire connections.

1.8 SINGLE SOURCE CONTRACTOR

- A. For Sections 08114, 08115 and 08212, the project will require a single source supplier. The single source supplier shall be responsible for all products and services and may use various suppliers for this work under their supervision.

PART 2 PRODUCTS

2.1 STANDARD STEEL DOORS

- A. Manufacturers:
 - 1. Curries 707 Series.
 - 2. Substitutions: Section 01600 - Product Requirements.
- B. Product Description:
 - 1. Exterior Doors Insulated: SDI 108, 1-3/4 inch thick.
 - a. Level 3 - Extra heavy Duty, Model 1, full flush design.
 - 2. Interior Doors Non-Rated: SDI 108, 1-3/4 inch thick.

- a. Level 3 - Extra heavy Duty, Model 1, full flush design.
- 3. Interior Doors Fire Rated: SDI 108, 1-3/4 inch thick.
 - a. Level 3 - Extra heavy Duty, Model 1, full flush design.
- 4. Interior Doors Non-Rated: SDI 108, 1-3/8 inch thick.
 - a. Level 1 - Standard Duty, Model 1, full flush design.

2.2 COMPONENTS

- A. Face: Steel sheet in accordance with SDI 108.
- B. End Closure: Channel, 0.04 inches thick, flush.
- C. Core: Polystyrene foam.
- D. Thermal Insulated Door: Total insulation R-Value of 2.4, measured in accordance with ASTM C1363.
- E. Sound Rated Door: STC of 26, measured in accordance with ASTM E413.

2.3 ACCESSORIES

- A. Removable Stops: Rolled steel, channel shape, mitered corners; prepared for countersink style tamper proof screws.
- B. Astragals for Double Doors: Steel T shaped, specifically for double doors.
- C. Primer: ANSI A250.10 rust inhibitive type.

2.4 FABRICATION

- A. Fabricate doors with hardware reinforcement welded in place.
- B. Attach astragal to inactive leaf of pairs of fire rated doors.
- C. Configure exterior doors with edge profile to receive recessed weatherstripping.

2.5 SHOP FINISHING

- A. Steel Sheet: Galvanized to ASTM A653/A653M.
- B. Primer: Baked.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify opening sizes and tolerances are acceptable.

3.2 INSTALLATION

- A. Install doors in accordance with ANSI A250.8.
- B. Install door louvers, plumb and level.
- C. Coordinate installation of glass and glazing specified in Section 08800.
- D. Coordinate installation of doors with installation of frames specified in Section 08115 and hardware specified in Section 08710.
- E. Touch-up damaged shop finishes.

3.3 ERECTION TOLERANCES

- A. Section 01400 - Quality Requirements: Tolerances.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner. Must coordinate with all tolerances that might be greater with Security Consultant in regards to card readers, electric strikes, etc.

3.4 ADJUSTING

- A. Section 01700 - Execution Requirements: Requirements for adjusting.
- B. Adjust door for smooth and balanced door movement.

3.5 SCHEDULE

- A. Refer to Door and Frame Schedule.

END OF SECTION 08114

SECTION 08115
STANDARD STEEL FRAMES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes fire rated and non-rated steel frames – KD “knock down” frames
- B. Related Sections:
 - 1. Section 08710 - Door Hardware: Hardware, silencers, and weatherstripping.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
- B. ASTM International:
 - 1. ASTM A591/A591M - Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications.
 - 2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. National Fire Protection Association:
 - 1. NFPA 80 - Standard for Fire Doors, Fire Windows.
 - 2. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
- D. Underwriters Laboratories Inc.:
 - 1. UL 10B - Fire Tests of Door Assemblies.
 - 2. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
 - 3. UL 1784 - Air Leakage Tests of Door Assemblies.
- E. Uniform Building Code:
 - 1. UBC Standard 7-2 - Fire Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate frame elevations, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.
- B. Product Data: Submit frame configuration and finishes.
- C. Manufacturer's Installation Instructions: Submit special installation instructions.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Conform to requirements of ANSI A250.8.

- B. Fire Rated Frame Construction: Conform to one of the following:
 - 1. NFPA 252; with neutral pressure level at 40 inches maximum above sill at 5 minutes into test.
 - 2. UL 10C.
 - 3. 20-Minute Fire Rated Corridor and Smoke Barrier Frames: Fire tested without hose stream test.
- C. Fire Rated Frame Construction: Conform to UBC Standard 7-2.
- D. Installed Fire Rated Frame Assembly: Conform to NFPA 80 for fire rated class same as fire door.
- E. Smoke and Draft Control Door Frames: Tested in accordance with UL 1784.
 - 1. Air Leakage: Maximum 3.0 cfm/sf of door opening with 0.10 inch water gage pressure differential.
- F. Attach label from agency approved by authority having jurisdiction to identify each fire rated door frame.
 - 1. Attach smoke label to smoke and draft control door frames.
- G. Perform Work in accordance with State of South Carolina standards.
- H. Maintain one copy of each document on site.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept frames on site in manufacturer's packaging. Inspect for damage.
- B. Break seal on-site to permit ventilation.

