

**INVITATION FOR BID
IFB #13-2585-OV
MANATEE COUNTY UTILITIES ADMINISTRATION BUILDING,
ELECTRICAL RENOVATIONS**

Manatee County, a political subdivision of the State of Florida, (hereinafter the "County") will receive sealed Bids from individuals, corporations, partnerships, and other legal entities organized under the laws of the State of Florida or authorized to conduct business in the State of Florida.

NON-MANDATORY INFORMATION CONFERENCE

In order to ensure that all prospective Bidders have sufficient information and understanding of the County's needs, an Information Conference will be held on: **December 5, 2013 at 10:00 AM** at the **Utilities Maintenance Conference Room, located at 4520 66th Street West, Bradenton, FL 34210**. Attendance is not mandatory, but is highly encouraged.

NOTE: **Article B.05 Inspection of Site (page 00020-2)** – All potential Contractors, it is mandatory that a site visit be performed at the location to familiarize yourselves with the full scope of the construction site.

A mandatory guided site inspection shall take place immediately following the Information Conference.

DEADLINE FOR CLARIFICATION REQUESTS: **December 10, 2013 at 4:00 PM**
(Reference Bid Article A.06)

TIME AND DATE DUE: **December 20, 2013 at 3:00 PM**

Important Note: Lobbying is prohibited (reference Bid Article A.08).

FOR INFORMATION CONTACT:
Olga Valcich, CPPB, Contract Specialist
(941) 749-3055, Fax (941) 749-3034
olga.valcich@mymanatee.org
Manatee County Financial Management Department
Purchasing Division

AUTHORIZED FOR RELEASE: 

SECTION 00010
INFORMATION TO BIDDERS

A.01 OPENING LOCATION

Sealed Bids will be **publicly opened at Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205** in the presence of County officials at the time and date stated, or soon thereafter. All Bidders or their representatives are invited to be present.

Any Bids received after the stated time and date will not be considered. It shall be the sole responsibility of the Bidder to have their Bid delivered to the Manatee County Purchasing Division for receipt on or before the stated time and date. If a Bid is sent by U.S. Mail, the Bidder shall be responsible for its timely delivery to the Purchasing Division. Bids delayed by mail shall not be considered, shall not be opened at the public opening, and arrangements shall be made for their return at the respondent's request and expense.

A.02 SEALED & MARKED

One original and two copies of your **signed Bid** shall be submitted in one **sealed** package, clearly marked on the outside "**Sealed Bid #13-2585-OV, Manatee County Utilities Administration Building, Electrical Renovations**" with your company name.

Address package to: Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, Florida 34205

A.03 BID DOCUMENTS

Bids on <http://www.mymanatee.org>, Bid documents and the notices of Intent to Awards related to those Bids are available for download in a portable document format (.PDF) file on the Manatee County web page on the Purchasing tab under "Bids." You may view and print these files using Adobe Acrobat software. You may download a free copy of this software (Adobe) from the Owner's web page if you do not have it.

Manatee County collaborates with the Manatee Chamber of Commerce on distributing solicitations using the RFP Tool web page on the Chambers website: <http://www.Manateechamber.com> to post Bid documents in a portable document format (.PDF) file. This step is in addition to the posting on Manatee County Government web pages.

Manatee County may also use an internet service provider to distribute Bids. A link to that service, <http://www.DemandStar.com>, is provided on this web site under the Tab "DemandStar". Participation in the DemandStar system is not a requirement for doing business with Manatee County.

A.03 BID DOCUMENTS (Continued)

Note: The County posts the Notice of Intent to Award seven (7) calendar days prior to the effective date of the Award.

IT IS THE RESPONSIBILITY OF EACH CONTRACTOR, PRIOR TO SUBMITTING THEIR BID, TO CONTACT THE MANATEE COUNTY PURCHASING DIVISION (see contact information on page one of this document) TO DETERMINE IF ADDENDA WERE ISSUED AND TO MAKE SUCH ADDENDA A PART OF THEIR BID .

A.04 SECURING OF DOCUMENTS

Complete individual copies of the Bid documents for the project and/or products are available for public inspection at the Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205, or by calling (941) 749-3014. Appointments are encouraged. Documents are available between the hours of 9:00 AM and 4:00 PM Monday through Friday, with the exception of holidays. A complete set of the Bid documents must be used in preparing Bids. The County assumes no responsibility for errors and misinterpretations resulting from the use of incomplete sets of Bid documents.

A.05 MODIFICATION OF BID SPECIFICATIONS

If a Bidder wishes to recommend changes to the Bid specifications, the Bidder shall furnish in writing, data and information necessary to aid the Owner in evaluating the request to modify the specifications. The Owner is not obligated to make any changes to the Bid specifications. Unless an addendum is issued, the Bid specifications shall remain unaltered. **Bidders must fully comply with the Bid specifications, terms, and conditions.**

A.06 DEADLINE FOR CLARIFICATION REQUESTS

December 10th at 4:00 PM shall be the deadline to submit all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids to the Manatee County Purchasing Division.

This deadline has been established to maintain fair treatment for all potential Bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this Work may achieve.

A.07 CLARIFICATION & ADDENDA

Each Bidder shall examine all Invitation for Bid documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids shall be made through the Manatee County Purchasing Division. The County shall not be responsible for oral interpretations given by any County employee, representative, or others. The

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A.07 CLARIFICATION & ADDENDA (Continued)

issuance of a written addendum is the only official method whereby interpretation, clarification or additional information can be given.

If any addenda are issued to this Invitation for Bid, the County will broadcast the addenda on the DemandStar distribution system to "Planholders" on this web service, and post the documents on the Purchasing Division's web page at <http://www.mymanatee.org> which can be accessed by clicking on the "Purchasing" button and then clicking on the "Bids" button. It shall be the responsibility of each Bidder, prior to submitting their Bid, to contact Manatee County Purchasing (see contact on page 1) to determine if addenda were issued and to make such addenda a part of their Bid.

A.08 LOBBYING

After the issuance of any Invitation for Bid, prospective Bidders, or any agent, representative or person acting at the request of such Bidder shall not contact, communicate with or discuss any matter relating in any way to the Invitation for Bid with any officer, agent or employee of Manatee County other than the Purchasing Official or as directed in the Invitation for Bid. This prohibition includes the act of carbon copying officers, agents or employees of Manatee County on email correspondence. This requirement begins with the issuance of an Invitation for Bid, and ends upon execution of the final Contract or when the invitation has been canceled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Purchasing Code of Law Chapter 2-26.

A.09 UNBALANCED BIDDING PROHIBITED

Manatee County recognizes that large and/or complex projects will often result in a variety of methods, sources, and prices. However, where in the opinion of the County such variation does not appear to be justified, given Bid specifications and industry and market conditions, the Bid will be presumed to be unbalanced. Examples of unbalanced Bids will include:

1. Bids showing omissions, alterations of form, additions not specified or required conditional or unauthorized alternate Bids.
2. Bids quoting prices that substantially deviate, either higher or lower, from those included in the Bids of competitive Bidders for the same line item unit costs.
3. Bids where the unit costs offered are in excess of or below reasonable cost analysis values.

A.09 UNBALANCED BIDDING PROHIBITED (Continued)

In the event the County determines that a Bid is presumed unbalanced, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the Bid. The County reserves the right to reject as non-responsive any presumptive unbalanced Bids where the Bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs.

A.10 FRONT END LOADING OF BID PRICING PROHIBITED

Prices offered for performance and/or acquisition activities to occur early in the project schedule, such as mobilization; clearing and grubbing; or maintenance of traffic; that are substantially higher than pricing of competitive Bidders within the same portion of the project schedule, will be presumed to be front end loaded. Front end loaded Bids could reasonably appear to be an attempt to obtain unjustified early payments creating a risk of insufficient incentive for the Contractor to complete the Work or otherwise creating an appearance of an under-capitalized Bidder.

In the event the County determines that a Bid is presumed to be front end loaded, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the pricing or acquisition timing for these Bid items. The County reserves the right to reject as non-responsive any presumptive front end loaded Bids where the Bidder is unable to demonstrate the validity and/or necessity of the front end loaded costs.

A.11 WITHDRAWAL OF OFFERS

Contractors may withdraw offers as follows: a) Mistakes discovered before the opening of a solicitation may be withdrawn by written notice from the Bidder submitting the offer. This request must be received in the office designated for receipt of offers in the solicitation document prior to the time set for delivery and opening of the offers. A copy of the request shall be retained and the unopened offer returned to that Contractor. b) After the responses to a solicitation are opened or a selection has been determined, but before a Contract is signed, a Contractor alleging a material mistake of fact may be permitted to withdraw their offer if: (1) the mistake is clearly evident on the solicitation document; or (2) the Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. Request to withdraw an offer must be in writing and approved by the Purchasing Official.

A.12 IRREVOCABLE OFFER

Any Bid may be withdrawn up until the date and time set for opening of the Bid. Any Bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of ninety (90) days to sell to Manatee County the goods or services set forth in the attached specifications until one or more of the Bids have been duly accepted by the County.

A.13 BID EXPENSES

All expenses for making Bids to the County are to be borne by the Bidder.

A.14 RESERVED RIGHTS

The County reserves the right to accept or reject any and/or all Bids, to waive irregularities and technicalities, and to request resubmission. Also, the County reserves the right to accept all or any part of the Bid and to increase or decrease quantities to meet additional or reduced requirements of the County. Any sole response received by the first submission date may or may not be rejected by the County depending on available competition and current needs of the County. For all items combined, the Bid of the lowest responsive, responsible Bidder will be accepted, unless all Bids are rejected. The lowest responsive Bidder shall mean **that Bidder who makes the lowest Bid to sell goods and/or services of a quality which** meets or exceeds the quality of goods and/or services set forth in the attached specifications or otherwise required by the County, and who is fit and capable to perform the Bid as made.

To be responsive, a Bidder shall submit a Bid which conforms in all material respects to the requirements set forth in the Invitation for Bid. To be a responsible Bidder, the Bidder shall have the capability in all respects to perform fully the Contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance. Also, the County reserves the right to make such investigation as it deems necessary to determine the ability of any Bidder to furnish the service requested. Information the County deems necessary to make this determination shall be provided by the Bidder. Such information may include, but shall not be limited to current financial statements, verification of availability of equipment and personnel, and past performance records.

A.15 APPLICABLE LAWS

Bidder must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting Agreement. Any involvement with any Manatee County procurement shall be in accordance with Manatee County Purchasing Ordinance as amended. Any actual or prospective Bidder who is aggrieved in connection with the solicitation or award of a Contract may protest to the Board of County Commissioners of Manatee County as required in Manatee County Code of Laws.

A.16 COLLUSION

By offering a submission to this Invitation for Bid, the Bidder certifies that he has not divulged, discussed or compared their Bid with other Bidder, and has not colluded with any other Bidder or parties to this Bid whatsoever. Also, Bidder certifies, and in the case of a joint Bid each party thereto certifies as to their own organization, that in connection with this Bid:

A.16 COLLUSION (Continued)

- a. any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other Bidder or with any competitor;
- b. any prices and/or cost data quoted for this Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder, prior to the scheduled opening, directly or indirectly to any other Bidder or to any competitor;
- c. no attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a Bid for the purpose of restricting competition;
- d. the only person or persons interested in this Bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this Bid or in the Contract to be entered into; and
- e. no person or agency has been employed or retained to solicit or secure this Contract upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee excepting bona fide employees or established commercial agencies maintained by Bidder for purpose of doing business.

A.17 CODE OF ETHICS

With respect to this Bid, if any Bidder violates, directly or indirectly, the ethics provisions of the Manatee County Purchasing Ordinance and/or Florida criminal or civil laws related to public procurement, including but not limited to Florida Statutes Chapter 112, Part II, Code of Ethics for Public Officers and Employees, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

By submitting a Bid, the Bidder represents to the County that all statements made and materials submitted are truthful, with no relevant facts withheld. If a Bidder is determined to have been untruthful in its Bid or any related presentation, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

A.18 BID FORMS

Bids must be submitted on attached County forms, although additional pages may be attached. **Bidders must fully complete all pages of the Bid Forms. Bid Forms must be executed by an authorized signatory who has the legal authority to make the offer and bind the company. Bidders must fully comply with all Bid specifications, terms and conditions.** Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

A.19 LEGAL NAME

Bids shall clearly indicate the legal name, address and telephone number of the Bidder. Bids shall be signed above the typed or printed name and title of the signer. The signer must have the authority to bind the Bidder to the submitted Bid.

A.20 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES

A person or affiliate who has been placed on the State's convicted vendor list following a conviction for a public entity crime, as that term is defined in Florida Statute (F.S.) § 287.133, may not submit a Bid, Proposal, or reply on a Contract to provide any goods or services to a public entity; may not submit a Bid, Proposal, or reply on a Contract with a public entity for the construction or repair of a public building or public work; may not submit Bids, Proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a Contractor, Supplier, Subcontractor, or Consultant under a Contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in F.S. § 287.017 for CATEGORY TWO for a period of thirty-six (36) months following the date of being placed on the convicted list.

In addition, the Manatee County Code of Laws prohibits the award of any Contract to any person or entity who/which has, within the past five (5) years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the Purchasing Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter. To insure compliance with the foregoing, the Code requires all persons or entities desiring to Contract with the County to execute and file with the Purchasing Official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with the County. In the case of a business entity other than a partnership or a corporation, such affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, such affidavit shall be executed by the general partner(s). A Public Contracting and Environmental Crimes Certification form is attached for this purpose.

A.21 DISCOUNTS

Any and all discounts must be incorporated in the prices contained in the Bid and not shown separately. The prices as shown on the Bid Form shall be the price used in determining Award.

A.22 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Exempt Cert. No. 59-78-0089K; FL Sales Tax Exempt Cert. No. 85-8012622206C-6); therefore, the Contractor is prohibited from delineating a separate line item in his Bid for any sales or service taxes. Nothing herein shall affect the Contractor's normal tax liability.

A.23 DESCRIPTIVE INFORMATION

Unless otherwise specifically provided in the specifications, all equipment, materials and articles incorporated in the Work covered by this Contract shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the specifications, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition.

A.24 AMERICANS WITH DISABILITIES ACT

The Board of County Commissioners of Manatee County, Florida, does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of the County's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodation for an **Information Conference** or **Bid Opening** should contact the person named on the first page of this Bid document at least twenty-four (24) hours in advance of either activity.

A.25 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

In accordance with the provisions of Title VI of the Civil Rights Act of 1964 and Title 15, Part 8 of the Code of Federal Regulations, Manatee County hereby notifies all prospective offerors that they will affirmatively ensure minority business enterprises will be afforded full opportunity to participate in response to this advertisement and will not be discriminated against on the grounds of race, color or national origin in consideration for an Award of Contract.

A.26 MBE/WBE

The State of Florida, **Office of Supplier Diversity** provides the certification process and the database for identifying certified MBE/WBE firms. This service may be directly accessed at: <http://www.osd.dms.state.fl.us/iframe.htm>

If you have any questions regarding this State service, please contact their office at (850) 487-0915.

A.27 MATHEMATICAL ERRORS

In the event of multiplication/extension error(s), the unit price shall prevail. In the event of addition error(s) the extension totals will prevail. All Bids shall be reviewed mathematically and corrected, if necessary, using these standards, prior to additional evaluation.

A.28 DISCLOSURE

Upon receipt, all inquiries and responses to inquiries related to this Invitation for Bid becomes "Public Records", and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes.

Bids become subject to disclosure thirty (30) days after the opening or if a notice of intended Award decision is made earlier than this time as provided by F.S. 119.071(1)(b). No announcement or review of the offer shall be conducted at the public opening.

Based on the above, the County will receive Bids at the date and time stated, and will make public at the opening the names of the business entities of all that submitted an offer and any amount presented as a total offer without any verification of the mathematics or the completeness of the offer.

If the County rejects all Bids and concurrently notices its intent to reissue the solicitation, the rejected Bids are exempt from public disclosure until such time as the County provides notice of an intended decision concerning the reissued solicitation or until the County withdraws the reissued solicitation. A Bid is not exempt for longer than 12 months after the initial notice rejecting all Bids.

Pursuant to Florida Statutes 119.0701, to the extent successful Bidder is performing services on behalf of the County, successful Bidder must:

- a. Keep and maintain public records that ordinarily and necessarily would be required by the County in order to perform the service;
- b. Provide the public with access to public records on the same terms and conditions that the County would provide and at a cost that does not exceed the cost provided in Florida Statutes, Chapter 119, or as otherwise provided by law;
- c. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law, and;

A.28 DISCLOSURE (Continued)

- d. Meet all requirements for retaining public records and transfer, at no cost, to the County all public records in possession of successful Bidder upon termination of the awarded Contract and/or PO and destroy any duplicate public records that are exempt or confidential from public records disclosure requirements. All records stored electronically must be provided to the County in a format this is compatible with the County's information technology systems.

NOTE: ANY OR ALL STATEMENTS CONTAINED IN THE FOLLOWING SECTIONS: BASIS OF AWARD, GENERAL TERMS AND CONDITIONS OF THE CONTRACT, OR SPECIFICATIONS, WHICH VARY FROM THE INFORMATION TO BIDDERS, SHALL HAVE PRECEDENCE.

END OF SECTION A

SECTION 00020
BASIS OF AWARD

B.01 BASIS OF AWARD

Award shall be to the lowest, responsive, responsible Bidder meeting specifications and having the lowest Total Bid Price for **Bid "A"**, for the requirements listed on the Bid Form for the Work as set forth in this Invitation for Bid. Bid prices shall include costs for furnishing all labor, equipment and/or materials for the completion of the Work in accordance with and in the manner set forth and described in the Contract documents to the County's satisfaction within the prescribed time.

Only one schedule for Completion of Work shall be considered. The Bid for completion by the specified stated time shall be offered as a separate "Total Bid Price".

NOTE: Inspection of the site is a pre-requisite to be considered for award of this Bid.

In evaluating Bids, the County shall consider the qualifications of the Bidders; and if required, may also consider the qualifications of the Subcontractors, Suppliers, and other persons and organizations proposed. County may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work.

Whenever two or more Bids are equal with respect to price, the Bid received from a local business shall be given preference in Award. Whenever two or more Bids which are equal with respect to price are received, and neither of these Bids are from a local business, the Award shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public.

B.02 SUBCONTRACTORS

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility of the County for the proper completion of all Work to be executed under this Contract.

The employment of unauthorized aliens by any Contractor is considered a violation of Section 274 (e) of the Immigration and Employment Act. If the Contractor knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this Agreement.

B.03 QUALIFICATIONS OF BIDDERS

No person who is not certified or registered as a Certified Electrical Contractor pursuant to Florida Statutes, Chapter 489 on the day the Bid is submitted, and who has continuously held that certification or registration for a period of at least five (5) consecutive years immediately prior to the day the Bid is submitted, may be qualified to bid on this project. In the event that a Bidder is a business organization, including a partnership, corporation, business trust or other legal entity as set forth in F.S. 489.119(2), then the Bidder shall only be qualified to bid on this project if: 1) the Bidder (the business organization) is on the day the Bid is submitted, and for at least five (5) consecutive years immediately prior to the day the Bid is submitted has been, in continuous existence, properly licensed and registered as required by Florida law; and 2) the Bidder, on the day the Bid is submitted, has a certified or registered Qualifying Agent, as required by F.S. 489.119, and that Qualifying Agent has been the same Qualifying Agent of the Bidder for a period of at least five (5) consecutive years immediately prior to the day the Bid is submitted.

A complete list of all Subcontractors proposed for any portion of the Work may be requested of any Bidder deemed necessary by the County. Subcontracts shall be awarded only to those Subcontractors considered satisfactory by the County.

B.04 PREPARATION OF CONTRACT

A written notice confirming Award or recommendation thereof will be forwarded to the successful Bidder accompanied by the required number of unsigned counterparts of the Agreement. Within ten (10) days thereafter, successful Bidder shall sign and deliver the required number of counterparts of the Agreement with any other required documents to County. (Note: Contract must be approved in accordance with the Manatee County Code of Laws, Chapter 2-26, and the Administrative Standards and Procedures Manual approved by the County Administrator).

B.05 INSPECTION OF SITE

Inspection of the site is a requirement to be considered for award of this Bid. Prior to submitting a Bid, each Bidder shall examine the site and all conditions thereon fully familiarizing themselves with the full scope of the project. Failure to become familiar with site conditions will in no way relieve the successful Bidder from the necessity of furnishing any materials or performing any Work that is required to complete the project in accordance with the plans and specifications. Site visit (s) shall be acknowledged in Section 00300, Bid Form page # 00300-1.

A site inspection shall take place immediately following the Information Conference. Site accessibility after this time must be coordinated with Robert Shankle, Underground Maintenance Division Manager. Contact information: 941792-8811, Extension 5275.

END OF SECTION B

SECTION 00030
GENERAL TERMS AND CONDITIONS OF THE CONTRACT

C.01 CONTRACT FORMS

The Agreement resulting from the acceptance of a Bid shall be in the form of the Agreement stated in this Bid.

C.02 ASSIGNMENT OF CONTRACT

Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or of his right, title, or interest therein, or his power to execute such Contract, or to assign any monies due or to become due there under to any other person, firm or corporation unless first obtaining the written consent of the County. The giving of such consent to a particular Subcontractor assignment shall not dispense with the necessity of such consent to any further or other assignment.

C.03 COMPLETION OF WORK

The Work will be completed and ready for final inspection within the specified calendar days from the date the Contract time commences to run. One Bid shall be considered, **Bid "A"** based on **120 calendar days**.

C.04 LIQUIDATED DAMAGES

If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will hinder its completion within the time specified, the County may seek damages. The actual damages for delay will be impossible to determine and in lieu thereof, the Contractor shall pay to the County the sum of **\$884.00** as fixed, agreed, and liquidated damages for each calendar day of the delay until the Work is finally accepted by the County and the Contractor and his Surety shall be liable for the amount thereof.

C.05 PAYMENT

Contractor may apply for partial payment on monthly estimates, based on the amount of work done or completed in compliance with the provisions of the Contract. Contractor shall submit an application, on a standard pay application form provided or approved by the County, of an approximate estimate of the proportionate value of the Work done, items and locations of the Work performed up to and including the last day of the period then ending. The County will then review said estimate and make any necessary revisions so that the estimate can receive approval for payment. If the Contractor and the County do not agree on the approximate estimate of the proportionate value of the Work done for any pay period, the determination of the County will be binding. The amount of said estimate after deducting any required retainage and all previous payments shall be due and payable to the Contractor, twenty (20) business days if County is its own Engineer of Record (EOR) or twenty-five (25) business days if outside agent

C.05 PAYMENT (Continued)

approval is required after the pay estimate has been approved by the agent for the County.

In accordance with the Prompt Payment Act, F.S. § 218.735(7), a Punch List shall be formulated.

Time allowed for development of punch list:

1. Awarded Contracts with an estimated cost of less than \$10 million will be within thirty (30) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.
2. Awarded Contracts with a cost of \$10 million dollars or more will be within thirty (30) calendar days OR if extended by Contract, up to sixty (60) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.

The final Contract completion date must be at least thirty (30) days after delivery of the list of items. If the list is not provided to the awarded Contractor by the agreed upon date, the Contract completion time must be extended by the number of days the County exceeds the delivery date.

It is the Contractor's responsibility for the care of the materials. Any damage to or loss of said materials is the full responsibility of the Contractor. Any periodical pay estimate signed by the Contractor shall be final as to the Contractor for any or all Work covered by the periodical pay estimate.

Any requests for payment of materials stored on site must be accompanied with a paid receipt. The Contractor warrants and guarantees that title to all work, materials and equipment covered by any application for payment, whether incorporated in the project or not, will pass to the County at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter referred to as "Liens").

The Contractor agrees to furnish an affidavit stating that all laborers, material men, and Subcontractors have been paid on the project for Work covered by the application for payment and that a partial or complete release of lien, as may be necessary, be properly executed by the material men, laborers, Subcontractors on the project for Work covered by the application for payment, sufficient to secure the County from any claim whatsoever arising out of the aforesaid Work.

When the Contractor has completed the Work in compliance with the terms of the Contract documents, he shall notify the County in writing that the project is ready for final inspection. The County will then advise the Contractor as to the arrangements for final inspection and what Work, if any, is required to prepare the project or a portion thereof for final inspection. When the County determines the project or portion thereof is ready for final inspection, the County shall perform same. Upon completion of final inspection, the County will notify Contractor of all particulars in

C.05 PAYMENT (Continued)

which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies. When all such errors have been corrected, a final re-inspection will be made. The process will be repeated until, in the opinion of the County, the project has been completed in compliance with the terms of the Contract documents.

When final acceptance has been made by the County, the County will make final payment of the Contract amount, plus all approved additions, less approved deductions and previous payments made. The Contract will be considered complete when all Work has been finished, the final inspection made, approved as-builts received, and the project finally accepted in writing by the County. The Contractor's responsibility shall then terminate except as otherwise stated.

C.06 RETAINAGE

A retainage of 10% of the total Work in place shall be withheld until 50% complete. After 50% completion, the retainage shall be reduced to 5% of the total Work in place until final completion and acceptance of the Work by the County. Upon final acceptance, the remaining retainage shall be included in the final payment.

C.07 WARRANTY AND GUARANTEE PROVISIONS

All work, materials, and equipment furnished as defined herein shall be guaranteed and warranted by the Contractor for a minimum period of three (3) years, unless otherwise specified, from final acceptance by the County to be free from defects due either to faulty materials or equipment or faulty workmanship.

All materials, equipment, and workmanship furnished and installed by the Contractor is warranted and guaranteed by the Contractor to meet the required standards and to accomplish the purposes and functions of the project as defined, detailed, and specified herein.

The County shall, following discovery thereof, promptly give written notice to the Contractor of faulty materials, equipment, or workmanship within the period of the guarantee and the Contractor shall promptly replace any part of the faulty equipment, material, or workmanship at his own cost. These warranty and guarantee provisions create no limitations on the County as to any claims or actions for breach of guaranty or breach of warranty that the County might have against parties other than the Contractor, and do not constitute exclusive remedies of the County against the Contractor.

C.08 ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees for equipment or processes in conjunction with the equipment and/or services being furnished. Contractor shall defend all suits or claims for infringement of any patent, trademark or copyright, and shall save the County harmless from loss on account thereof, including costs and attorney's fees.

C.09 AUTHORIZED PRODUCT REPRESENTATION

The Contractor, by virtue of submitting the name and specifications of a manufacturer's product, will be required to furnish the named manufacturer's product. Failure to perform accordingly may, in the County's sole discretion, be deemed a breach of Contract, and shall constitute grounds for the County's immediate termination of the Contract.

C.10 REGULATIONS

It shall be the responsibility of the Bidder to assure compliance with any OSHA, EPA and/or other federal or State of Florida rules, regulations or other requirements, as each may apply.

C.11 CANCELLATION

Any failure of the Contractor to furnish or perform the Work (including, but not limited to, commencement of the Work, failure to supply sufficient skilled workers or suitable materials or equipment) in accordance with the Contract, the County may order the stop of the Work, or any portion thereof, until the cause for such order has been eliminated. If the Contractor persistently fails to perform the Work in accordance with the Contract, the County reserves the right to terminate the Contract and select the next qualified Bidder or re-advertise this procurement in part or in whole. The County reserves the right to cancel all or any undelivered or unexecuted portion of this Contract with or without cause.

C.12 INDEMNIFICATION

The Contractor covenants and agrees to indemnify and save harmless the County, its agents and employees, from and against all claims, suits, actions, damages, causes of action, or judgments arising out of the terms of the resulting Agreement for any personal injury, loss of life, or damage to the property sustained as a result of the performance or non-performance of services or delivery of goods; from and against any orders, judgments, or decrees, which may be entered against the County, its agents or employees; and from and against all costs, attorney's fees, expenses and other liabilities incurred in the defense of any such claim, suit or action, and the investigation thereof. Nothing in the Award, resulting Agreement, Contract or Purchase Order shall be deemed to affect the rights, privileges and immunities of the County as set forth in F.S. § 768.28.

C.13 MANUALS, SCHEMATICS, HANDBOOKS (IF APPLICABLE)

All manuals, schematics and handbooks shall be provided which are applicable to the equipment delivered. An operators manual, parts manual and technician manual must also be provided. Parts lists (manuals) must include OEM part numbers for items not manufactured by the Bidder. Contractor shall furnish two (2) copies of each.

C.14 INSURANCE

The Contractor will not commence Work under a Contract until all insurance under this section and such insurance coverage as might be required by the County has been obtained. The Contractor shall obtain, and submit to purchasing within ten (10) calendar days of request, at his expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

a. Workers' Compensation/Employers' Liability

Part One - There shall be no maximum limit (other than as limited by the applicable statute) for liability imposed by Florida Workers' Compensation Act or any other coverage required by the Contract documents which are customarily insured under Part One of the standard Workers' Compensation Policy.

Part Two - The minimum amount of coverage required by the Contract documents which are customarily insured under Part Two of the standard Workers' Compensation Policy shall be:

(Each Accident)	<u>\$100,000</u>
(Disease-Policy Limit)	<u>\$500,000</u>
(Disease-Each Employee)	<u>\$100,000</u>

b. Commercial General Liability

The limits are to be applicable only to Work performed under this Contract and shall be those that would be provided with the attachment of the Amendment of Limits of Insurance (Designated Project or Premises) endorsement (ISO Form CG 25 03) a Commercial General Liability Policy with the following minimum limits.