1.7 COORDINATION

- A. Coordinate Work with frame opening construction, door, and hardware installation.
- Sequence installation to accommodate required door hardware electric wire connections.

1.8 SINGLE SOURCE CONTRACTOR

- A. For Sections 08114, 08115 and 08212, the project will require a single source supplier. The single source supplier shall be responsible for all products and services and may use various suppliers for this work under their supervision.

PART 2 PRODUCTS**2.1 STANDARD STEEL FRAMES**

- A. Manufacturers:
 - 1. Curries: Basis of Design – Brand to be finalized during submittal
- B. Product Description: Standard shop fabricated steel frames, fire rated and non-rated types.
 - 1. Exterior Frames:
 - a. Level 2 for Door Models 1, nominal 16 gage/0.053 inch thick material, base metal thickness.
 - 2. Interior Frames:
 - a. Level 2 for Door Models 1, nominal 16 gage/0.053 inch thick material, base metal thickness.

2.2 ACCESSORIES

- A. Removable Stops: Rolled steel channel shape, butted, mitered corners; prepared for countersink style tamper proof screws.
- B. Bituminous Coating: Non-asbestos fibered asphalt emulsion.
- C. Primer: ANSI A250.10 rust inhibitive type.
- D. Silencers: Specified in Section 08710.
- E. Weatherstripping: Specified in Section 08710.

2.3 FABRICATION

- A. Mullions for Double Doors: Removable type, of same profiles as jambs.
- B. Transom Bars for Glazed Lights: Fixed type, of same profiles as jamb and head.
- C. Fabricate frames with hardware reinforcement plates welded in place.
- D. Reinforce frames wider than 48 inches with roll formed steel channels fitted tightly into frame head, flush with top.
- E. Prepare frames for silencers. Provide three single silencers for single doors and mullions of double doors on strike side. Provide two single silencers on frame head at double doors without mullions.
- F. Configure exterior frames with special profile to receive recessed weatherstripping.
- G. Attach fire rated label to each fire rated frame.

2.4 SHOP FINISHING

- A. Steel Sheet: Galvanized to ASTM A653/A653M A60.

- B. Primer: Baked.
- C. Coat inside of frame profile with bituminous coating to minimum thickness of 1/16 inch.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify opening sizes and tolerances are acceptable.

3.2 INSTALLATION

- A. Install frames in accordance with ANSI A250.8.
- B. Coordinate with masonry, gypsum board, and concrete wall construction for anchor placement.
- C. Coordinate installation of frames with installation of hardware specified in Section 08710.
- D. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

3.3 ERECTION TOLERANCES

- A. Maximum Diagonal Distortion: 1/8 inch measured with straight edges, crossed corner to corner.

END OF SECTION 08115

**SECTION 08610
CLAD WINDOWS****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Exterior: Double Hung Windows

1.02 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Submit a final ordering list for review prior to ordering.
- C. Submit using Submittal Action Form provided in Section 01300.

1.03 WARRANTY

- A. Provide written warranty under provisions of Section 01700.

PART 2 - PRODUCTS**2.01 DOUBLE HUNG WINDOWS**

- A. Manufacturer:
 - 1. Kolbe & Kolbe Ultra Series, Aluminum double hung, with impact glazing with extension jambs and window upgrade kit to meet minimum DP 50, finish to be selected from standard colors. Interior of the units shall be primed.

2.03 GLASS AND GLAZING, AND ACCESSORIES

- A. Manufacturer's standard clear sealed insulating impact glass, warranted for a minimum of 10 years against failure of seal.
- B. Include all operating hardware, sill, and accessories.
- C. Provide nailing fin units, and do not include brick mold exterior trim.
- D. Provide "Seacoast Package" to provide corrosion resistant conditions where applicable.

PART 3 - EXECUTION**3.01 INSTALLATION**

- A. Review manufacturer's instructions with all installers and have present at job site at all times.
- B. Coordinate installation of hardware.
- C. Set units plumb, level, and true to line, without warp or rack of frames and sash. Provide proper support and anchor securely in place.

- D. Comply with flashing and sheet metal section for exterior window sills and heads.
- E. Adjust operating sash and hardware to provide smooth operation with tight, weatherproof closure.
- F. Prime and paint any exposed edges.

END OF SECTION 08610

SECTION 09900
PAINTS AND COATINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and field application of paints, stains, varnishes, and other coatings.
- B. Paint and stain all surfaces that are primed for painting. Do not paint any surfaces that are factory primed unless noted otherwise.
- C. Related Sections:
 - 1. Section 04810 - Unit Masonry Systems
 - 2. Section 05500 - Metal Fabrications: Shop primed items.
 - 3. Section 08114 - Standard Steel Doors
 - 4. Section 08115 - Standard Steel Frames
 - 5. Section 09260 - Gypsum Board Systems
 - 6. Section 09720 - Wall Coverings: Primer and sealer under wall covering.
 - 7. Section 15075 - Identification for Plumbing Piping and Equipment.
 - 8. Section 15076 - Identification for HVAC Piping and Equipment.
 - 9. Section 16075 - Identification for Electrical Systems.
 - 10. Section 16076 - Identification for Communications Systems.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D16 - Standard Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
 - 2. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
 - 3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. National Fire Protection Association:
 - 1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
- C. Painting and Decorating Contractors of America:
 - 1. PDCA - Architectural Painting Specification Manual.
- D. SSPC: The Society for Protective Coatings:
 - 1. SSPC - Steel Structures Painting Manual.
- E. Underwriters Laboratories Inc.:
 - 1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.3 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.4 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on finishing products. Samples:
 - 1. Submit color charts for selection by architect for review not less than four weeks before painting is scheduled to start.
- C. Manufacturer's Installation Instructions: Submit special surface preparation procedures, substrate conditions requiring special attention.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01700 - Execution Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.6 QUALITY ASSURANCE

- A. Surface Burning Characteristics:
 - 1. Fire Retardant Finishes: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- B. Perform Work in accordance with State of South Carolina standards.
- C. Maintain one copy of each document on site.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.
- B. Applicator: Company specializing in performing work of this section with minimum ten years documented experience and approved by manufacturer.

1.8 MOCKUP/FIELD SAMPLES

- A. Section 01400 - Quality Requirements: Mock-up and Field Sample requirements.
- B. Construct field sample on actual walls as directed by architect, 6 feet long by 6 feet wide, illustrating coating color, texture, and finish. Repaint field sample until all colors are selected. Provide a field sample for each color selected by the architect. Provide finish lighting conditions where sample is to be painted. Ample time to review the samples shall be incorporated.
- C. Locate where directed by Architect/Engineer.
- D. Incorporate accepted mockup as part of Work.

1.9 PRE-INSTALLATION MEETINGS

- A. Section 01300 - Administrative Requirements: Pre-installation meeting.

- B. Convene minimum one week prior to commencing work of this section. **Do not proceed with remaining work until Architect approves of the mark-up samples.**

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Product storage and handling requirements.
- B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- C. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- D. Paint Materials: Store at minimum ambient temperature of 45 degrees F and maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.11 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 - Product Requirements.
- B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
- C. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish and Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candle measured mid-height at substrate surface.

1.12 SEQUENCING

- A. Section 01100 - Summary: Work sequence.
- B. Sequence application to the following:
 - 1. Do not apply finish coats until paintable sealant is applied.
 - 2. Back prime wood trim before installation of trim.

1.13 WARRANTY

- A. Section 01700 - Execution Requirements: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for paints and coatings.

1.14 EXTRA MATERIALS

- A. Section 01700 - Execution Requirements: Spare parts and maintenance products.
- B. Supply 1 gallon of each color, type, and surface texture; store where directed.
- C. Label each container with color, type, texture, room locations, in addition to manufacturer's label.

PART 2 PRODUCTS

2.1 PAINTS AND COATINGS

- A. Manufacturers: Paint, Transparent Finishes, Stain, Primer Sealers, Block Filler, Field Catalyzed Coatings.
 - 1. Sherman Williams (basis for design)
 - 2. Devoe Paint Co.
 - 3. Duron Inc.
 - 4. The Glidden Co.
 - 5. PPG Architectural Finishes
 - 6. Substitutions: Section 01600 - Product Requirements

2.2 COMPONENTS

- A. Coatings: Ready mixed, except field catalyzed coatings. Prepare coatings:
 - 1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
 - 2. For good flow and brushing properties.
 - 3. Capable of drying or curing free of streaks or sags.
 - 4. Exterior: GC-03
 - 5. Clear Wood Finishes: SCAQMD Rule 113
 - 6. Interior: Maximum Volatile Organic Compound Content in accordance with GS-11 with a maximum of 50 g/L for flat paints and coatings and 150 g/L for non-flat paints and coatings.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve finishes specified; commercial quality.
- C. Patching Materials: Latex filler.
- D. Fastener Head Cover Materials: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements: Coordination and project conditions.

- B. Verify surfaces and substrate conditions are ready to receive Work as instructed by product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report conditions capable of affecting proper application.
- D. Test shop applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Plaster and Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 - 4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
 - 5. Concrete Floors: 8 percent.

3.2 PREPARATION

- A. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- B. Surfaces: Correct defects and clean surfaces capable of affecting work of this section.
- C. Marks: Seal with shellac those which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- G. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- H. Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. Copper Surfaces Scheduled for Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.
- J. Copper Surfaces Scheduled for Natural Oxidized Finish: Remove contamination by applying oxidizing solution of copper acetate and ammonium chloride in acetic acid. Rub on repeatedly for required effect. Once attained, rinse surfaces with clear water and allow to dry.
- K. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

- L. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- M. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- N. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- O. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by power tool wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- P. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.
- Q. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- R. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.
- S. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.
- T. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.
- U. Wood Doors Scheduled for Painting: Seal wood door top and bottom edge surfaces with clear sealer.
- V. Metal Doors Scheduled for Painting: Prime metal door top and bottom edge surfaces.