General Aggregate:	
Products/Completed Operations Aggregate	<u>\$1,000,000</u>
Personal and Advertising Injury	<u>\$1,000,000</u>
Each Occurrence	<u>\$1,000,000</u>
Fire Damage (Any One Fire)	<u>\$Nil</u>
Medical Expense (Any One Person)	<u>\$Nil</u>

ADDITIONAL INSURED: Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on the Commercial General Liability Policy.

c. Business Auto Policy

Each Occurrence Bodily Injury and Property Damage Liability Combined	<u>\$300,000</u>
Annual Aggregate (if applicable)	<u>\$1,000,000</u>

ADDITIONAL INSURED: Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on the Business Auto Policy.

C.14 INSURANCE (Continued)

d. Property Insurance

If this Contract includes construction of or additions to above ground buildings or structures, Contractor shall provide "**Builder's Risk**" insurance with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

e. Installation Floater

If this Contract does not include construction of or additions to above ground building or structures, **but does involve** the installation of machinery or equipment, Contractor shall provide an "**Installation Floater**" with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

f. Certificates of Insurance and Copies of Policies

Certificates of Insurance in triplicate evidencing the insurance coverage specified herein shall be filed with the Purchasing Official before operations are begun. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the Bid number and title of the project. All insurance policies required herein shall be issued by companies that are authorized to do business under the laws of the State of Florida and hold an A.M. Best rating of A- or better. Insurance, as specified herein, shall remain in force and effect for the duration of the project including any warranty periods.

g. **Complete Policies:** The entire and complete insurance policies required herein shall be provided to the County on request.

If the initial insurance expires prior to the completion of operations and/or services by the Contractor, renewal certificates of insurance and required copies of policies shall be furnished by the Contractor and delivered to the Purchasing Official thirty (30) days prior to the date of their expiration. Nothing herein shall in any manner create any liability of the County in connection with any claim against the Contractor for labor, services, or materials, or of Subcontractors; and nothing herein shall limit the liability of the Contractor or Contractor's sureties to the County or to any workers, suppliers, material men or employees in relation to this Contract.

i. Certification Requirements – In order for the certificate of insurance to be accepted it must comply with the following:

1. The certificate holder shall be:

**Manatee County Board of Commissioners,
a political subdivision of the State of Florida
P.O. Box 1000
Bradenton, FL 34206-1000
IFB #13-2585-OV, Manatee County Utilities Administration Building,
Electrical Renovations**

C.14 INSURANCE (Continued)

2. Certificate shall be mailed to:
Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205
Attn: Olga Valcich, CPPB, Contract Specialist

j. By way of its submission of a Bid hereto, Bidder:

1. Represents that Bidder maintains, and will maintain during the term of any Contract arising from this solicitation, insurance coverage from responsible companies duly authorized to do business in the State of Florida, as set forth in this solicitation; and
2. Agrees that, upon County's request, appropriate evidence of the insurance requirements set forth in this solicitation will be produced by Bidder within ten (10) calendar days from the date of request.
3. Agrees that, insurance should not be cancelled without thirty (30) days notice to County and must be endorsed to provide same. Failure of Bidder to obtain and maintain proper amounts of insurance as called for herein shall constitute a material breach of Contract by successful Bidder.

C.15 BID BOND/CERTIFIED CHECK

By offering a submission to this Invitation for Bid, the Bidder agrees should the Bidder's Bid be accepted, **to execute the form of Contract and present the same to Manatee County for approval within ten (10) calendar days after notice of Intent to Award.** The Bidder further agrees that failure to execute and deliver said form of Contract **within ten (10) calendar days** will result in damages to Manatee County and as guarantee of payment of same a Bid Bond/Certified Check shall be enclosed within the submitted sealed Bid in the amount of five (5%) percent of the total amount of the Bid. The Bidder further agrees that in case the Bidder fails to enter into a Contract, as prescribed by Manatee County, the Bid Bond/Certified Check accompanying the Bid shall be forfeited to Manatee County as agreed liquidated damages. If the County enters into a Contract with a Bidder, or if the County rejects any and/or all Bids, accompanying bond will be promptly returned.

C.16 PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall furnish surety bonds using the Public Construction Bond form prescribed in F.S. § 255.05, which is provided herein, as security for faithful performance of the Contract awarded as a result of this Bid and for the payment of all persons performing labor and/or furnishing material in connection therewith. Failure to provide the required bonds on the prescribed form may result in successful Bidder being deemed nonresponsive. Bonds must be in the form prescribed in F.S. § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in F.S. § 255.05.

C.16 PERFORMANCE AND PAYMENT BONDS (Continued)

Surety of such bonds shall be in an amount equal to the Bid Award (100% each) issued by a duly authorized and nationally recognized surety company, authorized to do business in the State of Florida, satisfactory to this County. The attorney-in-fact who signs the bonds must file with the bonds, a certificate and effective dated copy of power-of-attorney. Performance and Payment Bonds shall be issued to Manatee County, a political subdivision of the State of Florida, within ten (10) calendar days after notification of Intent to Award.

In addition, pursuant to F.S. § 255.05(1)(b), prior to commencing Work, the Contractor shall be responsible and bear all costs associated to record the Performance and Payment Bond with the Manatee County Clerk of the Circuit Court. A certified copy of said recording shall be furnished to the Purchasing Division upon filing. Pursuant to F.S. § 255.05(1)(b), the County will make no payment to the Contractor until the Contractor has complied with this paragraph.

Furnishing of the recorded Performance and Payment Bonds shall be requisite to execution of a Contract with the County. Said Performance and Payment Bonds will remain in force for the duration of the Contract with the premiums paid by the Contractor. Failure of the successful Bidder to execute such Contract and to supply the required bonds shall be just cause for cancellation of the Award. The County may then contract with another acceptable Bidder or re-advertise this Invitation for Bid. If another Bidder is accepted, and notice given within ninety (90) days after the opening of the Bids, this acceptance shall bind the Bidder as though they were originally the successful Bidder.

Failure of the County at any time to require performance by the Contractor of any provisions set out in the Contract will in no way affect the right of the County, thereafter, to enforce those provisions.

C.17 NO DAMAGES FOR DELAY

No claim for damages or any claim other than for an extension of time shall be made or asserted against the County by reason of any delays. The Contractor shall not be entitled to an increase in the Total Contract Price or payment or compensation of any kind from the County or direct, indirect, consequential impact or other costs, expenses for damages, including but not limited to costs of acceleration or inefficiency arising because of delay, disruption, interference or hindrance from any cause whatsoever; provided, however, that this provision shall not preclude recovery or damages by the Contractor for hindrance or delays due solely to fraud, bad faith, or active interference on part of the County or its agents. Otherwise, the Contractor shall only be entitled to extensions of the Contract time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extent specifically provided above.

C.18 NO INTEREST

Any monies not paid by the County when claimed to be due to the Contractor under this Contract shall not be subject to interest including prejudgment interest. Any monies not paid by the County when claimed to be due to the Contractor for damages awarded in the case of construction delays shall not be subject to prejudgment interest.

C.19 CONSTRUCTION OF CONTRACT

This Contract and the rights and responsibilities hereunder shall not be construed more strongly against either party, regardless of the extent to which such party may have participated in the preparation hereof.

C.20 BE GREEN

All Bidders are encouraged to use as many **environmentally preferable** "green" products, materials, supplies, etc. as possible in order to promote a safe and healthy environment. **Environmentally preferable are products or services that have a reduced adverse effect on the environment.** Provide detail of your organization's initiative and its ability to meet the goal of environmental sustainability.

END OF SECTION C

SECTION 00100
BID SUMMARY

D.01 THE WORK

The Work included in this Bid consists of the Renovation and Rehabilitation of the Manatee County Utilities Administration Electrical Panel Board. The location of the project is 4410 66th Street West, Bradenton, FL 34210. The successful contractor shall install new panels, distribution panels, wiring, conduits, breakers, fuses, and switchgear as shown on the plans to make a complete working electrical system that meets the current NEC code requirements. A new 480V-3 Phase power distribution system shall be provided and installed in the existing electrical room of the Utility Administration Building (Octagon shaped). Demolition of the electrical equipment shall be performed as the items are replaced.

Work hours shall be 6:30 pm to 6:30 am. Weekend work shall begin at 6:30 pm on Friday and shall end at 6:30 am on Monday.

Power shall be maintained at all time during regular working hours (6:30 am to 6:30 pm) at all of the locations. No power outages or power interruptions shall be permitted during business hours or during emergency activation events. Critical circuits or equipment required to run operations of the facility shall not be interrupted without prior notification and coordination with the County. Contractor shall notify the County's representative seven (7) days prior to any outage, and / or power interruptions.

The installation and equipment of work shall comply with all local, state and federal requirements and NFPA 70 NEC.

The successful Contractor shall have at least five (5) years of experience in dealing with similar projects to the one described and shall detail the information in the Contractor's Questionnaire which is made a part of this solicitation.

The successful Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all Work required by these specifications.

The successful Contractor shall perform the Work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the Owner.

The successful Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Bid documents or not.

D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS

The identity of Subcontractors, Suppliers, and other persons and organizations (including those who are to furnish the principal items of material and equipment) may be requested by the County for each Bid item from any of the Bidders; and the Bidder shall respond within five (5) days after the date of such request. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, persons or organization if requested by County. If County, after due investigation, has reasonable objection to any proposed Subcontractor, supplier, other person or organization, County may, before the Notice of Award is given, request the apparent successful Bidder to submit an acceptable substitute without an increase in Contract price or Contract time.

If apparent successful Bidder declines to make any such substitution, County may award the Contract to the next lowest qualified Bidder that proposes to use acceptable Subcontractors, Suppliers, and other persons who County does not make written objection to. Contractor shall not be required to employ any Subcontractor, Supplier, other person or organization who Contractor has reasonable objection to.

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility to the County for the proper completion of all Work to be executed under this Contract.

D.03 BIDS

Bids are to be submitted in **triplicate, one original and two copies**, upon the County supplied forms. All blank spaces must be filled in as noted with amounts extended and totaled and no changes shall be made in the wording of the forms or in the items mentioned therein. In the event a change is made in your submittal, the Bidder shall write its initials by the change. Any Bid may be rejected which contains any omissions, alterations, irregularities of any kind, or which shall in any manner fail to conform to Bid requirements.

A Bid made by an individual, either in his/her own or proper person or under a trade or firm name, shall be executed under the individual's signature. If made by a partnership, the Bid shall be executed by two or more of the general partners. If made by a corporation, the Bid shall be executed by its President or other legally authorized corporate officer or agent.

D.04 EXAMINATION OF BID DOCUMENTS AND SITE

It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Bid documents thoroughly; (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work; (c) consider federal, state, and local codes, laws, and regulations that may affect costs, progress, performance, or furnishing of the Work; (d) study and carefully correlate Bidder's observations with the Bid documents; and (e) notify County of all conflicts, errors, or discrepancies in the Bid document.

Each Bidder may, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine his Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Bid documents. County will provide each Bidder access to the site to conduct such explorations and tests.

D.04 EXAMINATION OF BID DOCUMENTS AND SITE (Continued)

Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use by Contractor in performing the Work are identified in the Bid documents.

All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by County unless otherwise provided in the Bid documents.

D.05 MATERIALS AND WORKMANSHIP

All materials and apparatus required for this Work, except as specified otherwise, shall be new, of first class quality, and shall be furnished, delivered, connected and finished in every detail. Construction shall be prescribed by good industry practice and in accordance with manufacturer's recommendations for the type being installed.

Use skilled workman trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this section.

D.06 REGULATIONS AND MATERIAL DISPOSAL

It shall be the responsibility of the Contractor to assure compliance with any OSHA, EPA, federal, state, and/or local rules, regulations or other requirements as each may apply.

D.07 PROJECT CLOSE-OUT

Clean construction site and remove any and all excess materials. Correct any damages to property that may have occurred as a result of installation and/or delivery. Repair and patch all surfaces cut for installation. The Contractor shall remedy any deficiencies promptly should the County determine any Work is incomplete or defective.

When the County determines the Work is acceptable in accordance with this Invitation for Bid, the Contractor shall provide the close out submittals, including but not necessarily limited to the following:

- 1 set Certificate of Warranties
- 1 set Manufacturer's Product Literature (when applicable)
- 1 set Project Record Drawings
- 1 set Subcontractor Information (when applicable)

D.08 DISCRETIONARY WORK

This Bid item entails minor increases (that may be directed by staff) to existing Bid item quantities or minor modification items not bid which were unforeseen and necessary during the construction to provide a safe, complete project in accordance with Bid documents. (This will not affect the requirement for change orders involving major modifications to the project.) Payment for all Work under this item shall be made only at the County's discretion in order to satisfactorily complete the project. In general, this item is for unanticipated conflicts and/or design changes required during construction which are necessary to complete the project without changing the initial Scope of Work and without costly delays.

D.09 PROGRESS REQUIREMENTS

All Work done under this Contract shall be done with a minimum of inconvenience to the private property owners in the area. The Contractor shall coordinate his Work with private property owners such that existing utility services are maintained and they have access to their property at all times.

END OF SECTION D

SECTION 00150

MANATEE COUNTY LOCAL PREFERENCE LAW AND VENDOR REGISTRATION

E.01 Vendor Registration

All vendors are encouraged to register with Manatee County using the on-line "Vendor Registration" web page on www.mymanatee.org.

Enclosed are a copy of the current Manatee County law that details the County's Local Preference and the County's definition of a local business.

If you assert that your firm meets the stated definition of a local business, we ask that in addition to registering on the County's web page, you fill out the attached "**Affidavit As To Local Business Form**" that is included in this section, have the completed document notarized, and mail the original to the following address: Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.

Your cooperation in registering your business with Manatee County will enhance our opportunities to identify sources for goods and services, plus identify local businesses. This information is used for soliciting quotations up to \$250,000.00 and for competitive solicitations of larger purchases.

You will note that Manatee County collaborates with the Manatee Chamber of Commerce, posting Bids on www.manateechamber.com as well as using the same vendor categories for registration.

Our staff can assist you with your registration as needed. Our office hours are 8:00 A.M. to 5:00 P.M., Monday through Friday on regular business days. Please call (941) 749-3014 if you wish to have a Purchasing staff member assist you.

Quick steps to registration: **www.mymanatee.org**

A link to "Purchasing" is listed under "Quick Links" on page one of the County web site.

On the left hand side of the Purchasing web page, click on "Vendor Registration".

This will bring up the Vendor Registration form for on-line input. Please note that the definition of a "local business" changed on March 17, 2009. The web page will be updated to include the current law which has been provided in this section of the Bid.

Thank you for reviewing this information and considering registering your business with Manatee County. Registration is not mandatory; however, by taking the time to register, you are helping the County to provide timely notifications of Quotation, Bid and Proposal opportunities to your business.

E.02 Section 2-26-6. Local preference, tie Bids, local business defined.

- a) Whenever a responsible local business Bidder and a responsible non-local business Bidder are found, upon the opening of Bids, to have both submitted the lowest responsive Bid, the Bid of the local Bidder shall be awarded the Contract. Should more than one responsible local business Bidder match the responsible non-local business Bidder's lowest responsive Bid, or should no responsible local business Bidder match the lowest responsive Bid but two or more responsible non-local business Bidders submit lowest responsive Bids for equal amounts, then the Award of the Contract shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public. Any Bidders seeking to be recognized as local businesses for purposes of this local business preference provision may be required by the terms of the Bid announcement to certify they meet the definition of local business set forth in this section, and to register as a local business with the County in the manner prescribed by the County to facilitate the County's ability to track the Award of Contracts to local businesses and to allow the County to provide future notifications to its local businesses concerning other Bidding opportunities.
- b) Nothing herein shall be deemed to prohibit the inclusion of requirements with respect to operating and maintaining a local place of business in any Invitation for Bids when the Bidder's location materially affects the provisions of the services or supplies that are required by the invitation.
- c) **Local business is defined as a business legally authorized to engage in the sale of the goods and/or services to be procured, and which certifies within its Bid that for at least six (6) months prior to the announcement of the solicitation of Bids it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employee at that location.**
- d) **Each solicitation for Bids made by the County shall contain terms expressly describing the local business preference policies of the County, and shall provide that by electing to submit a Bid pursuant to an Invitation for Bid, all Bidders are deemed to understand and agree to those policies.**
- e) For all Contracts for architecture, professional engineering, or other professional services governed by Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, the County shall include the local business status of a firm among the factors considered when selecting which firms are "most highly qualified." In determining which firm is the "most qualified" for purposes of negotiating a satisfactory Contract, preference shall be given to a local business where all other relevant factors are equal.

E.02 Section 2-26-6. Local preference, tie Bids, local business defined (Continued)

- f) Local preference shall not apply to the following categories of Contracts:
1. Goods or services provided under a cooperative purchasing agreement or similar "piggyback" contract;
 2. Contracts for professional services subject to Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, except as provided for in subsection (e) above;
 3. Purchases or Contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference;
 4. Purchases or Contracts made pursuant to a non-competitive award process, unless otherwise provided by this section;
 5. Any Bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the County Commission or County Administrator, or where such suspension is, in the opinion of the County Attorney, required by law.
- g) To qualify for local preference under this section, **a local business must certify to the County that it:**
1. Has not within the five (5) years prior to the Bid announcement admitted guilt or been found guilty by any court or state or federal regulatory enforcement agency of violation of any criminal law, or a law or administrative regulation regarding fraud;
 2. Is not currently subject to an unresolved citation or notice of violation of any Manatee County Code provision, except citations or notices which are the subject of a current legal appeal, as of the date of the Bid announcement;
 3. Is not delinquent in the payment of any fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, except any such sums which are the subject of a current legal appeal.

Ref: Ordinance 09-21 and 09-23 **PASSED AND DULY ADOPTED** in open session, with a quorum present and voting, on the 17th day of March, 2009.

END OF SECTION E

**MANATEE COUNTY GOVERNMENT
AFFIDAVIT AS TO LOCAL BUSINESS
(Complete and Initial Items B-F)**

A. Authorized Representative

I, [name] _____, am the [title] _____ and the duly authorized representative of: [name of business] _____, and that I possess direct personal knowledge to make informed responses to these certifications and the legal authority to make this Affidavit on behalf of myself and the business for which I am acting; and by electing to submit a Bid pursuant to this Invitation for Bids, shall be deemed to understand and agree to the local business preference policies of Manatee County; and that I have the direct knowledge to state that this firm complies with all of the following conditions to be considered to be a local business as required by the Manatee County Code of Law, Section 2-26-6.

B. Place of Business: I certify that the above business is legally authorized to engage in the sale of goods and/or services and has a physical place of business in Manatee, DeSoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one (1) fulltime employee at that location. The physical address of the location which meets the above criteria is: _____ [Initial] _____

Business Phone Number: _____

Email Address: _____

C. Business History: I certify that business operations began at the above physical address with at least one fulltime employee on [date] _____ [Initial] _____

D. Criminal Violations: I certify that within the past five (5) years of the date of this Bid announcement, this business has not admitted guilt nor been found guilty by any court or local, state or federal regulatory enforcement agency of violation of any criminal law or administrative regulation regarding fraud. [Initial] _____

E. Citations or Code Violations: I certify that this business is not currently subject to any unresolved citation or notice of violation of any Manatee County Code provision, with the exception of citations or notices which are the subject of a legal current appeal within the date of this Bid announcement. [Initial] _____

F. Fees and Taxes: I certify that this business is not delinquent in the payment of fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, with the exception of those which are the subject of a current legal appeal. [Initial] _____

Each of the above certifications is required to meet the qualification of "local business" under Manatee County Code of Laws, 2-26-6.

Signature of Affiant _____

STATE OF FLORIDA
COUNTY OF _____

Sworn to (or affirmed) and subscribed before me this _____ day of _____, 20____, by (name of person making statement).

(Notary Seal) Signature of Notary: _____

Name of Notary: (Typed or Printed) _____

Personally Known _____ OR Produced Identification _____ Type of Identification Produced _____

Submit executed copy to Manatee County Purchasing Division - 1112 Manatee Avenue West - Suite 803 - Bradenton, FL 34205

SECTION 00300
BID FORM
(SUBMIT IN TRIPLICATE)

For: IFB#13-2585-OV, Manatee County Utilities Administration Building, Electrical Renovations

TOTAL BID PRICE (BID "A"): _____
Based on a Completion Time of 120 calendar days

Only one schedule for completion of the Work shall be considered. The Bid for completion by the specified stated time shall be offered as a separate "Total Bid Price".

We, the undersigned, hereby declare that we have carefully reviewed the Bid documents, and with full knowledge and understanding of the aforementioned herewith submit this Bid, meeting each and every specification, term, and condition contained in the Invitation for Bids, in its entirety.

We understand that the Bid package, in its entirety, including but not limited to, all specifications, terms, and conditions in their entirety shall be made a part of any Agreement or Contract between Manatee County and the successful Bidder. Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

Communications concerning this Bid shall be addressed as follows: **(Complete all fields)**

BIDDER'S NAME: _____

MAILING ADDRESS: _____

TELEPHONE: (____) _____ FAX: (____) _____

EMAIL ADDRESS: _____

FL CONTRACTOR LICENSE# _____

LICENSE IN THE NAME OF: _____

STATE OF INCORPORATION _____ (if applicable)

I, _____ on [date] _____ attest that I have visited the project site(s) to familiarize myself with the full Scope of Work required for the Bid.

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

AUTHORIZED SIGNATURE(S): _____

Name and Title of Above Signer(s): _____

BID FORM SECTION 00300
For: IFB #13-2585-OV, MANATEE COUNTY UTILITIES
ADMINISTRATION BUILDING, ELECTRICAL RENOVATIONS
4410 66TH Street West Bradenton, FL 34210

Item	<u>Base Bid Based on 120 CALENDAR DAY COMPLETION</u>	Qty/UM	Extended Total
1	Rewiring of the existing receptacles to the new panels. See Sheets E1.0 and E4.0	1 LS	\$
2	Rewiring of the existing lights to the new panels. See Sheets E1.0 and E4.1	1LS	\$
3	Rewiring of the existing motors, pumps, HVAC Equipment, Chiller and other Equipment to the new panels and switchgear as required. See Sheets E1.0, E4.0, E5.0, E5.1, E5.2 and E6.1	1LS	\$
4	Provision and installation of new panels, breakers and conduits. See Sheets E1.0, E4.0, E5.0, and E5.2	1LS	\$
5	Provision and installation of new electrical switchgear. See Sheets E1.0, E4.0, E5.0 and E6.1	1LS	\$
6	Coordination, provision, and installation of new electrical service with FP&L. See Sheets E1.0, E2.0 and E5.0	1LS	\$
7	Installation of a new drop down transformer for the facility. See Sheets E1.0, E4.0, and E5.0	1LS	\$
8	Properly labeling of all circuits and panels and providing a type written panel schedule for each panel. See Sheets E1.0, E5.2, and E5.0	1LS	\$
9	Demolition of Electrical Items. See Sheets E1., E3.0, E3.1 and E5.1	1LS	\$
10	New Wall Installation in Electrical Room. See Sheet E4.2	1LS	\$
11	Provision of As-Built Electrical Plans to the Owner's Representative	1LS	\$
12	Mobilization	1LS	\$
13	Discretionary Funds		\$10,000.00
	TOTAL BID PRICE:		\$

BID FORM SECTION 00300

For: **IFB #13-2585-OV, MANATEE COUNTY UTILITIES**
ADMINISTRATION BUILDING, ELECTRICAL RENOVATIONS
4410 66TH Street West Bradenton, FL 34210

The Bidder certifies that a complete project review of all requirements has been performed and is included in the Price provided above.

Bidder: _____

Date: _____

Authorized Signature: _____

**SWORN STATEMENT
THE FLORIDA TRENCH SAFETY ACT**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR BY AN OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with IFB No. 13-2585-OV
2. This Sworn Statement is submitted by _____ whose business address is _____ and, if applicable, its Federal Employer Identification Number (FEIN) is _____. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement _____.
3. Name of individual signing this Sworn Statement is: _____, Whose relationship to the above entity is: _____.
4. The Trench Safety Standards that will be in effect during the construction of this project shall include, but are not limited to: Laws of Florida, Chapters 90-96, TRENCH SAFETY ACT, and OSHA RULES AND REGULATIONS 29 CFR 1926.650 Subpart P, effective October 1, 1990.
5. The undersigned assures that the entity will comply with the applicable Trench Safety Standards and agrees to indemnify and hold harmless the County and Engineer, and any of their agents or employees from any claims arising from the failure to comply with said standard.
6. The undersigned has appropriated the following costs for compliance with the applicable standards:

Trench Safety Measure (Description)	Units of Measure (LF, SY)	Unit Quantity	Unit Cost	Extended Cost
a. _____	_____	_____	\$ _____	_____
b. _____	_____	_____	\$ _____	_____
c. _____	_____	_____	\$ _____	_____
d. _____	_____	_____	\$ _____	_____

7. The undersigned intends to comply with these standards by instituting the following procedures:

THE UNDERSIGNED, in submitting this Bid, represents that they have reviewed and considered all available geotechnical information and made such other investigations and tests as they may deem necessary to adequately design the trench safety system(s) to be utilized on this project.

(AUTHORIZED SIGNATURE / TITLE)

SWORN to and subscribed before me this _____ day of _____, 2013.

(Impress official seal)

Notary Public, State of Florida: _____

My commission expires: _____

SECTION 00430
CONTRACTOR'S QUESTIONNAIRE
(Submit in Triplicate)

The Bidder warrants the truth and accuracy of all statements and answers herein contained. (Attach additional pages if necessary.)

THIS QUESTIONNAIRE MUST BE COMPLETED AND SUBMITTED WITH YOUR BID

1. License #: _____
License Issued to: _____
Date License Received (MM/DD/YR): _____
Company Name: _____

Company's Physical Address

City _____ State of Incorporation, if applicable _____ (Zip Code)

(_____) _____ Telephone Number; (_____) _____ Fax Number

Email Address: _____

2. Bidding as an individual ___ a partnership: ___ a corporation; ___ a joint venture ___
3. If a partnership: list names and addresses of partners; if a corporation: list names of officers, directors, shareholders, and state of incorporation; if joint venture: list names and address of ventures' and the same if any venture are a corporation for each such corporation, partnership, or joint venture:

4. Your organization has been in business (under this firm's name) as a

For how many years? _____ Is this firm in bankruptcy? _____

(Attach a list of projects where this specific type of work was performed)

BIDDER: _____

4. (Continued)

Has license ever been suspended, revoked, removed or under investigation?

5. Describe and give the date and County of the last three government or private work of similar scope you've completed which are similar in cost, type, size, and nature as the one proposed (for a public entity), include contact name and phone number. Provide the budget, actual cost, size and summary of work for each project. Attach additional pages as necessary. (Note: If listing a Manatee County reference they should not be directly associated with this project).

6. Have you ever been assessed liquidated damages under a Contract during the past five (5) years? If so, state when, where (contact name, address and phone number) and why.

7. Have you ever failed to complete work awarded to you? Or provide projects not completed within Contract time. If so, state when, where (contact name, address, phone number) and why.

8. Have you ever been debarred or prohibited from bidding on a governmental entity's construction project? If yes, name the entity and describe the circumstances:

BIDDER: _____

9. What specific steps have you taken to examine the physical conditions at or contiguous to the site, including but not limited to, the location of existing underground facilities? Have you visited the site(s)? _____
Provide date(s) of site visit: _____

10. What specific physical conditions, including, but not limited to, the location of existing underground facilities have you found which will, in any manner, affect cost, progress, performance, or finishing of the Work?

11. Will you subcontract any part of this Work? If so, describe which major portion(s):

12. If any, list (with Contract amount) WBE/MBE to be utilized:

13. What equipment do you own to accomplish this Work? (A listing may be attached)

14. What equipment will you purchase/rent for the Work? (Specify which)

BIDDER: _____

15. List the following in connection with the Surety which is providing the Bond(s):

Surety's Name: _____

Surety's Address: _____

Surety's Address: _____

Name, address and phone number of Surety's resident agent for service of process in Florida:

Phone: (_____) _____

Email _____

BIDDER: _____

SECTION 00491
PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION
SWORN STATEMENT PURSUANT TO ARTICLE V,
MANATEE COUNTY PURCHASING ORDINANCE

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

This sworn statement is submitted to the Manatee County Board of County Commissioners by

_____ [Print individual's name and title]

_____ for _____ [print name of entity submitting sworn statement]

whose business address is _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement:

I understand that no person or entity shall be awarded or receive a County Contract for public improvements, procurement of goods or services (including professional services) or a County lease, franchise, concession or management Agreement, or shall receive a grant of County monies unless such person or entity has submitted a written certification to the County that it has not:

- (1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or
- (2) been convicted of an agreement or collusion among Bidders or prospective Bidders in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or
- (3) been convicted of a violation of an environmental law that, in the sole opinion of the County's Purchasing Official, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or
- (4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or
- (5) where an officer, official, agent or employee of a business entity has been convicted of or has admitted guilt to any of the crimes set forth above on behalf of such an entity and pursuant to the direction or authorization of an official thereof (including the person committing the offense, if he is an official of the business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common Board of Directors. For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests among family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

(Cont'd.)