3.3 EXISTING WORK

- A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

3.4 APPLICATION

- A. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- B. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
- C. Sand wood and metal surfaces lightly between coats to achieve required finish.
- D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- E. Where clear finishes are required, tint fillers to match wood. Work fillers into grain before set. Wipe excess from surface.
- F. Prime concealed surfaces of interior and exterior woodwork with primer paint.
- G. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.
- H. Finishing Mechanical And Electrical Equipment:
 - 1. Refer to Division 15 and Division 16 for schedule of color coding and identification banding of equipment, duct work, piping, and conduit.
 - 2. Paint shop primed equipment.
 - 3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
 - 4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are shop finished.
 - 5. Paint interior surfaces of air ducts visible through grilles and louvers with one coat of flat black paint to visible surfaces. Paint dampers exposed behind louvers, grilles, to match face panels.
 - 6. Paint exposed conduit and electrical equipment occurring in finished areas.
 - 7. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
 - 8. Color code equipment, piping, conduit, and exposed duct work in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.
 - 9. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.5 FIELD QUALITY CONTROL

- A. Section 01400 - Quality Requirements and 01700 - Execution Requirements: Field inspecting, testing, adjusting, and balancing.

3.6 CLEANING

- A. Section 01700 - Execution Requirements: Final cleaning.
- B. Collect waste material which may constitute fire hazard, place in closed metal containers, and remove daily from site.

3.7 SCHEDULE - SHOP PRIMED ITEMS FOR SITE FINISHING

- A. Metal Fabrications (Section 05500): Exposed surfaces of lintels, elevator pit ladders.
- B. Steel doors and frames Section 08111 – All exterior doors (all sides) shall be the responsibility of the Contractor.

3.8 SCHEDULE - EXTERIOR SURFACES

- A. Pavement Markings: See Division Two
- B. Steel - Unprimed:
 - 1. One coat of Procryll primer.
 - 2. Two coats of alkyd enamel, semi-gloss.
- C. Steel - Shop Primed: At rigid frames and misc items of metal building
 - 1. Touch-up with Procryll primer.
 - 2. Two coats of alkyd enamel, semi-gloss.
- D. Steel - Galvanized:
 - 1. One coat All Surface latex Primer A41 Series.
 - 2. Two coats of alkyd semi-gloss.
- E. Fiber Cementitious Siding & Trim
 - 1. Unprimed: Prime with first coat 100% acrylic primer Loxon A24W300.
 - 2. Topcoat: Two coats of Exterior Super Paint A80 series flat.
 - a. Trim color will differ from siding color.

3.9 SCHEDULE - INTERIOR SURFACES

- A. Concrete, concrete block (CMU) : At control room
 - 1. One coat of heavy duty block filler B42W46
 - 2. Two coats of B70 water based catalyzed epoxy (semi -gloss)
- B. Steel - Unprimed:
 - 1. Touch-up with Procryll primer.
 - 2. Two coats of alkyd enamel, semi-gloss.
- C. Steel - Primed:
 - 1. Touch-up with Procryll primer.
 - 2. Two coats of alkyd enamel, semi-gloss.
- D. Steel - Galvanized:
 - 1. One coat All Surface latex Primer A41 Series.
 - 2. Two coats of alkyd semi-gloss.
- E. Gypsum Board Walls:
 - 1. One coat of SW Preprite primer 200 B28200 Series.
 - 2. Two coats of SW Cashmere Low Lustre D17 Series
- F. Gypsum Board Ceilings:
 - 1. One coat of SW Preprite primer 200 Series B28200.
 - 2. Two coats of SW Promar 400 Series B30W400 Flat.

- G. Interior wood frames and trim
 - 1. One coat of SW Preprite primer 200 B28200 Series.
 - 2. Two coats of SW Cashmere Low Lustre D17 Series

END OF SECTION 09900

SECTION 13120

STEEL BUILDING SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pre-engineered building and components including the following:
 - 1. Structural steel frame.
 - 2. Roof covering system including exterior roof panels, panel attachments, sealants, mastics, trim and flashings.
 - 3. Exterior wall system including wall panels, panel attachments, sealants, mastics, trim and flashings, gutters, downspouts.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-in-Place Concrete: Foundations and anchor bolts.

1.3 REFERENCES

- A. AAMA 101 - Voluntary Specification for Aluminum and Poly (Vinyl Chloride) (PVC) Prime Windows and Glass Doors; American Architectural Manufacturers Association.
- B. American National Standards Institute (ANSI):
 - 1. ANSI 156.2 - Bored and Preassembled Locks and Latches.
 - 2. ANSI 250.1 - Salt Spray Resistance: Acceptance Criteria for Prime Painted Steel Doors and Frames.
 - 3. ANSI 250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Painted. Steel Surfaces for Steel Doors and Frames.
- C. ASTM International (ASTM):
 - 1. ASTM A 36/ASTM A 36M - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - 3. ASTM A 490 - Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength.
 - 4. ASTM A 500 - Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - 5. ASTM A 529/A 529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality.
 - 6. ASTM A 563 - Standard Specification for Carbon and Alloy Steel Nuts.
 - 7. ASTM A 572/A 572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Steel.
 - 8. ASTM A 653/A 653M - Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 9. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55 percent Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - 10. ASTM A 1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy

11. and High-Strength Low Alloy with Improved Formability.
 12. ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
 13. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
 14. ASTM D 870 - Standard Practice for Testing Water Resistance of Coatings Using Water Immersion.
 15. ASTM D 1737 - Method of Test for Elongation of Attached Organic Coatings with Cylindrical Mandrel Apparatus.
 16. ASTM D 1929 - Standard Test Method for Ignition Properties of Plastics.
 17. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
 18. ASTM D 2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
 19. ASTM D 2843 - Standard Test Method for Smoke from the Burning or Decomposition of Plastics.
 20. ASTM D 4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
 21. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
 22. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 23. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
 24. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 25. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 26. ASTM E 774 - Standard Specification for Sealed Insulating Glass Units.
 27. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
 28. ASTM E 1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
 29. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
 30. ASTM G 23 - Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.
 31. ASTM G 26 - Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials.
- D. AWS D1.1 - Structural Welding Code; American Welding Society.
- F. IAS AC472 International Accreditation Services.

- G. NAIMA 202 - Standard for Flexible Fiber Glass Insulation Used in Metal Buildings; North American Insulation Manufacturers Association.
- H. SDI 100 - Recommended Specifications for Standard Steel Doors and Frames; Steel Door Institute.
- I. UL 580 - Tests for Wind Uplift Resistance of Roof Assemblies; Underwriters Laboratories Inc.
- J. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Underwriters Laboratories Inc.

1.4 DEFINITIONS

- A. Building Width: Measured from outside to outside of sidewall girts. Typically edge to edge of concrete.
- B. Building Length: Measured from outside to outside of end wall girts. Typically edge to edge of concrete
- C. Building Line: Outside face of steel/girt.
- D. Building Eave Height: Measured from the top of the eave member at the outside of the sidewall girt line to the bottom of the sidewall column base plate or to finished floor if columns are on grout or recessed below finished floor.
- E. Bay Spacing: Measured from centerline to centerline of primary frames for interior bays and from centerline of the first interior frame to outside of end wall girts for end bays.
- F. Roof Pitch: The ratio of the vertical rise to the horizontal run 1:12 = 1 inch of rise for every foot of horizontal dimension.

1.5 SYSTEM DESCRIPTION

- A. General:
 - 1. Provide metal building frame, metal wall panels, metal roof panels, accessories and miscellaneous materials for a complete enclosure including supports for building components specified in other sections.
 - 2. Design structural systems according to professionally recognized methods and standards and legally adopted building codes.
 - 3. Design under supervision of professional engineer licensed in the State of South Carolina.
- B. Performance Requirements:
 - 1. System to withstand gravity and lateral loads in compliance with contract documents.
 - 2. Refer to contract drawings for additional concentrated loads to pre-engineered building hanger beams and support jacks.
 - 3. Allowable Deflections: Deflection/drift criteria shall follow recommendations outlined in AISC Design Guide 3 and MBMA Serviceability recommendations.
 - 4. Metal wall panels (interior and exterior) shall not to be used as shear elements. Specify if metal wall and girt assembly require specific deflection constraints
 - 5. Construct assembly to permit movement of components without

- buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to temperature range of 100 degrees F (37 degrees C) in a 24 hour period.
6. Design and fabricate wall and roof systems free of distortion or defects detrimental to appearance or performance. Some oil canning in rolled panels especially in the flats of the panel is normal and is not cause for rejection.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Design Data: Provide detailed design criteria and calculations prepared by a licensed structural engineer in the State of South Carolina.
- C. Certification: Manufacturer certification that the building conforms to the contract documents and manufacturer's standard design procedures.
- D. Shop Drawings: Show building layout, primary and secondary framing member sizes and locations, cross-sections, and product and connection details.
1. Anchor Bolt Installation Drawings: Layouts with minimum bolt diameters (anchors are typically by others in the metal building industry).
- E. Product Data : Information on manufactured products to be incorporated into the project.
- F. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- H. Certificates: Welder certifications

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Not less than 5 years experience in the actual production of specified products.
1. Member of the Metal Building Manufacturer's Association (MBMA).
2. Primary manufacturer of frames, secondary steel, roof and wall sheeting, and trim.
- B. Installer Qualifications - Firm experienced in application or installation of systems similar in complexity to those required for this project, plus the following:
1. Acceptable to or licensed by manufacturer.
2. 5 years experience with systems.
3. Successfully completed not less than 5 comparable scale projects using this system.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for

installation.

- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.10 WARRANTY

- A. Manufacturer shall warranty installed system for the periods described herein, starting from Date of Substantial Completion or ninety days from delivery, whichever comes first, against all the conditions indicated below. When notified in writing from Owner, manufacturer/installer shall, promptly and without inconvenience and cost to Owner, correct said deficiencies.
 - 1. Materials and Workmanship Warranty:
 - a. Warranty Period: 3 years, standard.
 - 2. Panel Rib Standard Weathertight Warranty:
 - a. Warranty Period: 10 years, standard.
 - 3. SSR Standard Weathertight Endorsement:
 - b. Warranty Period: 20 years.
 - 4. Finish Warranty:
 - a. Finish coating shall not peel, blister, chip, crack or check in finish, and shall not chalk in excess of 8 numerical ratings when measured in accordance with ASTM D 4214.
 - b. Finish coating shall not change color or fade in excess of 5 NBS units as determined by ASTM D 2244.
 - 1) Panel finish: 25 years.
 - 5. Performance Warranty: Furnish written warranty, stating sheet metal roofing system and flashing (flashing under premium warranty only) under this Section will be maintained in watertight condition and defects resulting from the following items will be corrected without cost to Owner for a period of 20 years.
 - a. Faulty workmanship.
 - b. Defective materials including sealants and fasteners.
 - c. Water infiltration.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Varco Pruden Buildings, which is located at: 3200 Players Club Circle ; Memphis, TN 38125; Toll Free Tel: 800-238-3246; Tel: 901-748-8000; Fax: 901-748-9323; Email: [request info \(vpsales@vp.com\)](mailto:requestinfo@vpsales@vp.com); Web: www.vp.com

Basis of Design is Varco Pruden and has been used to provide the selection of the systems for the specification section. It is not intended to be the sole manufacturer and therefore other manufacturers not listed

shall provide equal products to those described and submit a substitution request as described.

B. Butler Buildings

American Building Systems

Nucor Building systems

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 STRUCTURAL STEEL FRAMING

A. Primary Framing: Rigid Frame (RF Series) solid web framing consisting of tapered or uniform depth rafters rigidly connected to tapered or uniform depth columns. Provide a clear span that supports the loads at bay spacing indicated. Frames can have a roof pitch as low as 1/4:12 and span can typically range from 30 feet to 300 feet (9.14 m to 91.5 m) in increments of 1/16 inch (1.6 mm) spacing, with the steel yield of 55 ksi.

B. Primary Framing: Continuous Beam (CB Series) solid web framing utilizing tapered or uniform depth beams or girders supported on tapered or uniform depth columns. Locate interior columns where indicated and designed to support loads at bay spacing indicated. With the CB frame, vertically any width building is possible with a minimum roof slope of 1/4:12 and the ridge at any desired location. Steel is 55 ksi.

C. End Wall Framing: Corner posts, end posts and rake beams.

D. Steel Surface Preparation: SSPC-SP 2.

2.3 SECONDARY FRAMING

A. Purlins: Zee-shaped; depth as required; with minimum yield strength of 60,000 psi (410 MPa); simple span or continuous span as required for design. **G-30 galvanized standard material**. Welded members are manufacturer's standard primer.

1. Purlin Size: depth as required

B. Girts: Zee- or Cee-shaped; depth as required, with minimum yield strength of 60,000 psi (410 MPa); simple span or continuous span as required for design. **G-30 galvanized standard material**. Welded members are manufacturer's standard primer.

1. Girt Size: as required (bypass girts as denoted on contract documents)

D. Wind Bracing: Portal, torsional, diagonal bracing or diaphragm in accordance with manufacturer's standard design practices; utilizing rods, angles, and other members, with minimum yield strengths as required for design but in most cases, 50 ksi.

E. Primary Frame Flange Bracing: Attached from purlins or girts to the primary framing, minimum yield strength as required for design but in most cases 60 ksi.

2.4 MISCELLANEOUS FRAMING

- A. Base Angles: 2 inch by 3 inch by 0.060 inch (50 mm by 75 mm by 1.5 mm) galvanized steel angles, with minimum yield strength of 55 ksi (380 MPa), anchored to the floor slab or grade beam with power driven fasteners or equivalent at a maximum spacing of 4 feet (1220 mm) on center and not more than 6 inches (150 mm) from the end of any angle member. **Anchors are not provided by the metal building manufacturer.**
- B. Door Headers and Jambs: Zee- or Cee-shaped; depth as required; with minimum yield strength of 60 ksi (410 MPa).
- C. Metal Liner Panel: LPR 36 liner panel: 28 gauge steel panel, 36" wide with 1-1/4" high rib 12"oc. Located at each of the interior walls.