Any person or entity who claims that this Article is inapplicable to him/her/it because a conviction or judgment has been reversed by a court of competent jurisdiction shall prove the same with documentation satisfactory to the County's Purchasing Official. Upon presentation of such satisfactory proof, the person or entity shall be allowed to contract with the County.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR THE COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

[Signature]

STATE OF FLORIDA
COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____ by _____

Personally known _____ OR Produced identification _____
[Type of identification]

Notary Public Signature My commission expires _____

[Print, type or stamp Commissioned name of Notary Public]

Signatory Requirement - In the case of a business entity other than a partnership or a corporation, this affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, this affidavit shall be executed by the general partner(s). In the case of a corporation, this affidavit shall be executed by the corporate president.

SECTION 00500
FORM OF AGREEMENT
BETWEEN THE
COUNTY OF MANATEE, FLORIDA
AND THE CONTRACTOR AS IDENTIFIED BELOW
ON THE BASIS OF A STIPULATED UNIT COST CONTRACT PRICE

THIS AGREEMENT is made and entered into by and between the COUNTY OF MANATEE, a political subdivision of the State of Florida, hereinafter referred to as the "COUNTY" and **insert Contractor name**, hereinafter referred to as the "CONTRACTOR," duly authorized to transact business in the State of Florida, with offices located at **insert Contractor address**.

ARTICLE 1. WORK

CONTRACTOR shall furnish all labor, materials, supplies, and other items required to complete the Work for **IFB #13-2585-OV, Manatee County Utilities Administration Building, Electrical Renovations** in strict accordance with Contract documents and any duly authorized subsequent addenda thereto, all of which are made a part hereof.

ARTICLE 2. COMPENSATION

As compensation to the CONTRACTOR, the COUNTY shall pay and the CONTRACTOR will accept as full consideration for the performance of all Work required by **IFB #13-2585-OV, Manatee County Utilities Administration Building, Electrical Renovations**, subject to additions and deductions as provided therein, the sum of **\$insert Award amount including discretionary dollars** for Bid "**insert A**" based on a completion time of **insert days** calendar days.

ARTICLE 3. LIQUIDATED DAMAGES

Time is of the essence in this Agreement. As of the date of this Agreement, the damages that will be suffered by the County in the event of the Contractor's failure to timely complete the Work are impossible to determine. In lieu thereof, it is agreed that if the Contractor fails to achieve final completion of the Work within **insert days** calendar days of issuance of the Notice to Proceed (accounting, however, for any extensions of time granted pursuant to approved change orders), the Contractor shall pay to the

County, as liquidated damages (and not as a penalty), the sum of \$884.00 per calendar day for each day beyond insert days days until the Contractor achieves final completion. The County shall have the option of withholding said liquidated damages from any pay application(s) thereafter submitted by the Contractor. Alternatively, the Contractor shall immediately pay said sums to the County upon the County's demand for same.

ARTICLE 4. ENGINEER

The County of Manatee, Utilities Department, is responsible as the COUNTY and ATP Engineering South, P.L., as "ENGINEER," designed this project and is responsible for technical/engineering reviews and decisions. The ENGINEER is a member of the COUNTY'S project management team which is collectively responsible in ensuring the Work is completed in accordance with the Contract documents.

All communications involving this project will be addressed to: Mr. Robert Shankle, Underground Maintenance Division Manager and to the Engineer of Record, Mr. John D. Camden, P.E., ATP Engineering South, P.L. as the Engineer of Record. All invoicing will be addressed to the attention of: Mr. Robert Shankle (address noted below) with invoice copies sent to Mr. John D. Camden, P.E., (address noted below).

Manatee County Utilities Department
IFB#13-2585-OV
Attention Robert Shankle
Underground Maintenance Division Manager
4410 66th Street West
Bradenton, FL 34210
Phone: 941-792-8811, Extension 5275

ATP Engineering South, P.L.
Mr. John D. Camden, P.E.
Project Engineer
5227 Office Park Boulevard
Bradenton, FL 34203
Phone: 941-751-6485

Where the terms ENGINEER and/or COUNTY are used in the Contract Documents, it shall mean the COUNTY'S project management team.

ARTICLE 5. CONTRACTOR'S REPRESENTATIONS

In order to induce COUNTY to enter into this Agreement, CONTRACTOR makes the following representations:

- 5.1 CONTRACTOR has familiarized itself with the nature and extent of the Bid documents, Work, site, locality and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- 5.2 CONTRACTOR has studied carefully all drawings of the physical conditions upon which CONTRACTOR is entitled to rely.
- 5.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the physical conditions at or contiguous to the site or which otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract price, within the Contract time and in accordance with the other terms and conditions of the Bid documents; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 5.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Bid documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. Any additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities conducted by the CONTRACTOR will be done at the CONTRACTOR'S expense.

- 5.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Bid.
- 5.6 CONTRACTOR has given COUNTY written notice of all conflicts, errors or discrepancies that have been discovered in the Bid documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.
- 5.7 CONTRACTOR shall schedule and perform the Work subject to COUNTY'S approval and shall hold COUNTY harmless from all liabilities incurred due to CONTRACTOR'S failure to coordinate with the COUNTY.

ARTICLE 6. CONTRACT DOCUMENTS

The Contract documents which comprise the entire Agreement between COUNTY and CONTRACTOR concerning the Work consist of the following:

- 6.1 This Agreement and Bid document **IFB #13-2585-OV**
- 6.2 Public Construction Bond Form and Insurance Certificate(s)
- 6.3 Drawings/Plans (not attached)
- 6.4 Addendum number insert Addendum # to insert Addendum # inclusive
- 6.5 CONTRACTOR'S Bid Form
- 6.6 Reports
- 6.7 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: all written change orders and other documents amending, modifying, or supplementing the Contract documents.

6.8 The documents listed in paragraphs above are attached to this Agreement (except as noted otherwise above). There are no Contract documents other than those listed above in this Article 6.

ARTICLE 7. MISCELLANEOUS

7.1 Terms used in this Agreement are defined in Article 1 of the General Conditions.

7.2 No assignment by a party hereto of any rights under or interest in the Contract documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignee from any duty or responsibility under the Contract documents.

7.3 COUNTY and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract documents.

AGREEMENT
IFB #13-2585-OV

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed by their authorized representatives.

CONTRACTOR

By: _____

Print Name & Title of Signer

Date: _____

COUNTY OF MANATEE, FLORIDA

By: _____
Melissa M. Wendel, CPPO
Purchasing Official

Date: _____

**MANATEE COUNTY GOVERNMENT
PUBLIC CONSTRUCTION BOND**

Bond No. _____
(Enter bond number)

BY THIS BOND, We _____, located at _____, as
(Name of Contractor) (Address)
Principal and _____, a corporation, whose address is
(Name of Surety)

are bound to Manatee County, a political subdivision of the State of Florida, herein called County, in the sum of \$ _____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

WHEREAS, the Contractor has entered into Contract No. _____ with the County for the project titled insert title of project, with conditions and provisions as are further described in the aforementioned Contract, which Contract is by reference made a part hereof for the purposes of explaining this bond.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs Contract No. _____, between Principal and County for construction of insert title of project, the Contract being made a part of this bond by reference, at
(Title of Project)

the times and in the manner prescribed in the Contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the Work provided for in the Contract; and

3. Pays County all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that County sustains because of a default by Principal under the Contract; and

4. Performs the guarantee of all Work and materials furnished under the Contract for the time specified in the Contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

Any changes in or under the Contract documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect Surety's obligation under this bond.

DATED ON _____.

CONTRACTOR AS PRINCIPAL

SURETY

Company Name

Company Name

Signature

Signature

Print Name & Title

Print Name & Title

(Corporate Seal)

(Corporate Seal)

AGENT or BROKER

Company Name

Address

Telephone

Licensed Florida Insurance Agent? Yes No

License #: _____

State of: _____

County of: _____

City of: _____

SECTION 00700
GENERAL CONDITIONS

ARTICLE 1. DEFINITIONS

Whenever used in the Bid documents, the following terms have the meaning indicated which are applicable to both the singular and plural thereof:

Addendum - Written or graphic instruments issued prior to the opening of Bids which clarify or change the Bidding documents or the Contract documents.

Agreement - The written Agreement between Owner and Contractor covering the Work to be performed; other Contract documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form accepted by the Project Representative which is to be used by Contractor in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract documents.

Award - Acceptance of the Bid from the person, firm, or corporation which in the Owner's sole and absolute judgment will under all circumstances best serve the public interest. Award shall be made in accordance with Manatee County Code of Laws.

Bid - The offer of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder - One who submits a Bid directly to the Owner, as distinct from a Sub-bidder, who submits a Bid to a Bidder.

Bidding Documents - Consists of the Invitation for Bid, which includes but is not limited to the Bid Form, drawings, technical specifications, terms and conditions, and the proposed Contract documents (including all addenda issued prior to receipt of Bids); and becomes a part of the Agreement.

Bonds - Performance and payment bonds and other instruments of security.

Change Order - A document recommended by the Project Representative which is signed by Contractor and Owner and authorizes 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.

Compensable Delay - Any delay beyond the control and without the fault or negligence of the Contractor resulting from Owner-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by Owner.

Contract Documents - The Agreement, addenda (which pertain to the Contract documents), Contractor's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award), the bonds, the specifications, special provisions and the drawings, together with all amendments, modifications and supplements issued on or after the effective date of the Agreement.

Contract Price - The monies payable by Owner to Contractor under the Contract documents as stated in the Agreement.

Contract Time - The number of days or the date stated in the Notice to Proceed for the completion of the Work.

Contractor - The person, firm or corporation with whom Owner has entered into an Agreement.

Days - All references to days are to be considered calendar days except as specified differently.

Defective - An adjective which when modifying the 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 Project Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner).

Discretionary - Payment for all Work that shall be made only at the Owner's discretion in order to satisfactorily complete the project in accordance with the plans and specifications.

Drawings - The drawings which show the character and Scope of Work to be performed and which have been prepared or approved by Engineer and are referred to in the Bidding and Contract documents.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective (date of execution).

Excusable Delay - Any delay beyond the control and without the negligence of the Contractor, the Owner, or any other Contractor caused by events or circumstances such as, but not limited to, acts of God or of the public enemy, fires, floods, freight embargoes, acts of government other than Owner or epidemics. Labor disputes and above average rainfall shall give rise only to excusable delays.

Field Order - A written order issued by Project Representative which orders minor changes in the Work, but which does not involve a change in the Contract price or the Contract time.

Float or Slack Time - The time available in the progress schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

Inexcusable Delay - Any delay caused by events or circumstances within the control of the Contractor, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the Contractor.

Non-prejudicial Delay - Any delay impacting a portion of the Work within the available total float or slack time and not necessarily preventing completion of the Work within the Contract time.

Notice of Award - The written notice to the successful Bidder stating Award has been approved by the Board of County Commissioners; or by the Purchasing Official in accordance with Manatee County Code of Laws, Chapter 2-26, Manatee County Purchasing Ordinance.

Notice of Intent to Award - The written notice to the apparent low Bidder stating Award has been recommended with final Award to be authorized by the Board of County Commissioners.

Notice to Proceed - Written notice by Owner (after execution of Contract) to Contractor fixing the date on which the Contract time will commence to run and on which Contractor shall start to perform (ten (10) days from date of such notice) Contractor's obligations under the Contract documents.

Owner - Manatee County, Florida, Board of County Commissioners.

Preconstruction Conference - Prior to starting the Work, a meeting scheduled by Owner with Contractor to review the Work schedules, to establish procedures for handling shop drawings and other submissions, for processing periodical pay estimates, and such other matters as may be pertinent to the project.

Prejudicial Delay - Any excusable or compensable delay impacting the Work and exceeding the total float available in the progress schedule, thus preventing completion of the Work within the Contract time unless the Work is accelerated.

Pre-operation Testing - All field inspections, installation checks, water tests, performance tests and necessary corrections required of Contractor to demonstrate that individual components of the Work have been properly constructed and do operate in accordance with the Contract documents for their intended purposes.

Project - The total construction of which the Work to be provided under the Contract documents may be the whole or a part as indicated elsewhere in the Contract documents.

Project Representative - The authorized representative of Owner who is assigned to the project or any part thereof.

Schedule of Values – Unit prices shall be established for this Contract by the submission of a schedule of values. The Contractor shall submit a schedule of values within ten (10) days of Notice to Proceed date. The schedule shall include quantities and prices of items equaling the Total Bid Price and will subdivide the Work into components in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.

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.

Special Provisions: As required to define work or procedures not covered in the standard specifications, and as necessary to supplement or modify items in the standard specifications.

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.

Subcontractor - An individual or corporation having a direct contact with Contractor or with any other Subcontractor for the performance of a part of the Work at the site. Such person or firm has contractual relations with the Contractor, not with the Owner.

Substantial Completion - The Work (or a specified part thereof) has progressed to the point when, in the opinion of the Engineer as evidenced by Engineer's definitive certificate of substantial completion, it is sufficiently complete in accordance with Contract documents so that the Work can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due.

Successful Bidder - The lowest, responsible and responsive Bidder to whom an Award is made.

Supplier - A manufacturer, fabricator, supplier, distributor, material man or vendor.

Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments and any encasement containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or

other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work - Work to be paid for on the basis of unit prices.

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.

Work Directive Change - A written directive to Contractor, issued on or after the effective date of the Agreement and signed by Owner and recommended by Project Representative ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed or to emergencies. A work directive change may not change the Contract price or the Contract time; but is evidence that the parties expect that the change directed or documented by a work directive change will be incorporated in a subsequently issued change order following negotiations by the parties as to its effect, if any, on the Contract price or Contract time.

Written Amendment - A written amendment of the Contract documents, signed by Owner and Contractor on or after the effective date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly work related aspects of the Contract documents.

ARTICLE 2. PRELIMINARY MATTERS

Computation of Time: When time is referred to in the Contract documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or legal holiday, such day will be omitted from the computation.

2.1 The Contractor must submit a proposed schedule of the Work at the preconstruction conference. The purpose of this schedule is to enable the Owner to govern the Work, to protect the functions of the local government and its citizens and to aid in providing appropriate surveillance. The Owner shall have the right to reschedule Work provided such rescheduling is in accord with the remainder of terms of the Contract. The schedule shall show, as a minimum, the approximate dates on which each segment of the Work is expected to be started and finished, the proposed traffic flows during each month, the anticipated earnings by the Contractor for each month and the approximate number of crews and equipment to be used. The Owner, after necessary rescheduling and obtaining additional information for specific purposes, shall review and approve the schedule. The Contractor shall also forward to the Owner, as soon as practicable after the first day of each month, a summary report of the progress of the various parts of the Work under the Contract, in fabrication and in the field, stating the existing status, estimated time of completion and cause of delay, if

any. Together with the summary report, the Contractor shall submit any necessary revisions to the original schedule for the Owner's review and approval. In addition, more detailed schedules may be required by the Owner for daily traffic control.

- 2.2 A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Agreement. The Contract time will commence at the time specified in such notice. Contractor shall start to perform the Work on the date specified in the Notice to Proceed, but no Work shall be done at the site prior to the date on which the Contract time commences to run.
- 2.3 If at any time the materials and appliances to be used appear to the Owner as insufficient or improper for securing the quality of Work required or the required rate of progress, the Owner may order the Contractor to increase his efficiency or to improve the character of his Work and the Contractor shall conform to such an order. The failure of the Owner to demand any increase of such efficiency of any improvement shall not release the Owner from his obligation to secure the quality of Work or the rate of progress necessary to complete the Work within the limits imposed by the Contract. The Owner may require the Contractor to remove from the Work such employees as the Owner deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the Work is deemed to be contrary to the Owner's interest.
- 2.4 The Owner reserves the right to let other Contracts in connection with this Work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and execution of their Work, and promptly connect and coordinate the Work with theirs.

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, RE-USE

- 3.1 The Contract documents comprise the entire Agreement between Owner and Contractor concerning the Work. The Contract documents are complementary; what is called for by one is as binding as if called for by all. The Contract documents will be construed in accordance with the laws and ordinances of the State of Florida and Manatee County.

Should a conflict exist within the Contract documents, the precedence in ascending order of authority are as follows: 1) Standard Printed Contract Documents, 2) Special Conditions, 3) General Conditions, and 4) Drawings.

Note: Computed dimensions shall govern over scaled dimensions.

- 3.2 It is the intent of the Contract documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract documents. Any work, materials or equipment that may reasonably be inferred from the Contract documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or

equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract documents) shall be effective to change the duties and responsibilities of Owner, Contractor or Engineer, or any of their agents or employees from those set forth in the Contract documents.

3.3 The Contract documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.3.1 A Formal Written Amendment

3.3.2 A Change Order

3.3.3 Administrative Contract Adjustment (ACA)

3.3.4 A Work Directive Change

3.4 In addition, the requirements of the Contract documents may be supplemented and minor variations and deviations in the Work may be authorized in one or more of the following ways:

3.4.1 Discretionary Work – Field Directive

3.4.2 Engineer's approval of a Shop Drawing or sample

ARTICLE 4. CONTRACTOR'S RESPONSIBILITIES

4.1 Contractor shall keep on the Work at all times during its progress a competent resident superintendent; who shall be the Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.

4.2 Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract documents. Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto and except as otherwise indicated in the Contract documents, all Work at the site shall be performed during regular working hours and Contractor will not permit overtime work or the

performance of work on Saturday, Sunday or legal holiday without Owner's written consent given after prior notice to Engineer (at least seventy-two (72) hours in advance).

- 4.2.1 Contractor shall pay for all additional engineering charges to the Owner for any overtime work which may be authorized. Such additional engineering charges shall be a subsidiary obligation of Contractor and no extra payment shall be made by Owner on account of such overtime work. At Owner's option, overtime costs may be deducted from Contractor's monthly payment request or Contractor's retainage prior to release of final payment.
- 4.3 Unless otherwise specified, Contractor shall furnish and assume full responsibility for all bonds, insurance, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.
- 4.4 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract documents. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable supplier except as otherwise provided in the Contract documents.
- 4.5 Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect Contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract documents shall create any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner to pay or to see to the payment of any monies due any such Subcontractor, Supplier or other person or organization.
- 4.6 Permits: Unless otherwise provided, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work.
- 4.7 During the progress of the Work, Contractor shall keep the premises free from accumulation of waste materials rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall remove all waste

materials, rubbish, and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials and shall leave the site clean and ready for occupancy by Owner. Contractor shall restore to original conditions all property not designated for alteration by the Contract documents.

- 4.8 Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.
- 4.9 **Safety and Protection:** Contractor shall comply with the Florida Department of Commerce Safety Regulations and any local safety regulations. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to:
- 4.9.1 all employees on the work and other persons and organizations who may be affected thereby;
- 4.9.2 all the work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
- 4.9.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.
- 4.9.4 Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority or local conditions. Contractor shall provide reasonable maintenance of traffic way for the public and preservation of the Owner's business, taking into full consideration all local conditions. Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed.
- 4.10 **Emergencies:** In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, Contractor, without special instruction or authorization from Engineer or Owner, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Owner prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract documents have been caused thereby. If Owner

determines that a change in the Contract documents is required because of the action taken in response to an emergency, a work directive change or change order will be issued to document the consequences of the changes or variation.

4.11 For substitutes not included with the Bid, but submitted after the effective date of the Agreement, Contractor shall make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will also contain an itemized estimate of all costs and delays or schedule impacts that will result directly or indirectly from review, acceptance and provisions of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish at Contractor's expense, additional data about the proposed substitute. In rendering a decision, Owner/Engineer and Contractor shall have access to any available float time in the construction schedule. In the event that substitute materials or equipment not included as part of the Bid, but proposed after the effective date of the Agreement, are accepted and are less costly than the originally specified materials or equipment, then the net difference in cost shall be credited to the Owner and an appropriate change order executed.

4.11.1 If a specific means, method, technique, sequence of procedure of construction is indicated in or required by the Contract documents, Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Engineer if Contractor submits sufficient information to allow Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract documents.

4.11.2 Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Engineer will be the sole judge of acceptability and no substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a change order or an approved shop drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

4.11.3 Contractor shall reimburse Owner for the charges of Engineer and Engineer's Consultants for evaluating each proposed substitute submitted after the effective date of the Agreement and all costs resulting from any delays in the Work while the substitute was undergoing review.

- 4.12 The Contractor shall furnish, free of charge, all labor, stakes, surveys, batter boards for structures, grade lines and other materials and supplies and shall set construction stakes and batter boards for establishing lines, position of structures, slopes and other controlling points necessary for the proper prosecution of the construction work. Where rights-of-way, easements, property lines or any other conditions which make the lay-out of the project or parts of the project critical are involved, the Contractor will employ a competent surveyor who is registered in the State of Florida for lay-out and staking. These stakes and marks shall constitute the field control by and in accord with which the Contractor shall govern and execute the Work. The Contractor will be held responsible for the preservation of all stakes, marks and if for any reason any of the stakes or marks or batter boards become destroyed or disturbed, they will be immediately and accurately replaced by the Contractor.
- 4.13 The Contractor has, by careful examination, satisfied himself as to the nature and location of the Work and all other matters which can in any way affect the Work under this Contract, including, but not limited to details pertaining to boring, as shown on the drawings, are not guaranteed to be more than a general indication of the materials likely to be found adjacent to holes bored at the site of the Work, approximately at the locations indicated. The Contractor shall examine boring data, where available, and make his own interpretation of the subsoil investigations and other preliminary data, and shall base his Bid on his own opinion of the conditions likely to be encountered. In no event shall an extension of time be considered for any conditions that existed at the time of bidding, nor shall the Contractor receive extra compensation for completion of the project as intended by the drawings and in keeping with the Contract documents. No verbal agreement or conversation with any officer, agent or employee of the Owner, before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.
- 4.14 If the Contractor, in the course of the Work, finds that the drawings and/or Contract documents cannot be followed, he shall immediately inform the Owner in writing, and the Owner shall promptly check the accuracy of the information. Any work done after such discovery, until any necessary changes are authorized, will be done at the Contractor's risk.

ARTICLE 5. OWNER'S RESPONSIBILITIES

- 5.1 Owner shall furnish the data required of Owner under the Contract documents promptly and shall make payments to the Contractor within a reasonable time (no more than twenty (20) days) after the Work has been accepted by the Owner. The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract documents shall be determined by the Owner/Engineer. Standard County forms shall be utilized.

- 5.2 The Owner shall provide the lands upon which the Work under this Contract is to be done, except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same.
- 5.3 The Owner shall have the right to take possession of and use any completed portions of the Work, although the time for completing the entire Work or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract documents.

ARTICLE 6. CHANGES IN THE WORK

- 6.1 Without invalidating the Agreement and without notice to any Surety, Owner may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a change order, or a work directive change. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract documents (except as otherwise specifically provided).
- 6.2 Contractor shall not be entitled to an increase in the Contract price or an extension of the Contract time with respect to any Work performed that is not required by the Contract documents as amended, modified and supplemented.
- 6.3 Owner and Contractor shall execute appropriate change orders (or written amendments) covering changes in the Work which are ordered by Owner, or which may be required because of acceptance of defective Work.
- 6.4 At any time Engineer may request a quotation from Contractor for a proposed change in the Work and within twenty-one (21) calendar days after receipt, Contractor shall submit a written and detailed proposal for an increase or decrease in the Contract price or Contract time for the proposed change. Engineer shall have twenty-one (21) calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in sufficient detail to reasonably permit an analysis by Engineer of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Notwithstanding the request for quotation, Contractor shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial.

ARTICLE 7. CHANGE OF CONTRACT PRICE

- 7.1 The Contract price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at his expense without change in the Contract price.
- 7.2 The Contract price may only be changed by change order or by a written amendment. Any claim for an increase or decrease in the Contract price shall be based on written notice delivered by the party making the claim to the other party. Notice of the amount of the claim with supporting data shall be delivered within ten (10) days from the beginning of such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event.
- 7.3 The value of any Work covered by a change order or of any claim for an increase or decrease in the Contract price shall be determined in one of the following ways (at Owner's discretion):
- 7.3.1 Where the Work involved is covered by unit prices contained in the Contract documents, cost will be determined by application of such unit prices to the quantities of the items involved.
 - 7.3.2 By mutual acceptance of lump sum.
 - 7.3.3 On the basis of the cost of the Work, plus a 15% Contractor's fee for overhead and profit. (Contractor shall submit an itemized cost breakdown together with supporting data.)
- 7.4 Either Owner or Contractor may make a claim for an adjustment in the Contract price. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:
- 7.4.1 If the total cost of a particular item of Unit Price Work amounts to 5% or more of the Contract price and the variation in the quantity of the particular item of Unit Price Work performed by Contractor differs by more than 15% from the estimated quantity of such item indicated in the Agreement; and
 - 7.4.2 If there is no corresponding adjustment with respect to any other item of Work; and
 - 7.4.3 If a Contractor believes that it has incurred additional expense as a result thereof; or

7.4.4 If Owner believes that the quantity variation entitles it to an adjustment in the unit price; or

7.4.5 If the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

ARTICLE 8. CHANGE OF CONTRACT TIME

8.1 Contract time may only be changed by a change order or a written amendment. Any claim for an extension or shortening of the Contract time shall be based on written notice delivered by the party making the claim to the other party. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days from detection or beginning of such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event.

8.2 The Contract time will be extended in an amount equal to time lost due to delays beyond the control of Contractor. Such delays shall include, but not be limited to, acts or neglect by Owner or others performing additional Work; or to fires, floods, epidemics, abnormal weather conditions or acts of God.

8.3 All time limits stated in the Contract documents are of the essence.

ARTICLE 9. WARRANTY, TEST/INSPECTION, CORRECTION

9.1 Contractor warrants (for a minimum period of three (3) years or as otherwise stated herein) and guarantees to Owner that all Work will be in accordance with the Contract documents and will not be defective; that Owner, representatives of Owner, governmental agencies with jurisdictional interests will have access to the Work at reasonable time for their observation, inspecting and testing (Contractor shall give Engineer timely notice of readiness of the Work for all required approvals and shall assume full responsibility, including costs, in obtaining required tests, inspections, and approval certifications and/or acceptance, unless otherwise stated by Owner).

9.2 If any Work (including work of others) that is to be inspected, tested, or approved is covered without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation. Such uncovering shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice. Neither observations by Engineer nor inspections, tests, or approvals by others shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract documents.

9.3 If the Work is defective, or Contractor fails to supply sufficient skilled workers, or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract documents, Owner may order Contractor to stop the Work, or any portion thereof and terminate payments to the Contractor until the cause for such order has been eliminated. Contractor shall bear all direct, indirect and consequential costs for satisfactory reconstruction or removal and replacement with non-defective Work, including, but not limited to fees and charges of engineers, architects, attorneys and other professionals and any additional expenses experienced by Owner due to delays to other Contractors performing additional Work and an appropriate deductive change order shall be issued. Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to an extension of the Contract time and the recovery of delay damages due to correcting or removing defective Work.

9.3.1 If Contractor fails within seven (7) days after written notice to correct defective Work, or fails to perform the Work in accordance with the Contract documents, or fails to comply with any other provision of the Contract documents, Owner may correct and remedy any such deficiency to the extent necessary to complete corrective and remedial action. Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, Contractor's tools, construction equipment and machinery at the site or for which Owner has paid Contractor but which are stored elsewhere. All direct and indirect costs of Owner in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Engineer and a change order will be issued incorporating the necessary revisions.

9.3.2 If within three (3) years after the date of completion or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Contract documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instruction, Owner may have the defective Work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by Contractor.

ARTICLE 10. SUSPENSION/TERMINATION OF WORK

10.1 Owner may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety (90) days by written notice to Contractor, which will fix the date on which Work will be resumed. Contractor shall be allowed an increase in the Contract price or an extension of the Contract

time, or both, directly attributable to any suspension if Contractor makes an approved claim therefore.

10.2 Owner may terminate the Contract if Contractor commences a voluntary case under any chapter of the Bankruptcy Code or any similar action by filing a petition under any other federal or state law relating to the bankruptcy or insolvency; if a petition is filed against the Contractor under any chapter of the Bankruptcy Code or similar relief under any other federal or state law; if Contractor persistently fails to perform the Work in accordance with the Contract documents; if Contractor disregards laws or regulations of any public body having jurisdiction or the Engineer; or otherwise violates in any substantial way any provisions of the Contract.

10.2.1 Owner may, after giving Contractor (and the Surety, if there is one) seven (7) days written notice and to the extent permitted by laws and regulations, terminate the services of Contractor; exclude Contractor from the site and take possession of the Work and of all Contractor's tools, construction equipment and machinery at the site and use the same to the full extent they could be used (without liability to Contractor for trespass or conversion); incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment beyond an amount equal to the value of material and equipment not incorporated in the Work, but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work exceed the unpaid balance of the Contract price, Contractor shall pay the difference to Owner. Such costs incurred by Owner shall be verified by Owner and incorporated in a change order; but in finishing the Work, Owner shall not be required to obtain the lowest figure for the Work performed. Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement.