2.5 ROOF COVERING SYSTEM

- A. Roof Panels: SSR Standing Seam Roof Panels; 24 inches (610 mm) wide net coverage, with 3 inches (75 mm) high major ribs formed at the panel side laps, formed for field seaming using electrically operated seaming machine.
 - 1. Side joints: Factory applied sealant for field seaming.
 - 2. Material: Galvalume steel.
 - 3. Thickness: 24 gage (0.58 mm).
 - 4. Standard Roof pitches ranges from 1/4 inch (6 mm):12 up to 4 inches (102 mm):12
 - 5. Side laps: Two factory-formed interlocking ribs, with one weather sealed joint, field-seamed into place to form a double-fold 360 degree seam.
 - 6. Length: Continuous from eave to ridge up to 52 feet (15.9 m) in length.
 - 7. End laps, where required: 4 inches (102 mm) wide, located at a support member.
 - 8. Panel-to-roof purlin structural attachments: SSR clips with movable tabs which interlock with seamed SSR panel ribs and provide for 1-5/8 inches (41 mm) of panel movement in either direction from center of clip to compensate for thermal effects.
 - 9. Ridge assembly for high end of slopes: SSR Ridge; draw-formed aluminum seam caps factory-attached to SSR ridge panels that are seamed together along the center of the ridge, utilizing only one weather sealed joint and providing a true expansion joint for panel movement.
 - 10. Rake edge of roof shall be attached to the building structure in a manner which will allow thermal expansion of the SSR roof panels along the gables and will provide the uplift resistance required by code.
 - 11. SSR roof will meet the requirements for wind uplift as defined on the Struvtrual drawings load table. Certification includes IAS.
 - 12. The KXL paint system is a PVDF finish applied to the galvalume surface to give a long life color that resists fading and chalking. KXL is a 1 mil nom. PVDF finish with 70 percent Kynar 500 or Hylar 5000 standard.
 - 13. Exposed fasteners are stainless steel capped painted to match the selected color from the VP color chart or special ordered if a special color roof is provided.

2.6 WALL COVERING SYSTEM

- A. Wall Panel: RPR (reverse panel rib) 36 inch (915 mm) wide net coverage, with 1-3/16 inch (30 mm) high major ribs at 12 inches (305 mm) on center with minor ribs spaced between the major ribs.
1. Material: Galvalume steel, unpainted.
 2. Material: Galvanized steel, with G90/Z275 coating.
 3. Thickness: 26 gage (0.45 mm).
 4. Side laps: Two fully overlapping major ribs secured together with 1/4 inch (6 mm) diameter color-matched carbon steel fasteners.
 5. Length: Continuous from sill to eave up to 43 feet (12.8 m) in length.
 6. End laps, where required: 4 inches (100 mm) wide, located at a support member.
 7. Cut panels square at each end; provide base trim at sill.
 8. The KXL paint system is a PVDF finish applied to the zinc or zinc aluminum coated steel to give a long life color that resists fading and chalking. KXL is a 1 mil nom. PVDF finish with 70 percent Kynar 500 or Hylar 5000 standard.
 9. Certification includes IAS and Miami-Dade County Florida product approval.

2.9 ROOF ACCESSORIES

- A. Eave Gutters: Roll-formed 26 gage (0.45 mm) steel sheet, with gutter straps, fasteners and joint sealant; manufacturer's standard color.
1. Downspouts: 29 gage 4 inches by 5 inches (100 by 125 mm) in 10 foot (3050 mm) lengths, with downspout elbows and downspout straps; same color as wall panels unless specified otherwise.

2.10 MATERIALS

- A. Structural Steel Plate, Bar, Sheet, and Strip for Use in Bolted and Welded Constructions: ASTM A 572/A 572M, A 529/A 529M, A 1011 or A 36/A 36M Modified 50, with minimum yield strength of 55,000 psi (380 MPa).
- B. Galvanized Structural Steel Material for Use in Roll Formed or Press Broken Secondary Structural Members: ASTM A 563, with minimum yield strength of 60,000 psi (410 MPa).
- C. Galvanized Steel Sheet for Roll Formed or Press Broken Roof and Wall Coverings, Trim and Flashing: ASTM A 653/A 653M, with minimum yield strength of 50,000 psi (345 MPa).
- D. Galvalume Steel Sheet Used in Roll Formed or Press Broken Roof Covering: Aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M, with minimum yield strength of 50,000 psi (345 MPa); nominal coating weight of 0.5 oz per sq ft (152 kg/sq m) both sides, equivalent to an approximate coating thickness of 0.0018 inch (0.05 mm) both sides.
- E. Hot Rolled Steel Shapes: W, M and S shapes, angles, rods, channels and other shapes; ASTM A 500, ASTM A 572/A 572M or ASTM A 36/A 36M as applicable; with minimum yield strengths required for the design.
- F. Structural Bolts and Nuts Used with Primary Framing: High strength,

ASTM A 325 bolts and ASTM A563 Grade C nuts.