10.3 If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety (90) days by Owner or under an order of court or other public authority, or Engineer fails to act on any application or fails to pay Contractor any sum finally determined to be due; then Contractor may, upon seven (7) days written notice to Owner terminate the Agreement and recover from Owner payment for all Work executed, any expense sustained plus reasonable termination expenses. In lieu of terminating the Agreement, if Engineer has failed to act on any application of payment or Owner has failed to make any payment as aforesaid, Contractor may upon seven (7) days written notice to Owner stop the Work until payment of all amounts then due.

ARTICLE 11. CONTRACT CLAIMS

- 11.1 The rendering of a decision by Engineer with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Owner or Contractor of such right or remedies as either may otherwise have under the Contract documents or by laws or regulations in respect of any such claim, dispute or other matter. No action, either at law or at equity, shall be brought in connection with any such claim, dispute or other matter later than thirty (30) days after the date on which Owner/Engineer has rendered such written decision in respect thereof. Failure to bring an action within said thirty (30) day period shall result in Engineer's decision being final and binding on the Contractor. In no event may any such action be brought after the time at which instituting such proceedings would be otherwise barred by the applicable statute of limitations.
- 11.2 Before bringing any action in court pertaining to any claim, dispute or other matter in question(s) arising out of or relating to the Contract documents or the breach thereof, or Engineer's final decision, except for claims which have been waived by the making and acceptance of final payment, the Contractor shall first submit written notice(s) of Contract claims to the Purchasing Official for a decision; within the earlier of sixty (60) days after the last date on which the Contractor provided any goods or services required by the Contract or after the date on which the Contractor knew or should have known such a claim existed. The Manatee County Code of Laws, Section 2-26-63, Contract Claims, details the requirements and process for such a claim.

ARTICLE 12. RESIDENT PROJECT REPRESENTATIVE - DUTIES, RESPONSIBILITIES

- 12.1 Resident Project Representative is Engineer/Owner's Agent, who will act as directed by and under the supervision of the Engineer, and who will confer with Owner/Engineer regarding his actions. Resident Project Representative's dealing in matters pertaining to the on-site Work shall, in general, be only with the Owner/Engineer and Contractor and dealings with Subcontractors shall only be through or with the full knowledge of Contractor.
- 12.2 Resident Project Representative will:
- 12.2.1 Review the progress schedule, schedule of shop drawing submissions and schedule of values prepared by Contractor and consult with Owner/Engineer concerning their acceptability.
 - 12.2.2 Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with Owner/Engineer and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.

- 12.2.3 Serve as Owner/Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist him in understanding the intent of the Contract documents. As requested by Owner/Engineer, assist in obtaining additional details or information when required at the job site for proper execution of the Work.
- 12.2.4 Receive and record date of receipt of shop drawings and samples, receive samples which are furnished at the site by Contractor and notify Owner/Engineer of their availability for examination.
- 12.2.5 Advise Owner/Engineer and Contractor or his superintendent immediately of the commencement of any Work requiring a shop drawing or sample submission if the submission has not been approved by the Owner/Engineer.
- 12.2.6 Conduct on-site observations of the Work in progress to assist Owner/Engineer in determining if the Work is proceeding in accordance with the Contract documents and that completed Work will conform to the Contract documents.
- 12.2.7 Report to Owner/Engineer whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract documents, or does not meet the requirements of any inspections, tests or approvals required or if Work has been damaged prior to final payment; and advise Owner/Engineer when he believes Work should be corrected or rejected or should be uncovered of observation or requires special testing, inspection or approval.
- 12.2.8 Verify that tests, equipment and system start-ups and operating and maintenance instructions are conducted as required by the Contract documents and in the presence of the required personnel, and that Contractor maintains adequate records thereof; observe, record and report to Engineer appropriate details relative to the test procedures and start-ups.
- 12.2.9 Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections and report to Owner/Engineer.
- 12.2.10 Transmit to Contractor, Owner/Engineer's clarifications and interpretations of the Contract documents.
- 12.2.11 Consider and evaluate Contractor's suggestions or modifications in drawings or Contract Documents and report them with recommendations to Owner/Engineer.

- 12.2.12 Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and sample submissions, reproductions of original Contract documents including all addenda, change orders, field orders, additional drawings issued subsequent to the execution of the Contract, Owner/Engineer's clarifications and interpretations of the Contract documents, progress reports and other project related documents.
- 12.2.13 Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions; list of visiting officials and representatives or manufacturers, fabricators, suppliers and distributors; daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to Owner/Engineer.
- 12.2.14 Record names, addresses and telephone numbers of all Contractors, Subcontractors and major Suppliers of materials and equipment.
- 12.2.15 Furnish Owner/Engineer periodic reports as required of progress of the Work and Contractor's compliance with the approved progress schedule and schedule of shop drawing submissions.
- 12.2.16 Consult with Owner/Engineer in advance of scheduling major tests, inspections or start of important phases of the Work.
- 12.2.17 Report immediately the occurrence of any accident.
- 12.2.18 Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to Owner/Engineer, noting particularly their relation to the Schedule of Values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- 12.2.19 During the course of the Work, verify that certificates, maintenance and operations manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed, and deliver this material to Owner/Engineer for his review prior to final acceptance of the Work.
- 12.2.20 Before Owner/Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
- 12.2.21 Conduct final inspection in the company of Owner/Engineer and Contractor and prepare a final list of items to be completed or corrected.

12.2.22 Verify that all items on final list have been completed or corrected and make recommendations to Owner/Engineer concerning acceptance.

12.3 Except upon written instructions of Owner/Engineer, Resident Project Representative:

12.3.1 Shall not authorize any deviation from the Contract documents or approve any substitute materials or equipment;

12.3.2 Shall not exceed limitations on Owner/Engineer's authority as set forth in the Contract documents;

12.3.3 Shall not undertake any of the responsibilities of Contractor, Subcontractors or Contractor's superintendent, or expedite the Work;

12.3.4 Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract documents;

12.3.5 Shall not advise on or issue directions as to safety precautions and programs in connection with the Work;

12.3.6 Shall not authorize Owner to occupy the project in whole or in part; and

12.3.7 Shall not participate in specialized field or laboratory tests.

ARTICLE 13. APPRENTICES

13.1 If successful Contractor employs apprentices, he shall be governed and comply with the provisions of F.S. § 446.011.

NOTE: The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract shall be determined by the County. Standard County forms shall be utilized.

END OF SECTION

MAILING LABEL

Cut along the outside border and affix this label to your sealed Bid envelope to identify it as a "Sealed Bid". Be sure to include the name of the company submitting the Bid and the Bid due date and time where requested.

MAILING LABEL TO AFFIX TO OUTSIDE OF SEALED BID PACKAGE:

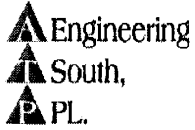
SEALED BID - DO NOT OPEN

CONTRACTOR: _____

SEALED BID NO: IFB #13-2585-OV

**BID TITLE: Manatee County Utilities Administration Building,
Electrical Renovations**

DUE DATE/TIME: _____ @ _____



Revised
Received
11-15-2013.p.m

Construction Document Specifications

For

Manatee County
Utility Department Admin Building Electrical
Manatee County Government
Bradenton, Florida

Sheet Date: CD Set July 10, 2013

ATP ENGINEERING SOUTH, P.L.
5227 Office Park Blvd
Bradenton, FL 34203
941-751-6485
FL# 8908
Contact Person: John D. Camden, P.E.
FL# 53458

Set# _____

Revised
Received
11-15-2013.p.m

Manatee County Utilities Department
Admin. Building Electrical Revisions

Sheet Schedule:
Project: Manatee County Utilities Department
Admin. Building Electrical Revisions

<u>Sheet</u>	<u>Description</u>
COVER SHEET	PROJECT NAME, LOCATION, & SITE MAP
E1.0	ELECTRICAL LEGEND, SYMBOLS, GENERAL NOTES
E2.0	ELECTRICAL SITE PLAN
E3.0	ELECTRICAL DEMOLITION POWER PLAN
E3.1	ELECTRICAL DEMOLITION LIGHTING PLAN
E4.0	ELECTRICAL NEW POWER AND SYSTEMS PLAN
E4.1	ELECTRICAL NEW LIGHTING
E4.2	NEW WALL DETAILS
E5.0	ELECTRICAL ONE-LINE
E5.1	ELECTRICAL DEMOLITION ONE-LINE
E5.2	ELECTRICAL PANEL SCHEDULES
E6.0	ELECTRICAL SPECIFICATIONS
E6.1	ELECTRICAL DETAILS

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SECTION 01100 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of renovations and additions to the Manatee County Utilities Administration Building.
 - 1. Project Location: Manatee County Utilities Department: 4410 66th St. W, Bradenton, FL 34210.
 - 2. Owner: Manatee County Government
 - 3. Owner's Representative: Mr. Robert Shankle, Utilities Department Underground Division Manager – Manatee County Government. Phone: 941-792-8811 Ext: 5275.
- B. Engineer Identification: The Contract Documents, dated July 10, 2013, were prepared by ATP Engineering South, 5227 Office Park Blvd., Bradenton, FL 34203. All project documents shall be transmitted and distributed by the Manatee County Purchasing Department.
- C. Identification: The Contract Documents dated July 10, 2013 were prepared for the project by ATP Engineering South.

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by the one shall be as binding as if required by all. Performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. Dimensions shall be figures rather than determined by scale or rule. In the event of a conflict or inconsistency among the Contract Documents, or between the Contract Documents and applicable codes, the Contractor shall provide the greatest quantity, largest degree of safety, highest quality or most stringent material or work.

- D. The Work consists of renovations and additions. The Work consists of renovations and additions to the electrical systems and wall renovations and additions..
 - 1. The Electrical Work and wall shall include: electrical, power systems, lighting, generator systems, system change outs and operational turnover, control

interface, security conduits and required power for security devices (see power and systems plan), wall penetrations, boring, concrete and pavement work, fire stopping, lift or crane, and miscellaneous work.

2. Construction materials and processes are to be performed to have minimum impact on the environment, using recycled materials to the greatest extent practicable, recycling construction waste material where possible and disposing of non-recyclable waste in an environmentally friendly manner.

CONTRACT

E. Bidder Qualifications:

- a. Bidder shall be a Florida Licensed contractor (Electrical) with subcontractors having the minimum of 5 years of experience of renovations of similar type facilities. References shall be supplied to the purchasing department with the bid documents. The successful Contractors shall meet all purchasing requirement for bonding and insurance.

1.3 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16/ 48 -division format and CSI/CSC's "Master Format" numbering system.

1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

- a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

- b. The word "comparable" shall mean of same quality and performance and not change any items within the design or construction of the project. If the system or component changes the electrical, structural, mechanical, fire, or architectural, the unit is not comparable.

1.4.1 USE OF PREMISES- Refer to Division 1 Section 01500 for any additional information.

- A. General: During the construction period, the Contractor shall limit his use of premises for construction operations to within the construction limits indicated or established by the Owner/ County. Any required work noted outside those limits of construction shall be coordinated with the Owner for safety and security prevention.
- B. Use of the Site: Limit the use of the premises to work in areas indicated. Confine operations to areas within the contract limits indicated. Do not disturb portions of the site beyond areas in which work is indicated. Confine Construction operations to the designated floors and areas during weekdays under normal business hours as dictated by the Owner's Representative.
- C. All personnel shall be cleared with the County facility personnel to the project site area.
- D. Driveways, walkways, and entrances: Keep driveways, loading areas, and entrances serving premises clear and available to the Owner, Owner's Employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - 1. Schedule deliveries to minimize use of driveways and entrances by construction operations. Hours and Notification of delivery of product: Deliveries shall be scheduled with Mr. Robert Shankle (941)-792-8811 Ext. 5275 or a designated representative (Manatee County Utilities Department), they may occur during regular scheduled hours.
 - 2. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
 - 3. Locate Contractor parking and staging areas as directed by the Owner's Representative and personnel.
 - 4. Hours of Operations for Contractors as specified by the Owner's Representative: 6:30 P.M. to 6:30 A.M., Monday through Friday, excluding County Holidays.
- E. Condition of existing Building: Maintain portions of the existing building affected by construction operations. Repair damage caused by construction operations.
- F. Contractor may use restroom facilities in the existing building.
- G. Contractor may use existing electrical power outlets at no charge.
- H. Other contractors may be on site performing work see section 1.6.

1.5 Coordination with Occupants:

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- A. Full Owner Occupancy: Owner will occupy site and existing building during the entire construction period. Cooperate with the Owner's Representative during the construction operations to minimize conflicts and facilitate Owner usage. Perform the work so not to interfere with the Owner's day-to-day operations. Maintain existing exits.
1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities with out written permission from the Owner's Representative.
 2. Notify the Owner's Representative not less than 7 days in advance of activities that will affect the Owner's Operations.
 3. The Contractor shall provide construction waste collection service. Contractor shall not use the Owner's waste receptacles for construction waste.

1.5 Coordination with other Contractors:

- B. Contractor Coordination: Portions of other projects may rely on the coordination of the electrical systems of this project. The coordination may not be relevant until the end of the project depending upon schedules. Other projects may or may not be relevant during the construction phase.
- C. Contractor Coordination with the Owner's Representative: Portions of the electrical project will be performed by the Owner's representative; this timing shall be coordinated with the Owner's Representative to ensure that personnel are not conflicting and will be on schedule to have a final completed project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

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SECTION 01105 -MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 SUMMARY

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for measurement and payment. Contractor shall prepare invoice payment request matching items and totals to be outlined in a detailed Schedule of Values, to be submitted prior to commencement of work. Schedule of Values shall include detailed breakdown of Contractor efforts, outlining work required for each item of the Bid Form, itemized by discipline of work, major pieces of equipment, work items, subcontractor work, quantities, etc.

B. Related Sections:

1. Division 01 Section "Summary" for Phased requirements of work to be completed, and construction timelines.

B. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.

C. All contract prices included in the Bid Form section will be full compensation for all required work, identified or not, required, including but not limited to shop drawings, working drawings, labor, materials, tools, equipment, incidentals and mobilization necessary to complete the requirements of this project, as shown on the Drawings and Specifications in the Contract Documents. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work required to render a complete product, specified to be performed under this Contract. Contractor shall itemize each Bid Form Item in a detailed Schedule of Values, to include estimated and measured values.

1.3 BID FORM ITEMS

A. Item 1 – Rewiring of the existing receptacles to the new panels

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall be included, and indicated in itemized breakdown.

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Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheet E1.0 and E4.0.

B. Item 2 – Rewiring of the existing lights to the new panels

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall be included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0 and E4.1.

C. Item 3 – Rewiring of the existing motors, pumps, HVAC equipment, chiller, and other equipment to the new panels and switchgear as required.

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0, E4.0, E5.0, E5.1, E5.2, and E6.1.

D. Item 4 – Provision and installation of new panels, breakers, and conduits

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0, E4.0, E5.0, and E6.1.

E. Item 5 – Provision and installation of new electrical switchgear

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0, E2.0, E4.0, E5.0, and E6.1.

F. Item 6 – Coordination, provision, and installation of new electrical service from FP&L

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project,

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rendering a complete and operable system. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0, E2.0, and E5.0.

G. Item 7 – Installation and provision of a new drop down transformer for the facility

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0, E4.0, and E5.0.

H. Item 8 – Properly labeling of all circuits and panels and providing a type written schedule for each panel.

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0, E5.2, and E5.0

I. Item 9 – Demolition of Electrical Items

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete removal of items. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E1.0, E3.0, E3.1 and E5.1

J. Item 10 – New Wall Installation in Electrical Room

1. Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete and operable system. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required. All work covered for Item is included in Sheets E4.2.

K. Item 11 – Provision of As-Built Electrical Plans to the Owner's Representative

1. Provide as-built plans to the Owner's Representative after the final completion of the project. Base plans in CAD format will be provided for the project.

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L. Item 12 – Mobilization

1.Measurement and payment for this Bid Item shall include full compensation for all required work included to complete this portion of this project, rendering a complete movement of supplies and equipment to start the project. All overhead required for this portion of this project shall included, and indicated in itemized breakdown. Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work required.

1.4 SUBMITTALS

A. Submit three copies of each item request for consideration.

1. Schedule of Values:

a. Schedule of Values shall be submitted for Owner and Engineer review prior to commencement of Work. Schedule shall itemize work for each Bid Form item.

2. Request for Payment:

a. Request for Payment shall indicate each item on the approved Schedule of Values. A percentage of completion for each line item for the Schedule of Values shall be the basis for payment request.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF 01105

SECTION 01150 - REMODELING PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Remove designated building equipment and fixtures.
- B. Remove designated partitions and components.
- C. Cap and identify utilities.

1.3 PROTECTION

- A. Conduct demolition to minimize interference with adjacent building areas. Maintain protected egress and access at all times.
- B. Prevent movement or settlement of structures. Provide and place bracing or shoring and be responsible for safety and support of structure. Assume liability for such movement, settlement, damage, or injury.
- C. Cease operations and notify the Project Manager and Engineer immediately, if safety of structure appears to be endangered. Take precautions to support structure properly. Do not resume operations until safety is restored.
- D. Provide, erect and maintain temporary barriers and security devices.

1.4 EXISTING SERVICES

- A. Arrange and pay for disconnecting, removing and capping utility services within areas of demolition. Disconnect and stub off.
- B. Place markers to indicate location of disconnected services. Identify service lines and capping locations on project record documents.

PART 2 - PRODUCTS (Not Used)

2.1 MATERIALS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Erect weatherproof closures for exterior openings.
- B. Protect existing items which are not indicated to be altered.
- C. Locate guard rails in stairwells and around open shafts to protect workers. Post clearly visible warning signs.

3.2 DEMOLITION

- A. Demolish in an orderly and careful manner as required to accommodate new work, including that required for connection to the existing building.
- B. Except where noted otherwise, immediately remove demolished materials from site.
- C. Remove materials to be reinstalled or retained in a manner to prevent damage. Store and protect.
- D. Repair all demolition performed in excess of that required, at no cost to the Owner.
- E. Remove and promptly dispose of contaminated, vermin infested or dangerous materials encountered.
- F. Remove demolished materials, tools and equipment from site as work progresses. Upon completion of work, leave site in a condition acceptable to the Architect.

3.3 RENOVATION

- A. Make new work fit to existing work. Where a new wall is attached to an existing wall, paint the entire wall with new paint.
- B. Match new materials and systems with existing materials unless the existing materials are being removed.

END OF SECTION

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SECTION 01152
REQUESTS FOR PAYMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to the Project Manager or as directed at the preconstruction meeting, in accordance with the schedule established by Conditions of the Contract and Agreement between Owner and Contractor.

1.02 FORMAT AND DATA REQUIRED

- A. Submit payment requests in the form provided by the Owner with itemized data typed in accordance with the Bid Form.
- B. Provide construction photographs in accordance with Contract Documents.

1.03 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Architect/ Engineer requires substantiating data, Contractor shall submit suitable information with a cover letter.
- B. Submit one copy of data and cover letter for each copy of application.

1.04 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in application form as specified for progress payments.

1.05 SUBMITTAL PROCEDURE

- A. Submit applications for payment at the times stipulated in the Agreement.
Number:
- B. Three (3) copies of each application; all signed and certified by the Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01153
CHANGE ORDER PROCEDURES
PART 1 GENERAL

1.01 DEFINITION

- A. Change Order: Major change in contract scope or time that must be approved by the Board.
- B. Administrative Change Adjustment: Minor change order under 10% of project cost or 20% time, does not have to be Board approved.
- C. Field Directive Change: Change to contract quantity that does not require a change of scope or time extension.

1.02 REQUIREMENTS INCLUDED

- A. The Contractor shall promptly implement change order procedures:
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time and material/force account basis.
 - 3. Provide full documentation to Engineer or County Representative on request.
- B. The Contractor shall designate a member of the Contractor's organization who:
 - 1. Is authorized to accept changes to the Work.
 - 2. Is responsible for informing others in the Contractor's employ of the authorized changes into the Work.
- C. The Board of County Commissioners executes all Change Orders.

1.03 PRELIMINARY PROCEDURES

- A. Project Manager may initiate changes by submitting a Request to Contractor. Request will include:
 - 1. Detailed description of the change, products, costs and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The projected time extension for making the change.
 - 4. A specified period of time during which the requested price will be considered valid.
 - 5. Such request is for information only and is not an instruction to execute the changes, nor to stop work in progress.

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B. Contractor may initiate changes by submitting a written notice to the Project Manager, containing:

1. Description of the proposed changes.
2. Statement of the reason for making the changes.
3. Statement of the effect on the Contract Sum and the Contract Time.
4. Statement of the effect on the work of separate contractors.
5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.04 FIELD DIRECTIVE CHANGE

A. In lieu of a Change Order, the Project Manager may issue a Field Directive change for the Contractor to proceed with additional work within the original intent of the Project.

B. Field Directive change will describe changes in the work, with attachments of backup information to define details of the change.

C. Contractor must sign and date the Field Directive change to indicate agreement with the terms therein.

1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

A. Support each quotation for a lump sum proposal and for each unit price; which has not previously been established, with sufficient substantiating data to allow the Engineer/Owner to evaluate the quotation.

B. On request, provide additional data to support time and cost computations:

1. Labor required.
2. Equipment required.
3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
4. Taxes, insurance and bonds.
5. Credit for work deleted from Contract, similarly documented.
6. Overhead and profit.
7. Justification for any change in Contract Time.

C. Support each claim for additional costs and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal plus additional information.

1. Name of the Owner's authorized agent who ordered the work and date of the order.
2. Date and time work was performed and by whom.
3. Time record, summary of hours work and hourly rates paid.
4. Receipts and invoices for:
 - a. Equipment used, listing dates and time of use.
 - b. Products used, listing of quantities.
 - c. Subcontracts.

1.06 PREPARATION OF CHANGE ORDERS

- A. Project Manager will prepare each Change Order.
- B. Change Order will describe changes in the Work, both additions and deletions, with attachments as necessary to define details of the change.
- C. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.07 LUMP SUM/FIXED PRICE CHANGE ORDER

- A. Project Manager initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by the Contractor, or requests from the Owner, or both.
- B. Once the form has been completed, a ll copies should be sent to Contractor for approval. After approval by Contractor, all copies should be sent to Owner for approval. The Owner will distribute executed copies after approval by the Board of County Commissioners.

1.08 UNIT PRICE CHANGE ORDER

- A. Contents of Change Orders will be based on, either:
 - 1. Owner's definition of the scope of the required changes.
 - 2. Contractor's Proposal for a change, as approved by the Owner.
 - 3. Survey of completed work.
- B. The amounts of the unit prices to be:
 - 1. Those stated in the Agreement.
 - 2. Those mutually agreed upon between Owner and Contractor.

1.09 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/CONSTRUCTION CHANGE AUTHORIZATION

- A. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- B. Architect/Engineer will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- C. Architect/ Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- D. Owner and Contractor will sign and date the Change Order to indicate their agreement therewith.

1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Schedule of Values and Application for Payment forms to record each change as a separate item of work, and to record the adjusted Contract Sum.

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B. Periodically revise the Construction Schedule to reflect each change in Contract Time. Revise sub schedules to show changes for other items of work affected by the changes.

C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.
 - 2. Refer to County Purchasing requirements for any contract items.

1.3 MINOR CHANGES IN THE WORK

- A. Architect/Engineer and Project Manager will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect/Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

- c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Engineer or Project Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

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

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01250

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.
 - 3. Refer to County Purchasing requirements for additional directives and clarification.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - 2. Submit the Schedule of Values to Engineer and Project Manager at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect/ Engineer.
 - c. Engineer's or Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 4. Round amounts to nearest whole dollar, total shall equal the Contract Sum.
 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect/Engineer and Project Manager by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- E. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Delays: Submit each Application for Payment with Contractor's waiver of mechanic's lien for construction period covered by the application.
 - a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.

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2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Schedule of unit prices.
 6. Submittals Schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
- G. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
- I. Separate Pricing and Lump Sum Payments
Separate pricing and lump sum payments shall follow the following payment schedule below and meet the required specifications, meet the requirements of the Engineer's plans, and must be accepted by the Owner's Representative and the Engineer.

SCOPE:

The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working

drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.

GENERAL

All contract lump sum prices included in the Bid Proposal section will be full compensation for all labor, equipment, and incidental to construct the Manatee County Utilities Department Admin Electrical Revisions as specified in the Contract Documents under this contract.

WORK OUTSIDE AUTHORIZED LIMITS

No payment will be made for work constructed outside the authorized limits of work.

LUMP SUM PAYMENT

Where payment for items are shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items.

Lump sum contracts shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum totals.

Payment shall be made for the items listed on the Bid Form on the basis of the work actually performed, completed, and accepted by the Engineer. Such work includes but is not limited to the furnishing of all necessary labor, materials, equipment, transportation, clean up, restoration of disturbed areas, all other appurtenances to complete the construction and installation of the work as shown on the drawings, as described in the specifications, and as directed by the Architect/Engineer. Measurement and Payment for Lump Sum bid items will be based on a percentage of completion, as approved by the Owner and recommended by the Engineer, on a monthly basis for the Lump Sum bid items listed on the Bid Form of the Contract Documents. Partial payments will be based on the breakdown of the Bid Item in accordance with the Schedule of Values submitted by the Contractor and approved by the Engineer. Payment shall also include full compensation for project photographs, as-built record drawings, project signs, rubbish and spoil removal, repair, replacement or relocation of all signs, walls, and any and all other items required to complete the project in accordance with Contract Documents.

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the Owner until as-built (record) drawings have been submitted and approved by the Architect/Engineer.

1. Shop Drawings, Working Drawings.
2. Cleanup and miscellaneous work.
3. Testing and placing system in operation.
4. Any material and equipment required to be installed and utilized for the tests.
5. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
6. Maintaining the existing quality of service during construction.
7. Appurtenant work as required for a complete and operable system.
8. As-built Record Drawings.

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Base Bid Item #1

Provide and install all electrical wiring/conductors, conduits, panels, ATS, breakers, switches, fuses, and switchgear per the plans for the Manatee County Utilities Department Admin Building Electrical Revisions as required to meet the Florida Building Code and the National Electrical Code Requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01290

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Coordination Drawings.
 - 3. Administrative and supervisory personnel.
 - 4. Project meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
 - 2. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

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1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
- D, County Project Manager : The County Project Manager(denoted in all specifications as Project Manager) shall review all items on schedule and perform the interface activities with the end users, Scheduled outages, equipment replacements, construction demolition in public access areas, and review all contract items for final approval.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Refer to Division 15 Section "Basic Mechanical Materials and Methods" and Division 16 Section "Basic Electrical Materials and Methods" for specific Coordination Drawing requirements for mechanical and electrical installations.
- B. Staff Names: Within 15 days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1. Include special personnel required for coordination of operations with other contractors.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner, Project Manager, and Engineer of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within 3 days of the meeting.

- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Engineer, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, County Project Manager, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Office, work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. First aid.
 - p. Security.
 - q. Progress cleaning.
 - r. Working hours.

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- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Engineer of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related Change Orders.
 - d. Purchases.
 - e. Deliveries.
 - f. Submittals.
 - g. Review of mockups.
 - h. Possible conflicts.
 - i. Compatibility problems.
 - j. Time schedules.
 - k. Weather limitations.
 - l. Manufacturer's written recommendations.
 - m. Warranty requirements.
 - n. Compatibility of materials.
 - o. Acceptability of substrates.
 - p. Temporary facilities and controls.
 - q. Space and access limitations.
 - r. Regulations of authorities having jurisdiction.
 - s. Testing and inspecting requirements.
 - t. Required performance results.
 - u. Protection of construction and personnel.
 3. Record significant conference discussions, agreements, and disagreements.
 4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at regular intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner, County Project Manager, and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

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- a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Status of recycling and waste disposal.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site utilization.
 - 9) Temporary facilities and controls.
 - 10) Work hours.
 - 11) Hazards and risks.
 - 12) Progress cleaning.
 - 13) Quality and work standards.
 - 14) Change Orders.
 - 15) Documentation of information for payment requests.
3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
- a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
4. Coordination Meetings: Conduct coordination meetings at regular intervals
- Project coordination meetings are in addition to specific meetings held for other purposes , such as progress meetings and preinstallation conferences.
- a. Safety meetings : The contractor shall provide to the Owner's representative/ County Project Manager a copy of in-house written safety policies. Copies of weekly safety meetings shall be retained on site for periodic review.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

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END OF SECTION 01310

PROJECT MANGEMENT AND COORDINATION 01310-6

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment.
 - 2. Division 1 Section "Project Management and Coordination" for submitting Coordination Drawings.
 - 3. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 4. Division 1 Section "Quality Requirements" for submitting test and inspection reports and Delegated-Design Submittals.
 - 5. Division 1 Section "Closeout Procedures" for submitting warranties Project Record Documents and operation and maintenance manuals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

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2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Concurrent Review: Where concurrent review of submittals by Engineer's consultants, Owner, or other parties is required, allow 21 days for initial review of each submittal.
 3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Allow 15 days for processing each resubmittal.
 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect/ Engineer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Unique identifier, including revision number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

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- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
 - 1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer/ Architect will discard submittals received from sources other than Contractor.
 - 1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
 - 2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 - 3. Transmittal Form: Use AIA Document G810.
 - 4. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Submittal and transmittal distribution record.
 - i. Remarks.
 - j. Signature of transmitter.

- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

- I. Use for Construction: Use only final submittals with mark indicating action taken by Architect/Engineer in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment. Please note substitutions or comparable products are reviewed in accordance with Div 1 criteria and may be rejected.

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1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams..
 - i. Standard product operating and maintenance manuals.
 - j. Compliance with recognized trade association standards.
 - k. Compliance with recognized testing agency standards.
 - l. Application of testing agency labels and seals.
 - m. Notation of coordination requirements.
 - n. Compliance with environmental requirements or standards.
 - o. Compliance with sustainable construction practices requirements or standards.
 - p. Compliance with VOC requirements.
 4. Number of Copies: Submit copies of each submittal, as follows:
 - a. Submittal: Submit the number of copies the contractor requires plus one copy which will be retained by the Engineer; plus two additional copies where required for maintenance manuals. Engineer will return the submittals marked with action taken and corrections and modifications required.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.

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2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 24 inches . Emailed adobe PDF's are not allowed.
 4. Number of Copies: Submit copies of each submittal, as follows:
 - a. Initial Submittal: Submit one correctable, translucent, reproducible print and one blue- or black-line print. Architect will return the reproducible print.
 - b. Final Submittal: Submit one correctable, translucent, reproducible print and three blue- or black-line prints, unless prints are required for operation and maintenance manuals. Submit five prints where prints are required for operation and maintenance manuals. Architect will retain two prints; remainder will be returned. Mark up and retain one returned print as a Project Record Drawing.
- D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."
- E. Samples: Prepare physical units of materials or products, including the following:
1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups.
 2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Generic description of Sample.
 - b. Product name or name of manufacturer.
 - c. Sample source.
 5. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, provide the following:
 - a. Size limitations.
 - b. Compliance with recognized standards.
 - c. Availability.
 - d. Delivery time.

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6. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations.
 - b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
7. Number of Samples for Initial Selection: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
8. Number of Samples for Verification: Submit three sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
 - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
9. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
- F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
- G. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."
- H. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for Project Manager's action.
- I. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."

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- J. Application for Payment: Comply with requirements in Division 1 Section "Payment Procedures."
- K. Schedule of Values: Comply with requirements in Division 1 Section "Payment Procedures."
- L. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.
 - 2. Certificates and Certifications: Provide a notarized statement that includes signature of Contractor, testing agency, or design professional responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of the company.
 - 3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

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- G. **Manufacturer Certificates:** Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. **Material Certificates:** Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. **Material Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- J. **Preconstruction Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.
- K. **Compatibility Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- L. **Field Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- M. **Product Test Reports:** Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- N. **Research/Evaluation Reports:** Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- O. **Maintenance Data:** Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."
- P. **Design Data:** Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

- Q. **Manufacturer's Instructions:** Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- R. **Manufacturer's Field Reports:** Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- S. **Insurance Certificates and Bonds:** Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- T. **Construction Photographs:** Comply with requirements in Division 1 Section "Construction Photographs."
- U. **Material Safety Data Sheets:** Submit information directly to Contracting Officer. If submitted to Project Manager, Engineer will not review this information but will return it with no action taken. Comply with requirements in Division 1 Section "Safety Requirements."

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S /ENGINEER'S ACTION

- A. General: Architect/Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect/Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 - 1. Submittals will be marked "Approved," "Approved as Noted," "Revise as Noted and Resubmit," "Rejected/Resubmit as Specified," "No Action Required," "Reviewed." Those marked "Revise as Noted and Resubmit" or "Rejected/Resubmit as Specified" and returned for correction shall be corrected and resubmitted. Upon receiving submittal marked "Approved" or "Approved as Noted" from the Architect/Engineer, the Contractor shall have sufficient sets of prints made from them for distribution.
 - a. Do not use, or allow others to use, submittals marked "Revise as Noted and Resubmit" or "Rejected/Resubmit as Specified" at the Project Site or elsewhere where work is in progress..
- C. Informational Submittals: Architect / Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect/ Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01330

SECTION 01400 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Owner will hire and pay for independent laboratory services.
- C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by the Architect, Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- D. Related Sections include the following:
 - 1. Division 1 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
 - 2. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
 - 3. Divisions 2 through 16 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with

requirements. Services do not include contract enforcement activities performed by Architect.

- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer..

1.5 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
 - 5. Number of tests and inspections required.
 - 6. Time schedule or time span for tests and inspections.
 - 7. Entity responsible for performing tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.
- D. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.

6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Ambient conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

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

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

1.7 QUALITY CONTROL

- A. **Owner Responsibilities:** Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

- B. **Contractor Responsibilities:** Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.
 - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.
 - 2. Notify testing agencies at least [24] <Insert number> hours in advance of time when Work that requires testing or inspecting will be performed.
 - 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

- D. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.

- E. **Testing Agency Responsibilities:** Cooperate with Project Manager, Engineer, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Project Manager, Engineer, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
 - 5. Do not perform any duties of Contractor.

- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field-curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
 2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

SECTION 01420 – REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": The term "approved," when used in conjunction with Engineer's action on Contractor's submittals, applications, and requests, is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Engineer, requested by Engineer, and similar phrases.
- D. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on Drawings; or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
- E. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": The term "furnish" means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": The term "install" describes operations at Project site including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.
- I. "Installer": An installer is Contractor or another entity engaged by Contractor, as an employee, subcontractor, or contractor of lower tier, to perform a particular construction operation, including installation, erection, application, and similar operations.
- J. The term "experienced," when used with the term "installer," means having successfully completed a minimum of five previous projects similar in size and scope to

this Project; being familiar with the special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

K. "Project site" is the space available for performing construction activities, either exclusively or in conjunction with others performing other work as part of Project. The extent of Project site is shown on the Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of the date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to Architect for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from the publication source and make them available on request.

E. Abbreviations and Names: Abbreviations and acronyms are frequently used in the Specifications and other Contract Documents to represent the name of a trade association, standards-developing organization, authorities having jurisdiction, or other entity in the context of referencing a standard or publication. Where abbreviations and

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acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of these entities. Refer to Gale Research's "Encyclopedia of Associations" or Columbia Books' "National Trade & Professional Associations of the U.S.," which are available in most libraries.

Reference publications are cited in other sections of the specifications along with identification of their sponsoring organizations. The addresses of the sponsoring organizations are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

ACI INTERNATIONAL (ACI)
P.O. Box 9094
Farmington Hills, MI 48333-9094
Ph: 248-848-3700
Fax: 248-848-3701
Internet: <http://www.aci-int.org>

AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
4301 North Fairfax Dr., Suite 425
ATTN: Pubs Dept.
Arlington, VA 22203
Ph: 703-524-8800
Fax: 703-528-3816
E-mail: ari@dgsys.com
Internet: <http://www.ari.org>

AIR CONDITIONING CONTRACTORS OF AMERICA (ACCA)
1712 New Hampshire Avenue, NW
Washington, DC 20009
Ph: 202-483-9370
FAX: 202-232-8545

AIR DIFFUSION COUNCIL (ADC)
104 So. Michigan Ave., No. 1500
Chicago, IL 60603
Ph: 312-201-0101
Fax: 312-201-0214

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL (AMCA)
30 W. University Dr.
Arlington Heights, IL 60004-1893
Ph: 847-394-0150
Fax: 847-253-0088

ALUMINUM ASSOCIATION (AA)
900 19th Street N.W.
Washington, DC 20006
Ph: 202-862-5700
Fax: 202-862-5164
Internet: <http://www.aluminum.org>

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)
1827 Walden Ofc. Sq.
Suite 104

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Schaumburg, IL 60173-4268
Ph: 847-303-5664
Fax: 847-303-5774
Internet: <http://www.aamanet.org>

(AASHTO)
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
444 N. Capital St., NW, Suite 249
Washington, DC 20001
Ph: 800-231-3475 or 202-624-5800
Fax: 800-525-5562 or 202-624-5806
Internet: <http://www.aashto.org>

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)
P.O. Box 12215
1 Davis Drive
Research Triangle Park, NC 27709-2215
Ph: 919-549-8141
Fax: 919-549-8933

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01420

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities. Coordinate all temporary, security, and support facilities and use with Project Manager prior to start of any work.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Sewers and drainage.
 - 2. Water service and distribution.
 - 3. Sanitary facilities.
 - 4. Heating and cooling facilities.
 - 5. Ventilation.
 - 6. Electric power service.
 - 7. Lighting.
 - 8. Telephone service.
- C. Support facilities include, but are not limited to, the following:
 - 1. Dewatering facilities and drains.
 - 2. Project identification and temporary signs.
 - 3. Waste disposal facilities.
 - 4. Field offices.
 - 5. Storage and fabrication sheds.
 - 6. Lifts and hoists.
 - 7. Temporary stairs.
 - 8. Construction aids and miscellaneous services and facilities.
 - 9. Cranes, scaffolding, and support structures.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. Environmental protection.
 - 2. Stormwater control.
 - 3. Pest control.
 - 4. Site enclosure fence.
 - 5. Security enclosure and lockup.
 - 6. Barricades, warning signs, and lights.

7. Temporary enclosures.
8. Fire protection.

E. Related Sections include the following:

1. Division 1 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
2. Division 1 Section "Execution Requirements" for progress cleaning requirements.
3. Divisions 2 through 16 for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.3 USE CHARGES

- A. Water Service: Use water from Owner's existing water system without metering and without payment of use charges.
- B. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.

1.4 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
 2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 1. Keep temporary services and facilities clean and neat.
 2. Relocate temporary services and facilities as required by progress of the Work.
 3. Coordinate use of the facilities with the Project Manager prior to the start of the project work.

PART 2 - PRODUCTS

2.1 MATERIALS

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Admin. Building Electrical Revisions

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm) 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide [concrete] [galvanized steel] bases for supporting posts.
- C. Paint: Comply with requirements in Division 9 Section "Painting."
- D. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- E. Water: Potable.

2.2 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Field Offices: Prefabricated with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.
- C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- E. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

- G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

3.2 TEMPORARY UTILITY INSTALLATION

- A. Sewers and Drainage:
 - 1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
 - 2. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.
- B. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
 - 1. Provide rubber hoses as necessary to serve Project site.
- C. Sanitary Facilities: Provide temporary toilets. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Disposable Supplies: Provide toilet tissue and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
 - 3. Use facility restrooms if approved by Owner's Representative.
- D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.
- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements

being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

- F. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
- G. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
- H. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
 - 1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
 - 2. Provide warning signs at power outlets other than 110 to 120 V.
- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- J. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities. Install separate telephone line for each field office and first-aid station.
 - 1. Provide additional telephone lines for the following:
 - a. In field office with more than two occupants, install a telephone for each additional occupant or pair of occupants.
 - b. Provide a dedicated telephone line for each facsimile machine and computer with modem in each field office.
 - c. In Architect's field office provide a dedicated telephone line for telephone, facsimile machine and computer with modem.
 - 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
 - 3. Provide an answering machine or voice-mail service on superintendent's telephone.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
 2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines. Comply with NFPA 241.
 3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Dewatering Facilities and Drains: Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
 2. Remove snow and ice as required to minimize accumulations.
- C. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.
1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated.
 2. Prepare temporary signs to provide directional information to construction personnel and visitors.
 3. Construct signs of exterior-type Grade B-B high-density concrete form overlay plywood in sizes and thicknesses indicated. Support on posts or framing of preservative-treated wood or steel.
 4. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
- E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.
1. Construct framing, sheathing, and siding using fire-retardant-treated lumber and plywood.

2. Paint exposed lumber and plywood with exterior-grade acrylic-latex emulsion over exterior primer.
- F. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- G. Existing Stair Usage: Use of Owner's existing stairs will be permitted, as long as stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If, despite such protection, stairs become damaged, restore damaged areas so no evidence remains of correction work.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
1. Erosion Control: Provide synthetic thermoplastic fibers, woven or nonwoven, 4 oz/sq. yd., breaking load in either machine or cross-machine direction, having capability of passing ground water without transporting soil placed around the fabric. Place filter fabric fence around the site.
- B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- C. Site Enclosure Fence: Before construction operations begin, install portable chain-link enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.
1. Provide gates in sizes and at locations necessary to accommodate delivery vehicles and other construction operations.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch- (16-mm-) thick exterior plywood.

- E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 - 2. Vertical Openings: Close openings of 25 sq. ft. (2.3 sq. m) or less with plywood or similar materials.
 - 3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
 - 4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
 - 5. Where temporary wood or plywood enclosure exceeds 100 sq. ft. (9.2 sq. m) in area, use fire-retardant-treated material for framing and main sheathing.

- F. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
 - a. Field Offices: Class A stored-pressure water-type extinguishers.
 - b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
 - c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
 - 4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
 - 5. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

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1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 1 Section "References" for applicable industry standards for products specified.
 - 2. Division 1 Section "Closeout Procedures" for submitting warranties for contract closeout.
 - 3. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.4 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
 - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 - 2. Form: Tabulate information for each product under the following column headings:
 - a. Specification Section number and title.
 - b. Generic name used in the Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 - h. Identification of items that require early submittal approval for scheduled delivery date.
 - 3. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - 4. Engineer's Action: Engineer will respond in writing to Contractor within 15 days of receipt of completed product list. Engineer's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Engineer's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.

- B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use CSI Form 13.1A.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. VOC content, recycled content and additional sustainable product requirements specified.
 - c. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - d. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - e. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - f. Samples, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - j. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 - n. If the substitution requires additional or changes in electrical, mechanical, structural, plumbing, fire protection, and or architectural elements, the contractor is responsible for all modifications at their cost.
 3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Engineer will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of

request, or 7 days of receipt of additional information or documentation, whichever is later.

- a. Form of Acceptance: Change Order.
 - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Provide products with energy efficient designs and with materials complying with environmental protection considerations.
- B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options. Comparable or equal products shall be evaluated as substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store materials in a manner that will not endanger Project structure.
 - 7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 9. Protect stored products from damage.
- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
 - 3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 4. Where products are accompanied by the term "as selected," Architect will make selection.
 - 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
 - 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 - 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
 - 1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.

- a. Substitutions may be considered, unless otherwise indicated.
2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
5. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Products" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Substitutions may be considered, unless otherwise indicated.
6. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.
7. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or

texture from manufacturer's product line that includes both standard and premium items.

8. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Engineer will consider requests for substitution if received within 30 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Engineer.
- B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.
 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 4. Substitution request is fully documented and properly submitted.
 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 7. Requested substitution is compatible with other portions of the Work.
 8. Requested substitution has been coordinated with other portions of the Work.
 9. Requested substitution provides specified warranty.
 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will

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produce the indicated results, and that it is compatible with other portions of the Work.

2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01600

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 15 and 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 - 3. Products: List products to be used and firms or entities that will perform the Work.
 - 4. Dates: Indicate when cutting and patching will be performed.

5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
 1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.
- B. New Warranties: The County Requires that at least a 3 year fully comprehensive warranty be applied to all new work perform which includes: the new product, installation, and possible travel, and reimbursement expenses.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

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1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

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END OF SECTION 01731

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of a building or structure.
 - 2. Repair procedures for selective demolition operations.
 - 3. Coordinate all work with the Project Manager prior to start of work. The facility is occupied at all times. Weekend and nite work may be required to establish areas of work due to noise and dirt generation in the spaces. Area isolation and temporary facilities shall be required to prevent migration of any dust or dirt moving into the areas in operation. Traffic control may be required due to access to the site by Owner employees.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary" for use of the premises and phasing requirements.
 - 2. Division 1 Section "Work Restrictions" for restrictions on use of the premises due to Owner or tenant occupancy..
 - 3. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
 - 4. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.
 - 5. Division 15 Sections for demolishing, cutting, patching, or relocating mechanical items.
 - 6. Division 16 Sections for demolishing, cutting, patching, or relocating electrical items.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse, if required.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.
- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.
 - 1. Coordinate with Owner's Project Manager, who will establish special procedures for removal and salvage.

1.5 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- C. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of temporary partitions and means of egress.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- E. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be

misconstrued as damage caused by selective demolition operations. Submit before Work begins.

- F. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes. Maintain weight tickets from all solid waste disposal sites (C&D landfills and recycling yards) as well as for hazardous waste disposal slips.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Professional Engineer Qualifications: Comply with Division 1 Section "Quality Requirements."
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
- F. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 7 days notice to Owner of activities that will affect Owner's operations.
- B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

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1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for condition of areas to be selectively demolished.
 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 1. Hazardous materials will be removed by Owner before start of the Work.
 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Hazardous Materials: Hazardous materials are present in building to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- F. Storage or sale of removed items or materials on-site will not be permitted.
- G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.
 1. If possible, retain original Installer or fabricator to patch the exposed Work listed below that is damaged during selective demolition. If it is impossible to engage original Installer or fabricator, engage another recognized experienced and specialized firm.
 - a. Processed concrete finishes.
 - b. Matched-veneer woodwork.
 - c. Preformed metal panels.
 - d. Roofing.
 - e. Firestopping.

- f. Stucco and ornamental plaster.
- g. Aggregate wall coating.
- h. Wall covering.
- i. HVAC enclosures, cabinets, or covers.
- j. Drywall panels
- k. Accoustical tile
- l. Computer floor systems

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY AND BUILDING SERVICES

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- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities and building services serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - 1. Provide at least 7 days notice to Owner if shutdown of service is required during changeover.
- C. Utility and Building Services Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
 - 1. Owner will arrange to shut off indicated utilities/building service when requested by Contractor.
 - 2. Arrange to shut off indicated utilities with utility companies and facility personnel.
 - 3. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
 - 4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- D. Utility/ Building Service Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility building service disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
- B. Pest Control: Employ a certified, licensed exterminator to treat building and to control rodents and vermin before and during selective demolition operations.
- C. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 - 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - 3. Protect existing site improvements, appurtenances, and landscaping to remain.

4. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
- D. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- E. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- F. Temporary Shoring: Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.

3.4 POLLUTION CONTROLS

- A. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.5 SELECTIVE DEMOLITION

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- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly.
 10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with County Project Manager's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

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- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.
- F. Concrete: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch (19 mm) at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.
- G. Crush and re-use demolished concrete as clean fill, or provide to a recycler in accordance with Section 01350.
- H. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- I. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- J. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI-WP and its Addendum.
 - 1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.
- K. Roofing: Remove no more existing roofing than can be covered in one day by new roofing. Refer to applicable Division 7 Section for new roofing requirements.
- L. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
 - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing

floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

F. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly recycle or dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials and legally dispose of them.

END OF SECTION 01732

DIVISION 01741- CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 1. Recycling nonhazardous construction waste.
 2. Disposing of nonhazardous construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- C. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

1.4 SUBMITTALS

- A. Waste Management Plan: Submit 3 copies of plan within 7 days of date established for commencement of the Work.

1.5 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.6 WASTE MANAGEMENT PLAN

- A. Waste Identification: Indicate anticipated types and quantities of construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

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

- B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project Record Documents.
 - 3. Operation and maintenance manuals.
 - 4. Warranties.
 - 5. Instruction of Owner's personnel.
 - 6. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect/ Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect/Engineer, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's, Engineer's, and Project Manager's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by the Project Manager.. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect/Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect/Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or

corrected before certificate will be issued. "Work list" type observations shall not occur. If the process becomes multiple "work list" observations, the contractor shall pay the Engineer for multiple observations.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect/ Engineer and Project Manager.
 - d. Name of Contractor.
 - e. Page number.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.

- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.

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2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Mark important additional information that was either shown schematically or omitted from original Drawings.
4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Note related Change Orders, Record Drawings, and Product Data, where applicable.

D. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.

E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.7 OPERATION AND MAINTENANCE MANUALS

A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Provide a copy of all operation and maintenance manuals in PDF format to the Owner's Representative on a CD or DVD disc. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:

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- a. Emergency instructions and procedures.
 - b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Piping diagrams.
2. Maintenance Data:
- a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.8 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

- D. Provide additional copies of each warranty to include in operation and maintenance manuals.
- E. Project shall have a warranty for three years fully comprehensive after the final complete written acceptance of the Owner's representative.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

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

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and anti-pollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site..
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Replace parts subject to unusual operating conditions.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

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- o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - p. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - r. Leave Project clean and ready for occupancy.
- C. Comply with safety and environmental standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully. Use non-toxic and low-VOC cleaning products to the extent possible while complying with manufacturer's recommendations.

END OF SECTION 01770

DIVISION 01782 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 1. Operation and maintenance documentation directory.
 2. Emergency manuals.
 3. Operation manuals for systems, subsystems, and equipment.
 4. Maintenance manuals for the care and maintenance of products, materials, and finishes systems and equipment.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

- A. Final Submittal: Submit one copy of each manual in final form at least 15 days before final inspection. Engineer will return copy with comments within 15 days after final inspection.
 1. Correct or modify each manual to comply with Engineer's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Engineer's comments.

1.5 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 1. List of documents.
 2. List of systems.
 3. List of equipment.
 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

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- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Contractor.
 - 6. Name and address of Engineer.
 - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 - 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

- a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
- b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 1. Flood.
 2. Gas leak.
 3. Water leak.
 4. Power failure.
 5. Water outage.
 6. System, subsystem, or equipment failure.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions.
 2. Performance and design criteria if Contractor is delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 1. Product name and model number.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.

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7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
 2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
 2. Types of cleaning agents to be used and methods of cleaning.
 3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

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- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard printed maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

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- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
 - 2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."
- G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01782

DIVISION 01783 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up Record Prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal: Submit one set(s) of plots from corrected Record CAD Drawings and one set(s) of marked-up Record Prints. Engineer will initial and date each plot and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Engineer will return plots and prints for organizing into sets, printing, binding, and final submittal.
 - b. Final Submittal: Submit one set(s) of marked-up Record Prints, one set(s) of Record CAD Drawing files, one set(s) of Record CAD Drawing plots. Plot and print each Drawing, whether or not changes and additional information were recorded.
 - 1) Electronic Media: CD-R.
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

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2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Engineer's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record CAD Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Engineer. When authorized, prepare a full set of corrected CAD Drawings of the Contract Drawings, as follows:
1. Format: Same CAD program, version, and operating system as the original Contract Drawings.
 2. Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Engineer for resolution.
 4. Engineer will furnish Contractor one set of CAD base Drawings of the Contract Drawings for use in recording information.
 - a. Engineer makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.
- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Engineer determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 2. Consult Engineer for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.

3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Engineer.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.

END OF SECTION 01783

DIVISION 01790 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.

1.3 SUBMITTALS

- A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. At completion of training, submit one complete training manual(s) for Owner's use.
- B. Demonstration and Training Videotapes: Submit two copies within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of photographer.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Date videotape was recorded.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

1.4 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Engineer.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:
 - 1. Refrigeration systems, including chillers condensers.
 - 2. HVAC systems, including air-handling equipment air distribution systems and terminal equipment and devices.
 - 3. HVAC instrumentation and controls.
 - 4. Electrical service and distribution, including transformers switchboards panelboards and motor controls.
 - 5. Lighting equipment and controls.
 - 6. Fire Protection systems.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 - 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.

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- i. Operating procedures for emergencies.
- j. Operating procedures for system, subsystem, or equipment failure.
- k. Seasonal and weekend operating instructions.
- l. Required sequences for electric or electronic systems.
- m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Engineer will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
 - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 3. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner with at least seven days' advance notice.

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- D. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION 01790

SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Protecting existing vegetation to remain.
 - 2. Minor Clearing and grubbing due to installation of Utilities.
 - 3. Temporary erosion- and sedimentation-control measures.

1.3 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.
- D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.
- E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.
- F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

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1. Use sufficiently detailed photographs or videotape.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE.

- A. Preinstallation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

- B. Utility Locator Service: One Call.

- C. Do not commence site clearing operations until temporary erosion- and sedimentation-control[and plant-protection measures are in place.

- D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

- E. Do not direct vehicle or equipment exhaust towards protection zones.

- F. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones..

- G. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - EXECUTION

2.1 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated. Flag [Wrap blue vinyl tie tape flag around each tree trunk at 54 inches (1372 mm) above the ground.

- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

2.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

2.3 TREE AND PLANT PROTECTION

- A. General: Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Project Representative.

2.4 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 - 2. Use only hand methods for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

2.5 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

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1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

2.6 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 02230

SECTION 02300 - EARTH MOVING

- GENERAL

- RELATED DOCUMENTS
 - Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government, apply to this Section.

- SUMMARY
 - Section Includes:
 - Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, ,and plants..
 - Subbase course for concrete walk, pavements.
 - Subbase course and base course for asphalt paving.

- DEFINITIONS
 - Backfill: Soil material or controlled low-strength material used to fill an excavation.
 - Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - Final Backfill: Backfill placed over initial backfill to fill a trench.
 - Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.
 - Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
 - Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
 - Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
 - Fill: Soil materials used to raise existing grades.
 - Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

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- Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.
- INFORMATIONAL SUBMITTALS
 - Qualification Data: For qualified testing agency.
 - Material Test Reports: For each] soil material proposed for fill and backfill as follows:
 - Classification according to ASTM D 2487.
 - Laboratory compaction curve according to ASTM D 698.
 - Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.
- QUALITY ASSURANCE
 - Preexcavation Conference: Conduct conference at Project site.
- PROJECT CONDITIONS
 - Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
 - Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
 - Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - Do not proceed with work on adjoining property until directed by Architect.

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- Utility Locator Service: Notify "One Call" for area where Project is located before beginning earth moving operations.
- The following practices are prohibited within protection zones:
 - =Storage of construction materials, debris, or excavated material.
 - Parking vehicles or equipment.
 - Foot traffic.
 - Erection of sheds or structures.
 - Impoundment of water.
 - Excavation or other digging unless otherwise indicated.
 - Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- Do not direct vehicle or equipment exhaust towards protection zones.
- Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.
- PRODUCTS
- SOIL MATERIALS
 - General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
 - Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 and Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.
 - Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
 - Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.
 - Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.
 - Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

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- Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.
- Drainage Course: Narrowly graded mixture of [washed] crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.
- Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and 0 to 5 percent passing a No. 4 (4.75-mm) sieve.
- Sand: ASTM C 33; fine aggregate.
- Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

- EXECUTION

- PREPARATION
 - Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
 - Protect and maintain erosion and sedimentation controls during earth moving operations.
 - Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

- DEWATERING
 - Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
 - Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

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- EXCAVATION, GENERAL
 - Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.
 - Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
 - Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.
- EXCAVATION FOR STRUCTURES
 - Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections..
 - - Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch (25 mm). Do not disturb bottom of excavations intended as bearing surfaces.
 - Excavations at Edges of Tree- and Plant-Protection Zones:
 - Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
 - Cut and protect roots.
- EXCAVATION FOR WALKS AND PAVEMENTS
 - Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.
- SUBGRADE INSPECTION
 - Notify Architect when excavations have reached required subgrade.

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- If Project Representative determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- Authorized additional excavation and replacement material will be paid for according to Contract provisions of Manatee Government Contract.
- Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Project Representative, without additional compensation.

- **UNAUTHORIZED EXCAVATION**
 - Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.
 - Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

- **STORAGE OF SOIL MATERIALS**
 - Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

- **BACKFILL**
 - Place and compact backfill in excavations promptly, but not before completing the following:
 - Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 - Surveying locations of underground utilities for Record Documents.
 - Testing and inspecting underground utilities.
 - Removing concrete formwork.
 - Removing trash and debris.
 - Removing temporary shoring and bracing, and sheeting.
 - Installing permanent or temporary horizontal bracing on horizontally supported walls.

 - Place backfill on subgrades free of mud, frost, snow, or ice.

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- SOIL FILL
 - Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
 - Place and compact fill material in layers to required elevations as follows:
 - Under grass and planted areas, use satisfactory soil material.
 - Under walks and pavements, use satisfactory soil material.
 - Under steps and ramps, use engineered fill.
 - Under building slabs, use engineered fill.
 - Place soil fill on subgrades free of mud.
- SOIL MOISTURE CONTROL
 - Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.
- COMPACTION OF SOIL BACKFILLS AND FILLS
 - Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.
 - Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
 - Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698
 - Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 95 percent.
 - Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85percent.
- GRADING

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- **General:** Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - Provide a smooth transition between adjacent existing grades and new grades.
 - Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- **Site Rough Grading:** Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - Turf or Unpaved Areas: Plus or minus 1 inch (25 mm).
 - Walks: Plus or minus 1 inch (25 mm).
 - Pavements: Plus or minus 1/2 inch (13 mm).
- **Grading inside Building Lines:** Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.
- **SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS**
 - Place subbase course and base course on subgrades free of mud.
 - On prepared subgrade, place subbase course and base course under pavements and walks as follows:
 - Place base course material over subbase course under hot-mix asphalt pavement.
 - Shape subbase course and base course to required crown elevations and cross-slope grades.
 - Place subbase course and base course 6 inches (150 mm) or less in compacted thickness in a single layer.
 - Place subbase course and base course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
 - Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698
- **PROTECTION**
 - **Protecting Graded Areas:** Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

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- Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
- Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.
- DISPOSAL OF SURPLUS AND WASTE MATERIALS
 - Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 02300

SECTION 02980 - ASPHALT PAVING

- GENERAL

- RELATED DOCUMENTS
 - Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government, apply to this Section.

- SUMMARY
 - Section Includes:
 - Hot-mix asphalt patching.
 - Related Requirements:

- PREINSTALLATION MEETINGS
 - Preinstallation Conference: Conduct conference at Project site.
 - Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
 - Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
 - Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

- ACTION SUBMITTALS
 - Product Data: For each type of product.
 - Include technical data and tested physical and performance properties.
 - Job-Mix Designs: For each job mix proposed for the Work.
 - Samples for Verification: For the following product, in manufacturer's standard sizes unless otherwise indicated:
 - Paving Fabric: 12 by 12 inches (300 by 300 mm) minimum.

- INFORMATIONAL SUBMITTALS

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- Qualification Data: From manufacturer
- Material Test Reports: For each paving material, by a qualified testing agency.
- QUALITY ASSURANCE
 - Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction or the FDOT
 - Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.
 - Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of FDOT for asphalt paving work.
 - Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.
- FIELD CONDITIONS
 - Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - Prime Coat: Minimum surface temperature of 60 deg F (15.6 deg C).
 - Tack Coat: Minimum surface temperature of 60 deg F (15.6 deg C).
 - Slurry Coat: Comply with weather limitations in ASTM D 3910.
- PRODUCTS
- AGGREGATES
 - General: Use materials and gradations that have performed satisfactorily in previous installations.
- ASPHALT MATERIALS
 - Asphalt Binder: AASHTO M 320
 - Asphalt Cement: ASTM D 3381/D 3381M for viscosity-graded material or ASTM D 946/D 946M for penetration-graded material.
 - Water: Potable.
- MIXES

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- Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following requirements:
 - Provide mixes with a history of satisfactory performance in geographical area where Project is located.

- EXECUTION

- EXAMINATION
 - Verify that subgrade is dry and in suitable condition to begin paving.
 - Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - Proceed with paving only after unsatisfactory conditions have been corrected.

- PATCHING
 - Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches (300 mm) into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
 - Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.15 gal./sq. yd. (0.2 to 0.7 L/sq. m).
 - Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
 - Placing Patch Material: Fill excavated pavement areas with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

- SURFACE PREPARATION
 - General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

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- PLACING HOT-MIX ASPHALT.
 - Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - Place hot-mix asphalt surface course in single lift.
 - Spread mix at a minimum temperature of 250 deg F (121 deg C).
 - Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
 - Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
 - Place paving in consecutive strips not less than 10 feet (3 m) wide unless infill edge strips of a lesser width are required.
 - After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches (25 to 38 mm) from strip to strip to ensure proper compaction of mix along longitudinal joints.
 - Complete a section of asphalt base course before placing asphalt surface course.
 - Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.
- JOINTS
 - Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - Clean contact surfaces and apply tack coat to joints.
 - Offset longitudinal joints, in successive courses, a minimum of 6 inches (150 mm).
 - Offset transverse joints, in successive courses, a minimum of 24 inches (600 mm).
 - Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
 - Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.

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- Compact asphalt at joints to a density within 2 percent of specified course density.

- **COMPACTION**
 - **General:** Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - Complete compaction before mix temperature cools to 185 deg F (85 deg C).

 - **Breakdown Rolling:** Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

 - **Intermediate Rolling:** Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - Average Density: 96 percent of reference laboratory density according to [ASTM D 6927], but not less than 94 percent or greater than 100 percent.
 - Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent or greater than 96 percent.

 - **Finish Rolling:** Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

 - **Edge Shaping:** While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

 - **Repairs:** Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

 - **Protection:** After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

 - Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

- **INSTALLATION TOLERANCES**
 - **Pavement Thickness:** Compact each course to produce the thickness indicated within the following tolerances:

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- Base Course: Plus or minus 1/2 inch (13 mm).
- Surface Course: Plus 1/4 inch (6 mm), no minus.

- Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
 - Base Course: 1/4 inch (6 mm)] .
 - Surface Course: 1/8 inch (3 mm).

- FIELD QUALITY CONTROL
 - Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections .
 - Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
 - Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
 - In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
 - Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
 - In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
 - One core sample will be taken for every 1000 sq. yd. (836 sq. m) or less of installed pavement, with no fewer than three cores taken.
 - Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
 - Replace and compact hot-mix asphalt where core tests were taken.
 - Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

- WASTE HANDLING
 - Properly dispose of Waste.

END OF SECTION 02980

SECTION 03305 - MISCELLANEOUS CAST-IN-PLACE CONCRETE

- GENERAL

- RELATED DOCUMENTS
 - Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government, apply to this Section.

- SUMMARY
 - Section includes cast-in-place concrete, including reinforcement, concrete materials, mixture design, placement procedures, and finishes for small patches less than 9 SF.

- ACTION SUBMITTALS
 - Product Data: For each type of product indicated.
 - Other Action Submittal:
 - Design Mixtures: For each concrete mixture.

- QUALITY ASSURANCE
 - Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - Comply with the following sections of ACI 301, unless modified by requirements in the Contract Documents:
 - "General Requirements."
 - "Formwork and Formwork Accessories."
 - "Reinforcement and Reinforcement Supports."
 - "Concrete Mixtures."
 - "Handling, Placing, and Constructing."
 - Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

- PRODUCTS

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- FORMWORK
 - Furnish formwork and formwork accessories according to ACI

- STEEL REINFORCEMENT
 - Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from as-drawn steel wire into flat sheets.

- CONCRETE MATERIALS
 - Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout Project:
 - Portland Cement: ASTM C 150
 - Normal-Weight Aggregate: ASTM C 33, graded, 1-1/2-inch nominal maximum aggregate size.
 - Water: ASTM C 94/C 94M.

- RELATED MATERIALS
 - Vapor Retarder: Plastic sheet, ASTM E 1745, Class A or B.
 - Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

- CURING MATERIALS
 - Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
 - Water: Potable.

- CONCRETE MIXTURES
 - Comply with ACI 301 requirements for concrete mixtures.
 - Normal-Weight Concrete: Prepare design mixes, proportioned according to ACI 301 as follows:
 - Minimum Compressive Strength 3000 psi at 28 days.
 - Maximum Water-Cementitious Materials Ratio: 0.50.
 - Slump Limit: 4 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture.

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- Air Content: Maintain within range permitted by ACI 301. Do not allow air content of trowel-finished floor slabs to exceed 3 percent.

- CONCRETE MIXING
 - Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116, and furnish batch ticket information.
 - When air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
 - Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 - For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 - For mixer capacity larger than 1 cu. yd. increase mixing time by 15 seconds for each additional 1 cu. yd.
 - Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

- EXECUTION
 - FORMWORK
 - Design, construct, erect, brace, and maintain formwork according to ACI 301.

 - EMBEDDED ITEMS.
 - Place and secure anchorage devices and other embedded items required for adjoining work attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

 - VAPOR RETARDERS
 - Install, protect, and repair vapor retarders according to ASTM E 1643; place sheets in position with longest dimension parallel with direction of pour.
 - Lap joints 6 inches and seal with manufacturer's recommended adhesive or joint tape.

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- STEEL REINFORCEMENT
 - Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
 - Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

- JOINTS
 - General: Construct joints true to line with faces perpendicular to surface plane of concrete.

 - Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

- CONCRETE PLACEMENT
 - Comply with ACI 301 for placing concrete.

 - Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

 - Do not add water to concrete during delivery, at Project site, or during placement.

 - Consolidate concrete with mechanical vibrating equipment.

- FINISHING FORMED SURFACES
 - Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

- FINISHING UNFORMED SURFACES
 - General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

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- Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on surface.
 - Do not further disturb surfaces before starting finishing operations.
- Nonslip Broom Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
- CONCRETE PROTECTING AND CURING
 - General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.
 - Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
 - Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:
 - Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- REPAIRS
 - Remove and replace concrete that does not comply with requirements in this Section.

END OF SECTION 03305

SECTION 06105 - MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Rooftop equipment bases and support curbs, nailers, blocking.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Environmental Impact of Materials" for guidelines to VOC content and recommended recycled content of products.
 - 2. Division 7 Section "Roofing"

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:
 - 1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 - 2. For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
- C. Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with performance requirements indicated.
- D. Warranty of chemical treatment manufacturer for each type of treatment.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.

1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

- A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:
 1. NELMA - Northeastern Lumber Manufacturers Association.
 2. SPIB - Southern Pine Inspection Bureau.
 3. WCLIB - West Coast Lumber Inspection Bureau.
 4. WWPA - Western Wood Products Association.
- C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
 1. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece.
- D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 1. Provide dressed lumber, S4S, unless otherwise indicated.
 2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 (lumber) and AWPA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
 1. Do not use chemicals containing chromium or arsenic.
 2. For exposed items indicated to receive stained finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

- B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. (4.0 kg/cu. m). After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items and the following:

- 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

2.3 DIMENSION LUMBER

- A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.

2.4 BOARDS

- A. Exposed Boards: Where boards will be exposed in the finished work, provide the following:

- 1. Moisture Content: 19 percent maximum.
- 2. Species and Grade: Eastern white pine, D Select per NELMA rules.
- 3. Species and Grade: Southern pine, C Finish per SPIB rules.
- 4. Species and Grade: Spruce-pine-fir, C & Btr per WCLIB rules or C Select per WWPA rules.

- B. Concealed Boards: Where boards will be concealed by other work, provide lumber with 19 percent maximum moisture content and of following species and grade:

- 1. Species and Grade: Eastern softwoods, No. 3 Common per NELMA rules.
- 2. Species and Grade: Mixed southern pine, No. 2 per SPIB rules.
- 3. Species and Grade: Spruce-pine-fir, Standard per WCLIB rules or No. 3 Common per WWPA rules.

2.5 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

- C. Moisture Content: 19 percent maximum for lumber items are not specified to receive wood preservative treatment.

- D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, or WWPA; No. 2 grade per SPIB; or Standard grade per WCLIB or WWPA of any species.

2.6 WOOD-BASED STRUCTURAL-USE PANELS

- A. Structural-Use Panel Standards: Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood," where plywood is indicated.
- B. Trademark: Factory mark structural-use panels with APA trademark evidencing compliance with grade requirements.
- C. Miscellaneous Concealed Plywood: C-C Plugged Exterior, thickness as indicated but not less than 1/2 inch (12.7 mm).
- D. Miscellaneous Concealed Panels: APA-rated sheathing, Exposure 1, span rating to suit framing in each location.
- E. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant-treated plywood panels with grade, C-D Plugged Exposure 1, in thickness indicated or, if not otherwise indicated, not less than 15/32 inch (11.9 mm) thick.

2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.
- B. Nails, Wire, Brads, and Staples: FS FF-N-105.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
- C. Fit carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

- D. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.
- E. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- F. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install where shown and where required for screeding or attaching other work. Cut and shape to required size. Coordinate locations with other work involved.
- B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 INSTALLATION OF STRUCTURAL-USE PANELS

- A. General: Comply with applicable recommendations contained in APA Form No. E30, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.

END OF SECTION 06105

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SECTION 07920 - JOINT SEALANTS

- GENERAL

- RELATED DOCUMENTS
 - Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government apply to this Section.

- SUMMARY
 - Section Includes:
 - Silicone joint sealants applications in addition to Mechanical/Electrical Engineers applications through wall pipe penetration seals.

- PREINSTALLATION MEETINGS
 - Preinstallation Conference: Conduct conference at Project site.

- ACTION SUBMITTALS
 - Product Data: For each joint-sealant product..
 - Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
 - Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
 - Joint-Sealant Schedule: Include the following information:
 - Joint-sealant application, joint location, and designation.
 - Joint-sealant manufacturer and product name.
 - Joint-sealant formulation.
 - Joint-sealant color.

- INFORMATIONAL SUBMITTALS
 - Qualification Data: For qualified testing agency.

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- Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer.
- Preconstruction Laboratory Test Schedule: Include the following information for each joint sealant and substrate material to be tested:
 - Joint-sealant location and designation.
 - Manufacturer and product name.
 - Type of substrate material.
 - Proposed test.
 - Number of samples required.
- Preconstruction Laboratory Test Reports: From sealant manufacturer, indicating the following:
 - Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.
- Preconstruction Field-Adhesion-Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.
- Field-Adhesion-Test Reports: For each sealant application tested.
- Sample Warranties: For special warranties.
- QUALITY ASSURANCE
 - Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
 - Product Testing: Test joint sealants using a qualified testing agency.
 - Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.
 - Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.
- PRECONSTRUCTION TESTING.
 - Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

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- Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.
- Stain Testing: Use ASTM C 1248 to determine stain potential of sealant when in contact with substrates.
- Submit manufacturer's recommended number of pieces of each type of material, including joint substrates, joint-sealant backings, and miscellaneous materials.
- Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
- For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures, including use of specially formulated primers..
- Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.
- Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
 - Locate test joints where indicated on Project or, if not indicated, as directed by Project Representative.
 - Conduct field tests for each kind of sealant and joint substrate.
 - Notify Project Representative seven days in advance of dates and times when test joints will be erected...
 - Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 - Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.
- FIELD CONDITIONS

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- Do not proceed with installation of joint sealants under the following conditions:
 - When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
 - When joint substrates are wet.
 - Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

- WARRANTY
 - Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - Warranty Period: Two years (Manatee Gove Contract requirement) from date of Substantial Completion.
 - Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - Warranty Period: Five years from date of Substantial Completion.
 - Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 - Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 - Disintegration of joint substrates from causes exceeding design specifications.
 - Mechanical damage caused by individuals, tools, or other outside agents.
 - Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

- PRODUCTS
 - JOINT SEALANTS, GENERAL
 - Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

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- SILICONE JOINT SEALANTS
 - Silicone, S, NS, 100/50, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
 - Products: Subject to compliance with requirements, (Or Equal)
 - GE Construction Sealants; SCS2700 SilPruf LM .
 - Sika Corporation U.S.; Sikasil WS-290
 - Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 - Products: Subject to compliance with requirements, (Or Equal)
 - Dow Corning Corporation; 791.
 - GE Construction Sealants; SCS2000 SilPruf.
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 265 LTS.
 - Pecora Corporation; PCS.
 - Silicone, S, NS, 35, NT: Single-component, nonsag, plus 35 percent and minus 35 percent movement capability. nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 35, Use NT.
 - Products: Subject to compliance with requirements, , (Or Equal)
 - GE Construction Sealants; SWS.
 - Silicone, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - Products: Subject to compliance with requirements, , (Or Equal)
 - Dow Corning Corporation; 758.
 - GE Construction Sealants; SCS2350.
 - Schnee-Morehead, Inc., an ITW company; SM5731 Poly-Glaze Plus.
 - Silicone, Acid Curing, S, NS, 25, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant: ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - Products: Subject to compliance with requirements, , (Or Equal)
 - Bostik, Inc.; Chem-Calk 1200.
 - Dow Corning Corporation; [999A].

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- Pecora Corporation; 860.
 - Polymeric Systems, Inc.; PSI-601.
 - Sika Corporation U.S.; Sikasil-GP.
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- Silicone, S, NS, 100/50, T, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Uses T and NT..
 - Products: Subject to compliance with requirements, , (Or Equal)
 - Dow Corning Corporation; NS.
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.;
-
- Silicone, S, NS, 50, T, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Uses T and NT.
 - Products: Subject to compliance with requirements, , (Or Equal)
 - Dow Corning Corporation; 799].
 - Soudal USA; RTV 50.
-
- Silicone, S, NS, 25, T, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Uses T and NT.
 - Products: Subject to compliance with requirements, , (Or Equal)
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 199 PG.
 - Sika Corporation U.S.; Sikasil-N Plus US.
-
- Silicone, S, P, 100/50, T, NT: Single-component, pourable, plus 100 percent and minus 50 percent movement capability traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade P, Class 100/50, Uses T and NT.
 - Products: Subject to compliance with requirements, ,(Or Equal)
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 728 SG].
-
- Silicone, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT..

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- Products: Subject to compliance with requirements, , (Or Equal)
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 200 SC].
- Silicone, M, P, 100/50, T, NT: Multicomponent, pourable, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type M, Grade P, Class 100/50, Uses T and NT.
- Products: Subject to compliance with requirements, , (Or Equal)
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 728 RCS.
- NONSTAINING SILICONE JOINT SEALANTS
- Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.
- Silicone, Nonstaining, S, NS, 100/50, NT: Nonstaining, single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
- Products: Subject to compliance with requirements, , (Or Equal)
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 290 FPS-NB
 - Pecora Corporation; [890FTS/TXTR] [890 NST].
 - Tremco Incorporated; Spectrem 1..
- Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
- Products: Subject to compliance with requirements , (Or Equal)
 - Dow Corning Corporation; 756 SMS.
 - GE Construction Sealants; SilPruf NB.
 - May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 295 FPS NB.
- Silicone, Nonstaining, S, NS, 100/50, T, NT: Nonstaining, single-component, nonsag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Uses T and NT.

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- Products: Subject to compliance with requirements, , (Or Equal)
- - Dow Corning Corporation; 790.
- Silicone, Nonstaining, M, NS, 50, NT: Nonstaining, multicomponent, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type M, Grade NS, Class 50, Use NT.
- Products: Subject to compliance with requirements, , (Or Equal)
 - Tremco Incorporated; Spectrem 4-TS.
- JOINT-SEALANT BACKING
- Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
 - Manufacturers: Subject to compliance with requirements, (Or Equal)
 - Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
 - BASF Construction Chemicals, LLC, Building Systems.
 - Construction Foam Products, a division of Nomaco, Inc.
- EXECUTION
- EXAMINATION
 - Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
 - Proceed with installation only after unsatisfactory conditions have been corrected.
- PREPARATION
 - Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

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- Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - Concrete.
 - Masonry.
 - Exterior insulation and finish systems.
 -
- Remove laitance and form-release agents from concrete.
- Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - Metal.
- Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
- **INSTALLATION OF JOINT SEALANTS**
 - General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
 - Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
 - Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of

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installed sealants relative to joint widths that allow optimum sealant movement capability.

- Do not leave gaps between ends of sealant backings.
 - Do not stretch, twist, puncture, or tear sealant backings.
 - Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials. =.
- Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - Place sealants so they directly contact and fully wet joint substrates.
 - Completely fill recesses in each joint configuration.
 - Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
 - Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - Remove excess sealant from surfaces adjacent to joints.
 - Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
 - CLEANING
 - Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
 - PROTECTION
 - Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.
 - SCHEDULE
 - Locations:

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- Around pipe penetrations
- Joint Sealant: for appropriate exterior wall material.
- Joint-Sealant Color: to match wall color.

END OF SECTION 07920

SECTION 09110 - NON-STRUCTURAL METAL FRAMING

- GENERAL

- RELATED DOCUMENTS
 - Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government , apply to this Section.

- SUMMARY
 - Section Includes:
 - Non-load-bearing steel framing systems for interior gypsum board assemblies.

- ACTION SUBMITTALS
 - Product Data: For each type of product.

- PRODUCTS

- PERFORMANCE REQUIREMENTS
 - STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

- FRAMING SYSTEMS
 - Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
 -
 - Protective Coating: G60 , hot-dip galvanized unless otherwise indicated.
 - Studs and Runners: ASTM C 645.
 - Steel Studs and Runners:

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- Minimum Base-Metal Thickness 0.033 inch (0.84 mm)].
 - Depth: 3-5/8 inches (92 mm).
 -
- Dimpled Steel Studs and Runners:
 - Minimum Base-Metal Thickness: 0.025 inch (0.64 mm).
 - Depth: 3-5/8 inches (92 mm).
- Cold-Rolled Channel Bridging: Steel, 0.053-inch (1.34-mm) minimum base-metal thickness, with minimum 1/2-inch- (13-mm-) wide flanges.
 - Depth: 1-1/2 inches (38 mm)
 - Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38 by 38 mm), 0.068-inch- (1.72-mm-) thick, galvanized steel.
- Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 - Minimum Base-Metal Thickness: 0.033 inch (0.84 mm).
 - Depth: 1-1/2 inches (38 mm).
- Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches (32 mm), wall attachment flange of 7/8 inch (22 mm), minimum uncoated-metal thickness of 0.018 inch (0.45 mm), and depth required to fit insulation thickness indicated.
- AUXILIARY MATERIALS
 - General: Provide auxiliary materials that comply with referenced installation standards.
 - Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- EXECUTION
- EXAMINATION
 - Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
 - Proceed with installation only after unsatisfactory conditions have been corrected.

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- INSTALLATION, GENERAL
 - Installation Standard: ASTM C 754..
 - Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply to framing installation.
 - Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.
 - Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that apply to framing installation.
 - Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
 - Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
 - Install bracing at terminations in assemblies.
 - Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.
- INSTALLING FRAMED ASSEMBLIES
 - Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - Single-Layer Application: [24 inches (610 mm)o.c. unless otherwise indicated..
 - Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
 - Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
 - Direct Furring:

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- Screw to wood framing.
- Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

- Z-Furring Members:
 - Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
 - Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.
 - At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (305 mm) from corner and cut insulation to fit.

- Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 09110

SECTION 09290 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government , apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Texture finishes.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch- (300-mm-) long length for each trim accessory indicated.
 - 2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies (If encountered at job site when replacing or patching): For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, (Or Equal):

- 1. American Gypsum.
- 2. Georgia-Pacific Gypsum LLC.
- 3. USG Corporation.

- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.

- 1. Thickness: 5/8 inch (15.9 mm).
- 2. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.

- 1. Material: Plastic.
- 2. Shapes:
 - a. Cornerbead.

2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.

- B. Joint Tape:

- 1. Interior Gypsum Board: Paper.

- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

- 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use all-purpose compound.
4. Finish Coat: For third coat, use all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use all-purpose compound Level 4 finish.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

2.7 TEXTURE FINISHES

- A. Primer: As recommended by textured finish manufacturer.
- B. Non-Aggregate Finish: Pre-mixed, vinyl texture finish for spray application.
 1. Products: Subject to compliance with requirements, [available products that may be incorporated into the Work include, but are not limited to, the following]:
 - a. USG Corporation; BEADEX FasTex Wall and Ceiling Spray Texture.
 2. Texture: Orange Peel to match building standard.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.

- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing)] unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
 - 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners unless otherwise indicated.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 1. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.6 APPLYING TEXTURE FINISHES

- A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.
- B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture[matching approved mockup and] free of starved spots or other evidence of thin application or of application patterns.
- C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.

3.7 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

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END OF SECTION 09290

SECTION 09912 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions from Manatee County Government, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on interior substrates:
 - 1. Concrete masonry units (CMU).
 - 2. Gypsum board.

1.3 DEFINITIONS

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.

4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. VOC content.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, (or Equal)

1. Behr Process Corporation.
2. Benjamin Moore & Co.
3. ICI Paints.
4. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. Material Compatibility:

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1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: As selected by Project Representative from manufacturer's full range [.

2.3 PAINTS

- A. Latex, Interior, Flat, (Gloss Level 1):
1. Sherwin Williams Loxon and ProMar 200 or equal.
- B. Latex, Interior, (Gloss Level 2):
1. Sherwin Williams Loxon and ProMar 200 or equal .
- C. Latex, Interior, (Gloss Level 3):
1. Sherwin Williams Loxon and ProMar 200 or equal.
- D. Latex, Interior, (Gloss Level 4):
1. Sherwin Williams Loxon and ProMar 200 or equal.
- E. Latex, Interior, Semi-Gloss, (Gloss Level 5):
1. Sherwin Williams Loxon and ProMar 200 or equal.

2.4 TEXTURED COATING

- A. Primer for Textured Coating, Latex, Flat: As recommended in writing by topcoat manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Concrete: 12 percent.
 2. Masonry (Clay and CMU): 12 percent.
 3. Wood: 15 percent.
 4. Gypsum Board: 12 percent.
 5. Plaster: 12 percent.

- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Plaster Substrates: Verify that plaster is fully cured.
- E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- F. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- G. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. CMU Substrates:
 - 1. Water-Based Light Industrial Coating System:
 - a. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - b. Topcoat: Light industrial coating, interior, water based (Gloss Level 3).
- B. Gypsum Board Substrates:
 - 1. Latex System:

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- a. Prime Coat: Latex, interior, matching topcoat.
- b. Intermediate Coat: Latex, interior, matching topcoat.
- c. Topcoat: Latex, interior, To match existing building standard

END OF SECTION 09912

Division 16000 -ELECTRICAL SYSTEMS DESCRIPTIONS

A. PROJECT INCLUDES

1. Electrical Systems for the Following Applications:
 - a. Power and distribution.
 - b. Empty conduit system.
 - c. Power connections for air handling equipment.
 - d. Modifications to existing systems.
 - e. Variable Frequency Drives.
 - f. Facility Lighting.
2. Preliminary Connected Loads:
 - a. See electrical drawings for loads being disconnected.
 - b. See electrical drawings for loads being added.
3. Additional Requirements:
 - a. On site factory training for all switchboards, motor control centers and variable frequency drives.
4. Additional information is included in the construction documents and shall be included in this project. It is the responsibility of the contractor to obtain the latest and most updated set of documents.

B. PRODUCTS

1. Systems, products, and standards are listed in individual specification sections, which follow.

END OF SECTION

*Division 16110 COMMON WORK RESULTS FOR ELECTRICAL: ELECTRICAL RACEWAYS,
CABLE TRAYS, AND BOXES*

A. PROJECT INCLUDES

1. Electrical conduit, tubing, surface raceways, wireways, cable trays, boxes, and cabinets for electrical power and signal distribution.

B. PRODUCTS

1. Wiring Methods:
 - a. Exposed Indoor Wiring: Electrical metallic tubing, rigid nonmetallic conduit, and/or galvanized steel conduit.
 - b. Concealed Indoor Wiring: Electrical metallic tubing, electrical nonmetallic tubing, or rigid nonmetallic conduit.
 - c. Exposed Outdoor Wiring: GRC steel conduit.
 - d. Concealed Outdoor Wiring: GRC steel conduit.
 - e. Underground Wiring, Single Run: Rigid nonmetallic conduit.
 - f. Underground Wiring, Grouped: Rigid nonmetallic conduit.
 - g. Connection to Vibrating Equipment: Flexible liquidtight conduit.
2. Metal Conduit and Tubing:
 - a. Rigid Steel Conduit: ANSI C80.1.
 - b. PVC Externally Coated Rigid Steel Conduit and Fittings: ANSI C80.1 and NEMA RN 1.
 - c. Electrical Metallic Tubing (EMT) and Fittings: ANSI C80.3.
 - d. PVC Externally Coated Electrical Metallic Tubing and Fittings: ANSI C80.3 and NEMA RN 1.
 - e. Liquidtight Flexible Metal Conduit and Fittings: UL 360.
3. Nonmetallic Conduit and Ducts:
 - a. Electrical Nonmetallic Tubing (ENT): NEMA TC 13.
 - b. Rigid Nonmetallic Conduit (RNC): NEMA TC 2 and UL 651, Schedule 40 or 80 PVC.
 - c. Underground PVC and ABS Plastic Utilities Duct: NEMA TC 6, Type I for encased burial in concrete, Type II for direct burial.
 - d. PVC and ABS Plastic Utilities Duct Fittings: NEMA TC9.
 - e. Liquidtight Flexible Nonmetallic Conduit and Fittings: UL 1660.

4. Raceway Accessory Materials:
 - a. Conduit Bodies: NEC requirements.
 - b. Wireways: NEC requirements.
 - c. Surface Raceways, Metallic: Galvanized steel, with snap-on covers.
 - d. Surface Raceways, Nonmetallic: Rigid PVC, UL 94.
5. Boxes and Fittings:
 - a. Cabinet Boxes: UL 50, sheet steel, NEMA 1 or NEMA 3 dependent on location.
 - b. Pull and Junction Boxes: UL 50, steel boxes, NEMA 1 or NEMA 3 dependent upon location.
 - c. Metal Outlet, Device and Small Wiring Boxes: UL 514A and OS 1.
 - d. Nonmetallic Outlet, Device and Small Wiring Boxes: NEMA OS 2.
6. Identification of Electrical Systems: Systems shall have a clearly marked schedule, typed, and given to the Owner's Representative. All disconnects shall be clearly marked with an engraved type plastic placard as described in the electrical documents. The electrical input and output shall be clearly marked.
7. Specifications: The electrical drawings have specifications. Review all specifications on the electrical drawings.

END OF SECTION

Division 16120 ELECTRICAL WIRES AND CABLES

A. PROJECT INCLUDES

1. Wires, cables, and connectors for power, lighting, signal, control and related systems rated 600 volts and less.

B. QUALITY ASSURANCE

2. Compliance: National Electrical Code; UL 4, 83, 486A, 486B, 854; NEMA/ICEA WC-5, WC-7, WC-8; IEEE 82.

C. PRODUCTS

1. Wire Components:

- a. Conductors for Power and Lighting Circuits: Solid or Stranded conductors for No. 10 AWG and smaller; stranded conductors for No. 8 AWG and larger.
- b. Conductor Material: Copper.
- c. Insulation: THHN/THWN for conductors size 500MCM and larger and No. 8 AWG and smaller, THW, THHN/THWN or XHHW insulation for other sizes based on location.
- d. Jackets: Factory-applied nylon or PVC.

2. Cables:

- a. Portable Cord for Flexible Pendant Leads to Outlets and Equipment: UL Type SO.
- b. Control/Signal Transmission Media: Single conductor, coaxial type, or others as required by the equipment manufacture.
- c. Fiber Optic Cables: Single channel low-loss glass type, fiber optic multimode graded-index cables, including connectors, couples, transmitters, receivers, sources and detectors.
- d. Data Cables: RJ-45 Style (Cat-5) cables for data and communications shall be supplied. Cat-6 Cables shall be provided at no cost difference if required.