- G. Bolts and Nuts Used with Secondary Framing Members: High Strength ASTM A 325 Bolts and ASTM A 563 Grade C nuts.
- H. Panel Fasteners:
 - 1. For Galvalume and KXL finished roof panels: Stainless steel-capped carbon steel fasteners with integral sealing washer.
 - 2. For wall panels: Coated carbon steel.
 - 3. Color of exposed fastener heads to match the wall panel finish.
 - 4. Concealed Fasteners: Self-drilling type, of size as required.
 - 5. Provide fasteners in quantities and location as required by the manufacturer.
- I. Flashing and Trim: Match material, finish, and color of adjacent components. Provide trim at rakes, including peak and corner assemblies, high and low eaves, corners, bases, framed openings and as required or specified to provide weathertightness and a finished appearance.
- K. Sealants, Mastics and Closures: Manufacturer's standard type.
 - 1. Provide at roof panel end laps, side laps, rake, eave, transitions and accessories as required to provide a weather resistant roof system; use tape mastic or gun grade sealant at side laps and end laps.
 - 2. Provide at wall panel rakes, eaves, transitions and accessories.
 - 3. Closures: Formed to match panel profiles; closed cell elastic material, manufacturer's standard color.
 - 4. Tape mastic: Pre-formed butyl rubber-based, non-hardening, non-corrosive to metal; white or light gray.
 - 5. Gun grade sealant: Non-skinning synthetic Elastomeric based material; gray or bronze.

2.11 FABRICATION

- A. Fabrication: Fabricate according to manufacturer's standard practice.
 - 1. Fabricate structural members made of welded plate sections by joining the flanges and webs by continuous automatic submerged arc welding process.
 - 2. Welding operators and processes: Qualified in accordance with AWS D1.1.
 - 3. Field connections: Prepare members for bolted field connection by making punched, drilled, or reamed holes in the shop.
- B. Component Identification: Mark all fabricated parts, either individually or by lot or group, using an identification marking corresponding to the marking shown on the shop drawings, using a method that remains visible after shop painting.

2.12 FINISH

- A. Schedule of Finishes:
 - 1. Roof finish and color: to be selected from manufacturers standard colors
 - 2. Wall finish and color: to be selected from manufacturers standard colors

- B. Shop Coat: Manufacturer's standard rust inhibitive primer paint; manufacturer's standard color.
 - 1. Finish all **primary (rigid frames)** structural steel members using one coat of manufacturer's standard shop coat, after cleaning of oil, dirt, loose scale and foreign matter.
- C. KXL Pre-Painted Finish: 1 mil (0.025 mm) 70 percent Kynar 500, Hylar 5000 coating on exterior surface.
 - 1. Color: Interior Finish: Off white 0.5 mil (0.01 mm) washcoat.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper and or timely completion.
 - 1. Verify foundations are properly installed, to correct dimensions and within acceptable tolerances.
 - 2. Verify location of covered or built-in work.
 - 3. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Framing Erection: Erect framing in compliance with AIS Specification and the latest edition of the MBMA metal building systems manual.
- B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. Locate braced bays as required by manufacturer.

3.3 ERECTION OF FRAME

- A. Install in accordance with manufacturer's instructions.
- B. Do not erect frames without complete installation of tie beams and anchorages.
- C. Set column base plates with non-shrink grout to full plate bearing.
- D. Do not field cut or alter structural members without written approval.
- E. After erection, prime bolts, welds, abrasions, and surfaces not primed with primer used in shop painting.

3.4 INSTALLATION OF WALL AND ROOF SYSTEM

- A. Install in compliance with manufacturer's instructions.
- B. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.
- C. Fasten cladding system to structural supports, aligned level and plumb.
- D. Locate end laps over supports. End lap panels according to manufacturer's recommendations. Place sidelaps over adjacent panel

and mechanically seam or stitch fastener per erection guidelines.

- E. Provide expansion joints where indicated.
- F. Use concealed fasteners.
- G. Install sealant and gaskets to prevent weather penetration.
- H. Install system free of rattles, noise due to thermal movement, and wind whistles.
- I. Install door frames, service doors, overhead doors, window and glass, and gutter system in compliance with manufacturer's instructions.
- J. Seal wall and roof accessories watertight and weathertight with sealant in compliance with building manufacturer's standard procedures.
- K. Rigidly support and secure gutters and downspouts. Joint lengths with formed seams sealed watertight. Flash and seal gutters to downspouts.
- L. Tolerances:
 - 1. Framing Members: 1/4 inch (6 mm) from level; 1/8 inch (3 mm) from plumb.
 - 2. Racking: 1/8 inch (3 mm) from true position. Provide shoring to maintain position prior to cladding installation.

3.5 FIELD QUALITY CONTROL

- A. Testing by Contractor:
 - 1. Roof installation inspection by roof manufacturer's representative; as required as part of warranty provision.
- B. Testing by Owner:
 - 1. High Strength Bolted Connections: Specification for Structural Joints Using ASTM A 325 or A 490 Bolts, with minimum testing of bolted connections per the arbitration inspection procedure.
 - 2. Welded Connections: AWS. Visual inspection of 100 percent of welds. Ultrasonic inspection of 50 percent of full and partial penetration welds. A rejection rate greater than 5 percent will increase the inspection to 100 percent.
 - 3. General Testing: For materials and installed tolerances.

END OF SECTION