3. Connectors: UL listed connectors for the appropriate cable type with appropriate temperature ratings.

END OF SECTION

Division 16140 – ELECTRICAL WIRING DEVICES

A. PROJECT INCLUDES

1. Wiring devices for electrical service.

B. QUALITY ASSURANCE

1. Compliance: National Electrical Code, NEMA WD 1, and UL.

C. PRODUCTS

1. Wiring Devices and Components:
 - a. Receptacles: UL 498 and NEMA WD 1, exterior are NEMA 3 with covers.
 - b. Industrial Receptacles: UL 498 pin and sleeve type; UL 1010 at hazardous locations.
 - c. Ground-Fault Interrupter (GFI) Receptacles: Feed-thru type ground-fault circuit interrupter with integral duplex receptacles.
 - d. Plugs: 15 amperes, 125 volts, 3 wire, grounding, armored cap plugs.
 - e. Plug Connectors: 15 amperes, 125 volts, bakelite-body armored connectors, 3 wire, grounding with cord clamp.
 - f. Snap Switches: UL 20 and NEMA WD 1, AC switches.
 - g. Combination Switch and Receptacles: 3-way switch, 20 amperes, AC with toggle switch handle, 3 wire grounding receptacle, 15 amperes, 120 volts.
 - h. Wall Plates: Single and combination types, match existing types.

END OF SECTION

Division 16400 – ELECTRICAL SERVICE AND DISTRIBUTION

A. PROJECT INCLUDES

1. Electrical service and distribution including service entrance, switchboards, low-voltage power switchgear, grounding, transformers, busways, panelboards, overcurrent protective devices, and motor controllers.

B. PRODUCTS

1. Service Entrance: Service and Distribution Requirements: Refer to project “E” series drawings.
 - a. Circuit Breakers: Solid-state trip circuit breakers.
 - b. Meter Sockets: Acceptable to local utility company.
 - c. Switches: Heavy-duty safety switches with NEMA Type 4X enclosure.
2. Switchboards:
 - a. Refer to: SECTION 26 27 00 – LOW VOLTAGE GROUP MOUNTED DISTRIBUTION
3. Low-Voltage Power Switchgear:
 - a. Refer to: SECTION 26 27 00 – LOW VOLTAGE GROUP MOUNTED DISTRIBUTION
4. Grounding:
 - a. Grounding Equipment: UL 467; copper conductors; NEC Table 8, and article 250 wire and cable conductors; connectors.
 - b. Grounding Electrodes: Copper-clad steel ground rods; copper plate electrodes.
5. Transformers if shown:
 - a. Control and Signal Transformers: NEMA ST 1, UL 506, self-cooled, two-winding dry type; continuous duty rating.
6. Busways if shown:
 - a. Busways: General-purpose plug-in type, ANSI/UL 857, NEMA BU 1, enclosed, non-ventilated, suitable for indoor installation, copper conductors.

- b. Plug-In Devices: Circuit breaker plugs, fusible switch plugs, fuse plugs, combination starter plugs; compatible with connected busway.
7. Panelboards:
- a. Panelboards: NEMA PB 1, UL 50, 61, with overcurrent protective devices, enclosure suitable for use, copper bus, compression type main and neutral lugs, IEEE C62.1 surge arresters.
 - b. Panelboard Type: Load-center-type panelboards; lighting and appliance branch circuit panelboards; distribution panelboards.
8. Overcurrent Protective Devices:
- a. Overcurrent Protective Devices: Integral to panelboards, switchboards, and motor control centers.
 - b. Cartridge Fuses: NEMA FU 1, class suitable for use.
 - c. Fusible Switches: UL 98, NEMA KS 1, rating suitable for use.
 - d. Fused Power Circuit Devices: UL 977, operation suitable for use; ground fault protection; open fuse trip device; minimum fault current rating suitable for use.
 - e. Molded Case Circuit Breakers: UL 489, NEMA AB 1; combination circuit breaker and ground fault circuit interrupters type; current-limiting circuit breaker type; integrally fused circuit breaker type; solid-state trip device circuit breaker type; rating suitable for use.
 - f. Insulated Case Circuit Breakers: UL 489, NEMA AB 1; rating suitable for use.
9. Fuses:
- a. Cartridge Fuses: ANSI/IEEE FU 1, nonrenewable cartridge type, non-interchangeable type.
10. Motor Controllers: (NOT USED)

END OF SECTION

DIVISION 16402 -LOW VOLTAGE SWITCHBOARDS GROUP MOUNTED DISTRIBUTION

A. SECTION INCLUDES

1. Low Voltage, Front-Accessible and Front/Rear-Accessible switchboards with circuit breaker for mains and feeders and/or fusible switches for mains as specified below and shown on the contract drawings.

B. RELATED SECTIONS

1. 16479 Transient Voltage Suppression Systems.

C. REFERENCES

1. The low voltage switchboards and protection devices in this specification are designed and manufactured according to latest revision of the following standards (unless otherwise noted).
 - a. ANSI 61
 - b. ANSI/NEMA PB 2, Deadfront Distribution Switchboards
 - c. ANSI/NEMA PB 2.1, General Instructions for Proper Handling, Installation, Operation, and Maintenance of Deadfront Distribution Switchboards Rated 600 Volts or Less
 - d. ANSI/NFPA 70, National Electrical Code
 - e. NEMA AB 1, Molded Case Circuit Breakers and Molded Case Switches
 - f. NEMA KS 1, Fused and Non - fused Switches
 - g. UL 489, Molded Case Circuit Breakers and Circuit Breaker Enclosures
 - h. UL 891, Dead Front Switchboards
 - i. UL 98, Enclosed and Dead Front Switches
 - j. UL 977, Fused Power Circuit Devices

D. DEFINITIONS

1. Front-Accessible only shall be as defined by UL 891 standard which requires that all line and load connections for phase, neutral, and ground conductors can be made and maintained from the front of the switchboard without access to the rear.

E. SYSTEM DESCRIPTION

1. The power system feeding the Switchboards is 277/480 volts, 60 Hertz, 3 phase, 4-wire, solidly grounded Wye.
2. Switchboard(s) shall have front access and rear alignment for mounting against a wall.

F. SUBMITTALS

1. Manufacturer shall provide 3 copies of the following documents to owner for review and evaluation in accordance with general requirements of Division 16.
 - a. Product Data on specified product;
 - b. Shop Drawings on specified product;
 - c. Trip curves for each specified product.

G. INSTALLATION, OPERATION AND MAINTENANCE DATA

1. Manufacturer shall provide 3 copies of installation, operation and maintenance procedures to owner in accordance with general requirements of Division 16.

H. QUALITY ASSURANCE (QUALIFICATIONS)

1. Manufacturer shall have specialized in the manufacture and assembly of low voltage switchboards for 25 years or more.
2. Low voltage switchboards shall be listed and/or classified by Underwriters Laboratories in accordance with standards listed in Article C-1 of this specification.
3. Equipment shall be qualified for use in seismic areas as follows:
 - a. High seismic loading as defined in IEEE Std 693-1997, with 1.33 amplification factor.

I. DELIVERY, STORAGE, AND HANDLING

1. Contractor shall store, protect, and handle products in accordance with recommended practices listed in manufacturer's Installation and Maintenance Manuals.
2. Ship each switchboard section in individual shipping splits for ease of handling. Each section shall be mounted on shipping skids and wrapped for protection.
3. Contractor shall inspect and report concealed damage to carrier within 48 hours.
4. Contractor shall store in a clean, dry space. Cover with heavy canvas or plastic to keep out dirt, water, construction debris, and traffic. Heat enclosures to prevent condensation.
5. Contractor shall handle in accordance with manufacturer's recommendations to avoid damaging equipment, installed devices, and finish.

J. PROJECT CONDITIONS (SITE ENVIRONMENTAL CONDITIONS)

1. Follow (standards) service conditions before, during and after switchboard installation.
2. Low voltage switchboards shall be located in well - ventilated areas, free from excess humidity, dust and dirt and away from hazardous materials. Ambient temperature of area will be between minus 30 and plus 40 degrees C. Indoor locations shall be protected to prevent moisture from entering enclosure.

K. WARRANTY

1. Manufacturer warrants equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.

L. FIELD MEASUREMENTS

1. Contractor shall make all necessary field measurements to verify that equipment shall fit in allocated space in full compliance with minimum required clearances specified in National Electrical Code.

M. MANUFACTURER

1. General Electric Company products have been used as the basis for design. Other manufacturers' products of equivalent quality, dimensions and operating features may be acceptable, at the Engineer's discretion, if they comply with all requirements specified or indicated in these Contract documents.

N. EQUIPMENT

1. The equipment shall contain the following components and features.
 - a. Refer to Contract Drawings for actual layout and location of equipment and components; current ratings of devices, bus bars, and components; voltage ratings of devices, components and assemblies; interrupting and withstand ratings of devices, buses, and components; and other required details.
 - b. Furnish GE Type Spectra Bolt-On™ Switchboards (or approved equal).
 - c. Switchboards shall be fully self-supporting structures with 90 inch tall vertical sections (excluding lifting eyes and pull boxes) bolted together to form required arrangement.
 - d. Switchboard frame shall be die formed, 12 gauge steel with reinforced corner gussets. Frame shall be rigidly bolted to support cover plates (code gauge steel), bus bars and installed devices during shipment and installation.
 - e. All sections may be rolled, moved or lifted into position. Switchboards shall be capable of being bolted directly to the floor without the use of floor sills.
 - f. All switchboard sections shall have open bottoms and removable top plate(s) to install conduit.

- g. Front-Access only switchboard sections shall be rear aligned for placement against a wall.
 - h. Switchboards shall be UL listed, and MSB-3 shall be Service Entrance rated.
 - i. Switchboards that are series rated to short circuit requirements shall be appropriately labeled. Tested UL listed combination ratings shall be included in UL recognized Component Directory (DKSY2).
 - j. All covers shall be fastened by hex or standard screw head bolts. No special tools shall be required to access this equipment.
 - k. Provide hinged doors over metering compartments and individually mounted device compartments. All doors shall have concealed hinges and be fastened by hex or standard screw head bolts.
 - l. Switchboard protective devices shall be furnished as listed on drawings and specified herein, including interconnections, instrumentation and control wiring. Switchboards and devices shall be rated for the voltage and frequency listed on the drawings.
 - m. Switchboard current ratings, including all devices, shall be based on a maximum ambient temperature of 25 degree C per UL Standard 891. With no derating required, temperature rise of switchboards and devices shall not exceed 65 degrees C in a 25 degree C ambient environment.
 - n. Switchboard Service Entrance sections shall comply with UL Service Entrance requirements including a UL service entrance label, incoming line isolation barriers, and a removable neutral bond to switchboard ground for solidly grounded Wye systems.
 - o. The group mounted feeder breaker and/or main devices within switchboards shall be circuit breakers only. Mounting for the group mounted devices shall be by bolted connections. No plug-in type connections shall be used for current carrying components.
2. Incoming Section
- a. Incoming section shall be direct cable connection to main breaker.

- b. Furnish switchboard arranged for bottom entry of incoming cable.
 - c. Provide mechanical lugs in the quantity and size required per the contract drawings. All lugs shall be tin-plated aluminum and UL listed for use with copper cable. Lugs shall be rated for 75 degree C. Cable.
3. Bus Bars
- a. All bus bars shall be silver plated copper. The bus bars shall have sufficient cross sectional area to meet UL 891 temperature rise requirements. Phase and neutral bus ampacity shall be as shown on the plans. The neutral bus shall have the same ampacity as the phase bus.
 - b. Bus bars shall be mounted on high impact, non-tracking insulated supports. Joints in the vertical bus are not permitted.
 - c. Bus bars shall be braced to withstand mechanical forces exerted during short circuit conditions as indicated in drawings, but in no case less than 100KA RMS SYM.
 - d. Bus joints shall be bolted with high tensile steel Grade 5 bolts. Belleville type washers shall be provided with aluminum bus. Welded connections are unacceptable.
 - e. Ground Bus shall be sized to meet UL 891. Ground bus shall extend full length of switchboard. Ground bus shall be copper.
 - f. A-B-C bus arrangement left to right, top to bottom, front to rear shall be used throughout to assure convenient and safe testing and maintenance. Where special circuitry precludes this arrangement, bus bars shall be labeled.
 - g. All feeder device line and load connection straps shall be rated to carry current rating of device frame (not trip rating).
 - h. The main incoming bus bars shall be rated for the main protection device frame size or main incoming conductors, if there is no main device.

- i. Main horizontal bus bars shall be fully rated and arranged for future extensions.
4. Enclosure
- a. Switchboard shall be NEMA 1 non walk-in deadfront construction or as indicated on drawings.
5. User Metering
- a. Provide a UL listed and digital multifunction power monitor. The monitor case shall be fully enclosed and shielded
 - b. The monitor shall accept a voltage monitoring range of up to 600 volts, phase to phase. Monitor shall withstand 200% rated current continuously. It shall withstand 10X rated current for at least 3 seconds. Isolation shall be no less than 2500V AC. Surge withstand shall conform to IEEE C37.90.1,62.41 and IEEE 1000-4 Shall have a standard ANSI C39.1 case mount.
 - c. The Monitor shall provide true RMS measurements of voltage, phase to neutral and phase to phase; current, per phase and neutral; real power, reactive power, apparent power, power factor and frequency. The Monitor must be capable of providing readings for both instantaneous and average readings.
 - 1. The Monitor must also be capable of providing all single phase real, apparent, reactive power and power factor values.
 - 2. The Monitor shall record and store total bi-directional energy. It shall include separate registers for positive and negative energy.
 - 3. The Monitor shall record and store total bi-directional accumulated energy and total accumulated apparent energy.
 - 4. The Monitor shall monitor max/min average demand values for all current and power readings. The demand interval shall be user programmable. Meter shall be model EPM6000 or approved equal.

6. Main Devices

- a. Main device shall be individually mounted, draw out type, insulated case or AIR type circuit breaker, and 100% rated.
- b. Tie device(s), if included, shall be the same as the main device.
- c. Where indicated provide the following with the main device:
 1. Electronic ground fault detection
 2. Shunt trip
 3. Undervoltage release
 4. Auxiliary contacts

7. Feeder devices

- a. Feeder devices shall be group mount molded case circuit breakers or when larger than 1200 amps shall be individually mounted insulated case circuit breakers. Provide devices as indicated on drawings.
- b. All circuit protective devices shall have the following minimum symmetrical current interrupting capacity: 100kA, or as listed on the contract drawings.
- c. Where indicated provide the following with the feeder device(s):
 1. Shunt trip
 2. Undervoltage release
 3. Auxiliary contacts
 4. Bell alarm

8. Molded Case Circuit Breakers

- a. Furnish GE Spectra RMS™ Molded Case Circuit Breakers. Thermal magnetic molded case circuit breakers may be provided for trip ratings 150 amps and below.

- b. Group mounted breakers shall be connected to the vertical bus by bolted connections.
- c. Individually mounted molded case circuit breakers shall be stationary mounted.
- d. Circuit breaker frames shall be constructed of a high-strength, molded, glass-reinforced polyester case and cover. Breakers shall have an overcenter, toggle handle-operated, trip free mechanism with quick make, quick break action independent of the speed of the toggle handle operation. The design shall provide common tripping of all poles. Breakers shall be suitable for reverse feeding.
- e. Breakers shall have ON and OFF position clearly marked on escutcheon. Breakers shall include a trip-to-test means on the escutcheon for manually tripping the breaker and exercising the mechanism and trip latch.
- f. Breakers shall include factory installed mechanical lugs. Lugs shall be UL listed and rated 75 or 60/75 degrees C as appropriate. Breakers shall be standard, or 80 percent rated.
- g. Breakers larger than 400 amps shall use digital true RMS sensing trip units and a rating plug to determine the breaker trip rating. The breaker shall be adjusted to the proper trip settings by electrical contractor to meet the inrush of the largest piece of equipment. The time and trip settings shall be obtained from the manufacturer of the equipment by the electrical contractor.
- h. Each main, feeder, and tie breaker with a frame size 400 amps and larger shall have digital electronic trip units.
- i. Where indicated on the drawings, circuit breakers with trip ratings greater than 250 amperes to 1000 amperes shall be UL listed as 100 percent continuous duty rated.

9. Insulated Case Circuit Breakers

- a. Insulated case circuit breakers shall be individually mounted.
- b. Main and tie breakers shall be manually operated, draw out type mounting. Feeder breakers (larger than 1200 amps) shall be manually operated, stationary mounted.
- c. Breakers shall be constructed of a high dielectric strength, glass reinforced insulating case. The interrupting mechanism shall be arc chutes. Steel vent grids shall be used to suppress arcs and cool vented gases. Interphase barriers shall be furnished as to isolate completely each pole.
- d. Breakers shall contain a true two-step stored energy operating mechanism, which shall provide quick make, quick break operation with a maximum five-cycle closing time. Breakers shall be trip free at all times. Common tripping of all poles shall be standard.
- e. Insulated Case circuit breakers shall be rated to carry 100 percent of their frame ampacity continuously.
- f. A charging handle, close push-button, open push-button, and Off/On/Charge indicator shall be located on the breaker escutcheon and shall be visible with the breaker compartment door closed.
- g. Where drawout breakers are specified, the drawout design shall permit the breaker to be withdrawn from an engaged position, to a test position, and to a disengaged position.
- h. Breaker digital electronic trip units shall be as described in Article 10 below.

10. Digital Electronic Trip Unit For Circuit Breakers

- a. Furnish GE MicroVersaTrip® Plus, or PM, or approved equal, digital electronic trip units as specified below.
- b. Each main, feeder, and tie circuit breaker shall be equipped with a digital electronic trip unit. The trip unit shall provide protection from overloads, short circuits and ground faults (for Main circuit breaker). The protective trip unit shall consist of a solid state, microprocessor

based programmer, tripping means, current sensors, power supply and other devices as required for proper operation.

- c. As a minimum, the trip unit shall have the following protective functions:
 - 1. Adjustable current setting or long time pickup;
 - 2. Adjustable long time delay;
 - 3. Adjustable instantaneous pickup;
 - 4. Adjustable ground fault pickup and delay for main.
 - 5. Adjustable short time pickup and delay.

- d. As a minimum, the trip unit shall include the following features:
 - 1. Long time and short time protective functions, if provided, shall have true RMS sensing technology.
 - 2. Ground fault protective function, if provided, shall contain a memory circuit to integrate low level arcing fault currents with time, to sum the intermittent ground fault spikes.
 - 3. High contrast liquid crystal display (LCD) unit shall display settings, trip targets, and the specified metering displays.
 - 4. Multi-button keypad to provide local setup and readout of all trip settings on the LCD.
 - 5. UL Listed interchangeable rating plug. It shall not be necessary to remove the trip unit to change the rating plug.
 - 6. An integral test jack for testing via a portable test set and connection to a battery source.
 - 7. A mechanism for sealing the rating plug and the trip unit.

8. Noise immunity shall meet the requirements of IEEE C37.90.
 9. Display trip targets for long time, short time, and ground fault, if included.
 10. The trip unit shall include the following metering functions, which shall be displayed on the LCD (if the manufacturers trip unit can not incorporate the specified functions, separate device(s) with equal function shall be provided for each breaker): Current, RMS, each phase.
11. Finish
- a. All steel surfaces shall be chemically cleaned prior to painting.
 - b. Exterior paint color shall be ANSI 61 Light Gray over phosphate - type rust inhibitor.
12. Accessories
- a. Provide the following UL listed accessories:
 1. Integral, self-powered ground fault protection relay with mechanical ground fault indicator, test function, adjustable current pick - up and time delay, and current sensors as required. Ground fault relay shall have an internal memory circuit that integrates intermittent arcing ground faults with time.
 2. Furnish nameplates for each device as indicated in drawings.
Color schemes shall be as indicated on drawings.
 3. Provide Transient Voltage Surge Suppression system as specified in Section 16479.
13. EXAMINATION
- a. The following procedures shall be performed by the Contractor.

1. Examine installation area to assure there is enough clearance to install switchboard.
2. Check concrete pads for uniformity and level surface.
3. Verify that Spectra Series™ switchboards are ready to install.
4. Verify field measurements that are as shown on Drawings and instructed by manufacturer.
5. Verify that required utilities are available, in proper location and ready for use.
6. Beginning of installation means installer accepts conditions.

14. INSTALLATION

a. Installation shall be performed by the Contractor.

1. Install per manufacturer's instructions.
2. Install required safety labels.

END OF SECTION

DIVISION 16465 - LOW VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Requirements of the following Division 16 Sections apply to this section:
 - 1. "Basic Electrical Requirements."
 - 2. "Basic Electrical Materials and Methods."

1.2 SUMMARY

- A. This section includes general purpose and specialty dry type transformers and voltage regulators with windings rated 600 V or less.
- B. Related Sections: The following Division 16 Sections contain requirements that relate to this Section:
 - 1. "Electrical Identification" for signs associated with transformer installations.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
 - 1. Product data for each transformer, including dimensional plans, sections, and elevations showing minimum clearances, installed devices, and materials lists.
 - 2. Wiring diagrams from manufacturer differentiating between manufacturer-installed and field-installed wiring.
 - 3. Product certificates, signed by manufacturer of transformers certifying that their products comply with the specified requirements.
 - 4. Product Test Reports: Certified copies of manufacturer's design and routine factory tests required by the referenced standards.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Member firm of NEMA who is regularly engaged in manufacturing components that comply with the requirements of these Specifications and that have been used on at least five projects of similar size and scope as this Project.

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- B. Field Testing Organization Qualifications: To qualify for acceptance, an independent testing organization must demonstrate, based on evaluation of organization-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated.
- C. Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."
- D. ANSI/IEEE Compliance: Comply with applicable requirements of ANSI/IEEE Standards including C2, "National Electrical Safety Code," and C57.12.80, "Terminology for Power and Distribution Transformers."
- E. UL Listing and Labeling: Items provided under this section shall be listed and labeled by UL.
- F. Nationally Recognized Testing Laboratory Compliance (NRTL): Items provided under this section shall be NRTL listed and labeled. The term "NRTL" shall be as defined in OSHA Regulation 1910.7.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Transformers:
 - a. Acme Electric Corp.
 - b. Balteau Standard, Inc.
 - c. Bryant Electric Corp.
 - d. Challenger Electrical Equipment Co.
 - e. Federal Pacific Transformer Co.
 - f. General Electric Co.
 - g. Hevi-Duty Electric.
 - h. International Transformer Corp.
 - i. Line Power Mfg. Corp.
 - j. Master Electronic Controls.
 - k. Matra Electric, Inc.
 - l. Micron Industries Corp.
 - m. NWL Transformers.

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- n. Parker Electrical Mfg. Co.
- o. Rapid Power Technologies, Inc.
- p. Romac Supply Co.
- q. Siemens Energy & Automation, Inc.
- r. Square D Co.
- s. R.E. Uptegraff Mfg. Co.
- t. Westinghouse Electric Corp.

2. Voltage Regulators:

- a. Acme Electric Corp.
- b. Cabletronix.
- c. Computer Power, Inc.
- d. Cyberex, Inc.
- e. Deltron, Inc.
- f. Emerson Computer Power.
- g. General Electric Co.
- h. Hevi-Duty Electric.
- i. Hipotronics, Inc.
- j. IEPS, Inc.
- k. ITT Power Systems Corp.
- l. Marelco Power Systems, Inc.
- m. Master Electronic Controls.
- n. Matra Electric, Inc.
- o. Micron Industries Corp.
- p. NLW Transformers.
- q. Parker Electrical Mfg. Co.
- r. Rapid Power Technologies.
- s. Romac Supply Co.
- t. Seimens Energy and Automation, Inc.
- u. Shape Magnetronics, Inc.
- v. Sola Electric.
- w. Square D. Co.
- x. The Superior Electric Co.
- y. Westinghouse Electric Corp.

2.2 TRANSFORMERS, GENERAL

- A. Transformers: Factory assembled and tested, air cooled units of types specified, having characteristics and ratings as indicated. Units shall be designed for 60-Hz service.
- B. Cores: Grain oriented, nonaging silicon steel.
- C. Coils: Continuous windings without splices except for taps.
- D. Internal Coil Connections: Brazed or pressure type.

2.3 GENERAL PURPOSE, DRY-TYPE TRANSFORMERS

- A. Comply with NEMA Standard ST 20 "Dry-Type Transformers for General Applications."
- B. Windings: 2-winding type. Three phase transformers shall use one coil per phase in primary and secondary.
- C. Provide all copper windings.
- D. Sound Level: Minimum of 3 dB less than NEMA ST 20 standard sound levels for transformer type and size indicated when factory tested in accordance with that standard.
- E. Transformers shall have the following features and ratings:
 - 1. Enclosure: Indoor, ventilated.
 - 2. Enclosure: Indoor, ventilated, dripproof.
 - 3. Enclosure: Outdoor, ventilated, raintight, NEMA 3R.
 - 4. Enclosure: Totally enclosed, nonventilated.
 - 5. Enclosure: Totally enclosed, nonventilated, suitable for outdoor use.
 - 6. Insulation Class: 185 deg C or 220 deg C class for transformers 15 kVA or smaller; 220 deg C class for transformers larger than 15 kVA.
 - 7. Insulation Temperature Rise: 80 deg C maximum rise above 40 deg C.
 - 8. Insulation Temperature Rise: 115 deg C maximum rise above 40 deg C.
 - 9. Insulation Temperature Rise: 150 deg C maximum rise above 40 deg C, for 220 deg C class insulation; 115 deg C maximum rise for 185 deg C class insulation.
 - 10. Taps: For transformers 3 kVA and larger, full capacity taps in high-voltage winding as follows:
 - a. 3 kVA through 25 kVA: Two 5 percent taps below rated high-voltage.
 - b. 3 kVA through 10 kVA: Two 5 percent taps below rated high-voltage.
 - c. 15 kVA through 500 kVA: Six 2-1/2 percent taps, 2 above and 4 below rated high-voltage.
 - d. 750 - 1000 kVA: Four 2-1/2 percent taps, 2 above and 2 below rated high-voltage.
- F. Accessories: The following accessory items are required where indicated:
- G. Accessories: As follows:
 - 1. Surge Arresters: Low-voltage type, factory-installed and connected to high-voltage terminals; complying with NEMA Standard LA 1.
 - 2. Surge Arresters: Low-voltage type, factory-installed and connected to low-voltage terminals; complying with NEMA Standard LA 1.

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3. Electrostatic shielding: Insulated metallic shield between primary and secondary windings. Connect to terminal marked "shield" for grounding connection.
4. Wall mounting brackets: Manufacturers standard brackets for transformers sized up to 75 kVA where wall mounting is indicated.
5. Fungus Proofing: Permanent fungicidal treatment for coil and core.

2.4 DRIVE ISOLATION TRANSFORMERS

- A. Comply with NEMA Standard ST 1 "Specialty Transformers" and UL Standard 506 "Specialty Transformers", except as specified below.
- B. Ratings: As indicated and for continuous duty. Where rating is not indicated, provide capacity as recommended by the drive manufacturer.
- C. Type: Self cooled, two winding, dry type, especially designed for the application, with special coil bracing to withstand the electro-mechanical forces that may be involved. Three phase transformers shall use one coil per phase in primary and secondary.
- D. Transformers shall have the following features and ratings:
 1. Enclosure: Indoor, ventilated.
 2. Enclosure: Indoor, ventilated, dripproof.
 3. Enclosure: Outdoor, ventilated, raintight, NEMA 3R.
 4. Enclosure: Totally enclosed, nonventilated.
 5. Enclosure: Totally enclosed, nonventilated, suitable for outdoor use.
 6. Insulation Class: 185 deg C or 220 deg C class for transformers 15 kVA or smaller; 220 deg C class for transformers larger than 15 kVA.
 7. Taps: Two 5 percent full capacity taps, 1 above and 1 below rated high-voltage.
 8. Temperature Sensing Device: Thermistor embedded in coil with leads brought out to terminal board.

2.5 BUCK-BOOST TRANSFORMERS

- A. Comply with NEMA Standard ST 1 "Specialty Transformers", and UL Standard 506, "Specialty Transformers."
- B. Ratings: As indicated, and for continuous duty.
- C. Type: Self-cooled, dry type, connected as autotransformers to provide the percentage of buck or boost indicated.
- D. Enclosure: Suitable for the location indicated.

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- E. Sound Level: Minimum of 3 dB less than NEMA St 1 standard for transformer of type and size indicated when factory tested in accordance with that standard.

2.6 CONTROL AND SIGNAL TRANSFORMERS

- A. Comply with NEMA Standard ST 1 "Specialty Transformers", and UL Standard 506, "Specialty Transformers."
- B. Ratings: As indicated and for continuous duty. Where ratings is not indicated, provide capacity in excess of load.
- C. Type: Self-cooled, two-winding dry type.
- D. Enclosure: Indoor, except as indicated.

2.7 VOLTAGE REGULATING TRANSFORMERS

- A. Comply with applicable requirements of ANSI/IEEE Standard C57.15, "IEEE Standard Requirements, Terminology and Test Code for Step- Voltage and Induction-Voltage Regulators."
- B. Type: Ventilated, self-cooled, electronic tap-switching unit with no moving parts, arranged for automatic changing of turns ratio of transformer to correct up to 15 percent excursions of voltage from set value to within 1 percent of that value within 2-cycles of the excursion incident while under 100 percent load.
- C. Controls: Solid-state type arranged to perform tap switching at zero value line current to minimize voltage transients. Controls shall permit external adjustment of voltage set value over a minimum band of 5 percent above and below rated output voltage.
- D. Rating: Input and output voltage ratings and output capacity ratings as indicated.
- E. Phase: Single phase.
- F. Phase: Three phase.
- G. Harmonics: Harmonic content of output during voltage corrections up to 15 percent, and for loads from 25 percent to 100 percent, shall not exceed 3 percent.
- H. Enclosure: NEMA 1.
- I. Enclosure: Indoor, dripproof.

2.8 VOLTAGE STABILIZING TRANSFORMER

- A. Comply with applicable requirements of NEMA standard ST 1, "Specialty

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Transformers" and UL standard 506, "Specialty Transformers."

- B. Type: Dry-type, self-cooled, ferroresonant transformer assembly with no moving parts, arranged for automatic correction of output voltage to nonadjustable nominal value as input voltage varies.
- C. Performance: Unit shall stabilize output voltage to values within plus or minus 1 percent of initial value within 2 Hz when input voltage varies up to plus or minus 15 percent at 100 percent load. Total harmonic content of output shall not exceed 3 percent under both steady state and correction conditions as load is varied in 15 percent steps from no load to full capacity.
- D. Ratings: Input and output voltage ratings and output capacity rating as indicated.
- E. Phase: Single phase.
- F. Phase: Three phase.
- G. Enclosure: NEMA 1.
- H. Enclosure: Indoor, dripproof.

2.9 INDUCTION TYPE VOLTAGE REGULATOR

- A. Comply with applicable requirements of ANSI/IEEE Standard C57.15, "IEEE Standard Requirements, Terminology and Test Code for Step- Voltage and Induction-Voltage Regulators."
- B. Controls: Solid-state type with external adjustment of voltage set value over a minimum band of 10 percent above and below rated output voltage.
- C. Performance: Unit shall regulate output voltage within plus or minus 1 percent while input voltage varies plus or minus 10 percent. Rate of voltage correction shall be not less than 2 V per second. Output voltage shall be drift free. Negligible total harmonic distortion in output.
- D. Ratings: Input and output voltage ratings and output capacity ratings as indicated.
- E. Phase: Single phase.
- F. Phase: Three phase.
- G. Enclosure: NEMA 1.
- H. Enclosure: Indoor, dripproof.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Arrange equipment to provide adequate spacing for cooling air circulation.
- B. Identify transformers in accordance with Division 16 Section "Electrical Identification."
- C. Tighten electrical connectors and terminals in accordance with manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.2 EQUIPMENT BASES

- A. Construct concrete equipment pads as follows:
 - 1. Coordinate size of equipment bases with actual unit sizes provided. Construct base 4-inches larger in both directions than the overall dimensions of the supported unit.
 - 2. Form concrete pads with framing lumber with form release compounds. Chamfer top edge and corners of pad.
 - 3. Install reinforcing bars, tied to frame, and place anchor bolts and sleeves to facilitate securing units.
 - 4. Place concrete and allow to cure before installation of units. Use Portland Cement conforming to ASTM C 150, 4,000 psi compressive strength, and normal weight aggregate.

3.3 GROUNDING

- A. Ground transformers and tighten connections to comply with tightening torques specified in UL Standard 486A.

3.4 FIELD QUALITY CONTROL

- A. Tests shall conform to InterNational Electrical Testing Association (INETA) Standard ATS, "Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems," and the following:
 - 1. Independent Testing Organization: Arrange and pay for the services of an independent electrical testing organization in accordance with the requirements of Division 1 Section "Quality Control Services" to perform tests on transformers.
 - 2. Test Objectives: To assure transformer installation is operational within industry and manufacturer's tolerances, is installed in accordance with Contract Documents, and is suitable for energizing.
 - 3. Procedures: Upon satisfactory completion of tests, attach a label to tested

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- components.
4. Schedule tests and notify Architect at least one week in advance of schedule and of test commencement.
 5. Reports: The testing organization shall make a written report of observations and tests. Report defective materials and workmanship and retest corrected defective items.
 6. Testing organization shall submit written test reports to the Architect and Contractor.
 7. Testing for transformers shall include insulation resistance test, taps verification and excitation test.
 8. Testing for voltage regulators shall include functional test throughout operating range of device. Check voltage tolerance correction speed and harmonic content of output for stepped changes in source voltage at 35 percent, 70 percent and 100 percent of rated load.
 9. Test Failures: Correct deficiencies identified by tests and make ready for retest. Verify that equipment meets the specified requirements.

3.5 ADJUSTING AND CLEANING

- A. Upon completion of installation, inspect interiors and exteriors of accessible components. Remove paint splatters and other spots, dirt, and construction debris. Touch up scratches and mars of finish to match original finish.
- B. Adjust transformer taps to provide optimum voltage conditions at utilization equipment.
- C. Adjust voltage regulators to provide optimum voltage at equipment served.

3.6 PROTECTION

- A. Temporary Heating: Apply temporary heat in accordance with manufacturer's recommendations within enclosure of each transformer throughout periods during which equipment is not in a space that is continuously under normal control of temperature and humidity.

3.7 DEMONSTRATION

- A. Adjustment: Arrange and pay for the services of factory-authorized service representatives to adjust and demonstrate voltage regulator for Owner's maintenance personnel.

END OF SECTION 16465

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16466 - CIRCUIT AND MOTOR DISCONNECTS
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section covers disconnect switches for electrical equipment, 600V and below, and fuses mounted in the disconnect devices.

B. Furnish and install disconnect switches for any of the following conditions:

1. Where indicated on the drawings.
2. For all motors located out-of-sight of its motor controller.
3. For water heaters.
4. For electrical duct heaters.
5. Where required by the National Electrical Code.
6. When required for Air Handlers.

1.3 QUALITY ASSURANCE

A. Referenced Industry Standard: The following specifications and standards are incorporated into and become a part of this Specification by reference.

1. Underwriters' Laboratories, Inc. (UL) Publications:
 - a. No. 98: Enclosed Switches
 - b. No. 198.2: High-Interrupting Capacity Fuses, Current Limiting Type
 - c. No. 198.4: Class R fuses
2. National Fire Protection Association (NFPA) Publications:
 - a. No. 70: National Electrical Code (NEC)
3. National Electrical Manufacturers Association (NEMA) Publications:
 - a. No. KS 1: Enclosed Switches
4. Federal Specification (Fed Spec):
 - a. No. WS-865-C

B. Coordination: Coordinate installations with architectural and structural features, equipment installed under other sections of the specifications and electrical equipment to insure disconnect switch access and insure that clearance minimums are provided.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's data for each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cutler-Hammer
2. General Electric
3. Siemens
4. Square D

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2.2 GENERAL MATERIAL REQUIREMENTS

- A. Furnish all materials specified herein.
- B. All disconnects and fuses shall be UL listed and bear a UL label.
- C. Fuses shall be heavy duty, type HD horsepower rated as required for motor load served.
- D. Switches shall be 600 volt rated, except for use in system below 240 volt, when they may be 250 volt rated. Switches shall be heavy duty rated. General duty switches are not acceptable.
- E. Furnish a solid neutral for each switch being installed in a circuit which includes a neutral conductor.
- F. Furnish an equipment grounding conductor lug bonded to the switch enclosure.
- G. Disconnect switches shall be non-fusible safety switch, unless fused type is specified or indicated on the drawings, with the number of poles required to disconnect all ungrounded conductors serving equipment.
- H. Enclosure shall be NEMA Type One in all interior dry locations and shall be NEMA Type 3R in all damp, wet, or exterior locations, unless other type is indicated on the drawings or specified herein.

2.3 PRODUCT/MATERIAL DESCRIPTION

- A. Switching mechanism shall be quick-make, quick-break type.
- B. Where non-fused disconnect switches are indicated on the drawings or specified for use as disconnects, they shall be the non-fused type.
- C. Switches shall have the following features:
 - 1. Provide line terminal shields in all switches.
 - 2. Each switch shall have provisions for padlocking in the "OFF" position.
 - 3. Each switch shall have door interlocks to prevent door from being opened when switch is in closed position. Provide inconspicuous means to defeat interlock mechanism.
 - 4. Provide permanent nameplate indicating switch rating in voltage, amperes and horsepower.
 - 5. Arch chute for each pole.
- D. Disconnect switches for three phase motors rated two horsepower and above shall be three pole nonfusible type rated as indicated on the drawings. Disconnect switches for three phase motors rated below two horsepower shall be three pole manual motor starter switches without overload protection. Disconnect for single phase motors shall be single or two pole horsepower rated switches without overload protection.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Locate disconnect switches to maintain line of sight and to provide working clearance and full accessibility as required by the National Electrical Code.
- B. Unless indicated otherwise on the drawings, locate disconnects adjacent to equipment served.
- C. Lace and group conductors installed in disconnect with nylon tie straps. Only one conductor shall be installed under terminals. Form and train conductors in enclosure

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neatly parallel and at right angles to sides of box. Uninsulated conductor shall not extend beyond 1/8" from terminal lug.

D. Mounting and Support

1. Enclosure shall be secured to structure by a minimum of four (4) fastening devices. A 1.5" minimum diameter round washer shall be used between head of screw or bolt and enclosure.

2. Mounting

- a. Enclosures shall be mounted where indicated on the drawings or specified herein. Support from the structure with fastening device specified.
- b. Attach enclosure directly to masonry, concrete, or wood surfaces.
- c. Mount enclosure on metal channel (strut), which is connected to structure with fastening device specified, for installations on steel structure, sheet metal equipment enclosure, or sheet rock walls.
- d. Where enclosure is not indicated on a wall or structure, construct a metal channel (strut) free standing frame secured to floor, pad, or other appropriate building structure.
- e. Mount switch with handle between 36" and 60" above floor or grade, unless otherwise indicated on the drawings.

E. Do not splice conductors in enclosure. Where required, install junction box or wireway adjacent to disconnect and splice or tap conductors in box. Refer to number of conductors in a conduit

limitation defined in the WIRE AND CABLES section and Sheet E5.0 of the construction documents and do not exceed.

F. Conductors not terminating in disconnect shall not extend through or enter disconnect enclosure.

G. Install push-in knock-out closure plugs in any unused knock-out openings.

H. Identification

1. Disconnect switches shall be identified.
2. Refer to sheet E4.0 of the construction documents for identification requirements.

3.2 CLEANING AND ADJUSTMENT

A. After completion, clean the interior and exterior of dirt, paint and construction debris.

B. Touch up paint all scratched or marred surfaces with factory furnished touch up paint of the same color as the factory applied paint.

END OF SECTION

Division 16479 – TRANSIENT VOLTAGE SURGE SUPPRESSION

A. SECTION INCLUDES

1. Transient voltage surge suppression systems integrated into electrical distribution equipment.

B. RELATED SECTIONS

1. 26 20 00 (16400) Low Voltage Switchgear
2. 26 27 00 (16402) Low Voltage Group Mounted Switchboards
3. 26 29 19 Motor Control Centers (Not Used)

C. REFERENCES

1. The equipment and components in this specification shall be designed and manufactured according to latest revision of the following standards (unless otherwise noted).
 - a. ANSI/IEEE C62.41.1-2002, Guide on the Surge Environment in Low Voltage AC Power Circuits.
 - b. ANSI/IEEE C62.41.2-2002, Recommended Practice on Characterization of Surges in Low Voltage AC Power Circuits.
 - c. ANSI/IEEE C62.45-2002, Recommended Practice on Surge Testing for Equipment Connected to Low Voltage AC Power Circuits.
 - d. UL 1449, Third Edition - Transient Voltage Surge Suppressors
 - e. UL 1283, Electromagnetic Interference Filters
 - f. UL 67, Panelboards
 - g. UL 891, Dead-Front Switchboards
 - h. NEMA LS-1 (1992), Low Voltage Surge Protective Devices
 - i. NFPA 70 National Electrical Code – Article 285

D. SYSTEM DESCRIPTION

1. Transient voltage surge suppression devices shall be applied on a 277/ 480 volt or 120/208 volt, 60 Hertz, 3 phase, 4- wire, solidly grounded WYE system, as indicated on drawings.

E. SUBMITTALS

1. Manufacturer shall provide 3 copies of the following documents to owner for review and evaluation.
 - a. Product Data on specified product:
 1. Maximum surge current rating
 2. Repetitive surge current rating
 3. UL1449 Third Edition Suppressed Voltage Ratings
 - b. Upon request, provide copies of third party test reports for maximum surge current rating and repetitive surge current rating.

F. INSTALLATION, OPERATION AND MAINTENANCE DATA

1. Manufacturer shall provide 3 copies of installation, operation and maintenance procedures to owner.
2. Transient voltage surge suppression systems shall be listed/or recognized by Underwriters Laboratories in accordance with the applicable standards found in Section C-1 of this specification. UL recognized TVSS assemblies are allowed provided they have been investigated by UL as suitable for use within the specified electrical panel or gear and do not require additional testing or field investigation to maintain the equipment's UL listing.
3. Manufacturer warrants equipment to be free from defects in materials and workmanship for 5 years from date of purchase.

G. PRODUCTS

1. General Electric Company products have been used as the basis for design. Other manufacturers' products of equivalent quality, dimensions and operating features may be acceptable, at the Engineer's discretion; if they comply with all requirements specified or indicated in these Contract documents.

2. Furnish General Electric internally or equal external mounted TVSS systems as indicated in drawings.
3. Refer to Drawings for: actual layout and location of equipment and components; current ratings of devices, bus bars, and components; voltage ratings of devices, components and assemblies; and other required details.

a. Electrical Requirements

1. The maximum surge current rating shall be based on testing of a complete TVSS unit including fuses and all components that make up the TVSS system. Devices that derive a maximum surge current rating by adding test results of individual components are not acceptable.
2. The TVSS device repetitive surge current capacity shall be tested utilizing an 8x20us, 10kA short circuit Category C High test waveform (as defined by ANSI/IEEE C62.41.2-2002) at one-minute intervals. A failure is defined as either performance degradation or more than 10% deviation of clamping voltage at the specified surge current
3. Maximum surge current and repetitive surge current ratings shall be as follows:

For Switchgear and switchboards rated 1600A and greater:

- a. Maximum surge current rating: 150/300kA per mode.
- b. Repetitive surge current rating: 20,000 C High impulses.

For Motor Control Centers rated 1200A and below:

- a. Maximum surge current rating: 150 kA SCCR.
- b. Repetitive surge current rating: 5,000 C High impulses

For Lighting panels rated 1200A and below:

- a. Maximum surge current rating: 65 kA per mode.
- b. Repetitive surge current rating: 5,000 C High impulses

4. The Suppression Voltage Rating (SVR) shall be tested in accordance with UL-1449, Third Edition. Where an integral disconnect is provided, the TVSS SVR shall be determined with the integral disconnect. The SVR values shall not exceed the following: L-N, N-G, L--G-800; L-L--1500.
5. The TVSS fault current rating shall be marked on the TVSS in accordance with the requirements of UL1449 and NEC Article 285.
6. The use of electronic grade MOV's is not acceptable. Systems using gas tubes, silicon avalanche diodes, selenium rectifiers, or printed circuit board technology in surge current path are not acceptable.
7. The TVSS shall provide protection in each of the following modes: L-N, L-G, N-G, and L-L for WYE Systems. L-G and L-L for Delta Systems.
8. The Maximum Continuous Operating Voltage (MCOV) for all voltage configurations shall be at least 115% of nominal on 480/277 volt systems and 125% of nominal on 240-208/120 volt systems.
9. The fusing system shall be capable of allowing the rated maximum surge current to pass through without fuse operation. Systems utilizing a fusing system that opens below the maximum surge current level are unacceptable. The complete TVSS fusing system shall be included in the surge current testing.
10. TVSS systems shall include integral fusing for all suppression components. TVSS designs that rely solely on an electrical panel's main breaker to interrupt phase currents resulting from a shorted suppression component are not allowed.
11. Use of plug-in modules, gas discharge devices or selenium rectifiers is unacceptable.
12. TVSS installed in switchgear, switchboards, and power panels shall have an integral non-fused disconnect, tested to the maximum surge current rating of the device. TVSS installed in lighting panels shall be direct connected to the main bus.

13. Standard Monitoring features
 - a. One operational status indicating light per each protected phase.
 - b. Audible alarm and alarm indicating light and test switch, enabled via a front panel pushbutton switch.
 - c. Dry contacts for remote monitoring purposes, 1NO & 1NC contact. Change in state on MOV failure.
 - d. Transient voltage surge counter with battery backup.

- b. Mounting
 1. TVSS shall be mounted integral or external, and shall not violate the equipment manufacturer's UL label.

END OF SECTION

Division 16660 - GROUND-FAULT PROTECTION SYSTEMS

A. PROJECT INCLUDES

1. Ground-fault sensing, relaying, tripping, and alarm devices for installation in distribution switchboards and panelboards rated 600 volts and less.

B. PRODUCTS

1. Ground-Fault Sensing Devices:
 - a. Outgoing-Circuit Current Sensors: Current transformer with circuits requiring outgoing-circuit sensing method.
 - b. Ground-Return Current Sensors: Current transformer for encircling main bonding jumper connection.
 - c. Short Circuit Rating: 200,000 amperes RMS symmetrical.
 - d. Outputs: Compatible with relay inputs.
2. Ground-Fault Relays and Monitors:
 - a. Ground-Fault Relay: Solid-state type without external electrical power supply required for relay.
 - b. Monitor Panels: Ground-fault indicators, control-power indicators, test and reset buttons.

END OF SECTION

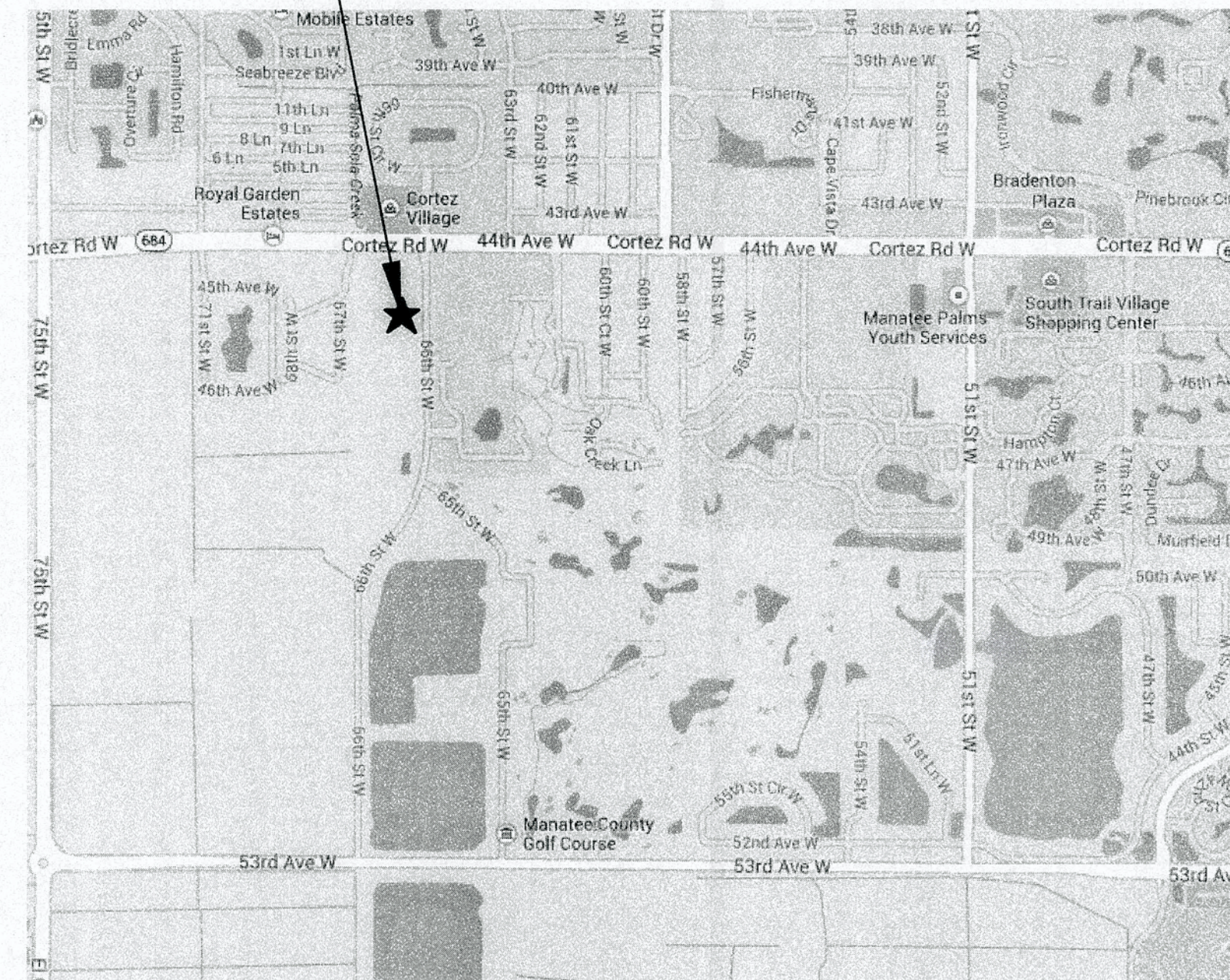
**MANATEE COUNTY UTILITIES DEPARTMENT
 ADMIN. BUILDING ELECTRICAL REVISIONS
 4410 66TH ST. W.,
 BRADENTON, FL 34210
 WA#20, IFAS#W1300254**



SITE LOCATION

**LOCATION MAP
 FLORIDA**

SITE LOCATION



SITE MAP

SHEET SCHEDULE	
SHEET	DESCRIPTION
COVER	PROJECT NAME, LOCATION and SITE MAPS, SHEET SCHEDULE
E1.0	ELECTRICAL SYMBOLS, LEGENDS AND GENERAL NOTES.
E2.0	ELECTRICAL SITE PLAN
E3.0	ELECTRICAL DEMOLITION POWER PLAN
E3.1	ELECTRICAL DEMOLITION LIGHTING PLAN
E4.0	ELECTRICAL NEW POWER PLAN
E4.1	ELECTRICAL NEW LIGHTING PLAN
E4.2	ELECTRICAL NEW WALL DETAILS
E5.0	ELECTRICAL ONE-LINE RISER AND SCHEDULES
E5.1	ELECTRICAL DEMOLITION ONE-LINE RISER
E5.2	ELECTRICAL PANELBOARD SCHEDULES
E6.0	ELECTRICAL SPECIFICATIONS
E6.1	ELECTRICAL DETAILS

To the best of the engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

ATP ENGINEERING SOUTH, P.E.
BRADENTON, FLORIDA
ENGR. BUSINESS #8908
941-751-6485

ELECTRICAL SYMBOLS AND ABBREVIATIONS

NOTE:

THESE ARE STANDARD SYMBOLS AND MAY NOT ALL APPEAR ON THE PROJECT DRAWINGS; HOWEVER WHEREVER THE SYMBOL APPEARS ON THE PROJECT DRAWINGS, THE ITEM SHALL BE PROVIDED AND INSTALLED.

SYMBOL	DESCRIPTION
	DISTRIBUTION PANELBOARD AND CABINET - RECESSED MOUNT DISTRIBUTION PANELBOARD AND CABINET - SURFACE MOUNT
	BRANCH PANELBOARD AND CABINET - RECESSED MOUNT BRANCH PANELBOARD AND CABINET - SURFACE MOUNT
	LOAD CENTER - SURFACE MOUNT LOAD CENTER - RECESSED MOUNT
	DENOTES PANEL/PANELBOARD DESIGNATION
	MOTOR "X" INDICATES HORSEPOWER "Y" INDICATES PHASE
	CAPACITOR "X" INDICATES KVAR
	DISCONNECT SWITCH - FUSED "X" = RATING, "Y" = FUSE SIZE DISCONNECT SWITCH - NON-FUSED DISCONNECT SWITCH - CIRCUIT BREAKER
	MOTOR STARTER COMBINATION MOTOR STARTER
	DRY TYPE TRANSFORMER - "XX" INDICATES KVA
	METER SOCKET
	CURRENT TRANSFORMER METER SOCKET
	TRANSIENT VOLTAGE SURGE SUPPRESSOR
	GENERATOR
	TRANSFER SWITCH ATS = AUTOMATIC TRANSFER SWITCH MTS = MANUAL TRANSFER SWITCH N = NORMAL POWER E = EMERGENCY POWER L = LOAD
	WIREWAY
	BUSWAY
	GROUND CONNECTION
	HORSEPOWER RATED MANUAL MOTOR STARTER TOGGLE SWITCH WITH THERMAL OVERLOAD PROTECTION "X" INDICATES AS FOLLOWS: NONE - SINGLE POLE 2 - 2 POLE 3 - 3 POLE
	HORSEPOWER RATED MANUAL MOTOR STARTER TOGGLE SWITCH WITH THERMAL OVERLOAD PROTECTION WITH PILOT LIGHT "X" INDICATES AS FOLLOWS "Y" INDICATES AS FOLLOWS NONE - SINGLE POLE Y - YELLOW LENS 2 - 2 POLE G - GREEN LENS 3 - 3 POLE R - RED LENS W - WHITE LENS B - BLUE LENS A - AMBER
	LOW VOLTAGE DRAWOUT TYPE CIRCUIT BREAKER "X" INDICATES AS FOLLOWS A - AIR TYPE S - SF6 TYPE V - VACUUM TYPE
	MOLDED CASE CIRCUIT BREAKER
	FUSE
	DRAW OUT MOTOR STARTER ASSEMBLY

SYMBOL	DESCRIPTION
	CONCEALED CONDUIT
	4" CONDUIT SLEEVE WITH BUSHINGS THRU WALL ABOVE CEILING
	LETTER DESIGNATION REFERS TO SYSTEM (SEE ABBREVIATIONS)
	QUANTITY OF CONDUCTORS OR CABLES IN CONDUIT
	"F50" DENOTES THE FEEDER SIZE
	"A-XX" DENOTES PANEL AND CIRCUIT #
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
	JUNCTION OR PULL BOX
	CABLE TRAY
	U/G CONDUIT TURNED UP
	U/G CONDUIT TURNED DOWN

SYMBOL	DESCRIPTION
$X-2-C$	X = FIXTURE TYPE, 2 = CIRCUIT NUMBER, C = SWITCH LEG
F	FLUORESCENT
K	INCANDESCENT
H	H.I.D.
	FLUORESCENT STRIP TYPE FIXTURE
	FLUORESCENT TYPE FIXTURE
	FLUORESCENT TYPE FIXTURE WITH EMERGENCY BATTERY BALLAST
	CEILING MOUNT LIGHT FIXTURE
	CEILING MOUNT RECESSED LIGHT FIXTURE (ROUND OR SQUARE, SEE SCHEDULE)
	INTERIOR WALL MOUNT FIXTURE
	EXTERIOR WALL MOUNT FIXTURE
	LIGHT POLE WITH ONE FIXTURE (FIXTURE LOCATION AND SPACING AS SHOWN)
	2 HEAD POLE LIGHT. LOCATION AND SPACING AS SHOWN.
	3 HEAD POLE LIGHT. LOCATION AND SPACING AS SHOWN.
	EXIT LIGHT - CEILING MOUNTED ARROWS DENOTE EGRESS PATH
	EXIT LIGHT - WALL MOUNTED ARROWS DENOTE EGRESS PATH
	EMERGENCY WALL MOUNT W/ BATTERY UNIT
	EXIT / EMERGENCY WALL MOUNT W/ BATTERY UNIT ARROWS DENOTE EGRESS PATH
	EMERGENCY WALL MOUNT REMOTE HEAD

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE - NORMAL CIRCUIT "X" INDICATES AS FOLLOWS: NONE = 20 AMP, 125VAC GFI = 20 AMP, 125VAC, GROUND FAULT INTERRUPTER TYPE HM = 20 AMP, 125VAC, HORIZONTAL MOUNT TYPE IG = 20 AMP, 125VAC, ISOLATED GROUND TYPE S = 20 AMP, 125VAC, TVSS PROTECTION TYPE WP = 20 AMP, 125VAC, WEATHERPROOF TYPE
	DOUBLE DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE - ABOVE COUNTER. 44" AFF
	DOUBLE DUPLEX RECEPTACLE - ABOVE COUNTER. 44" AFF
	SINGLE RECEPTACLE - SEE DRAWINGS AND SPECIFICATIONS.
	SPECIAL RECEPTACLE - SEE DRAWINGS AND SPECIFICATIONS.
	SINGLE RECEPTACLE - FLOOR, SEE DRAWINGS AND SPECIFICATIONS.
	DUPLEX RECEPTACLE - FLOOR, SEE DRAWINGS AND SPECIFICATIONS.
	CLOCK RECEPTACLE - 120VAC
	TOGGLE SWITCH - SINGLE POLE
	TOGGLE SWITCH - DOUBLE POLE
	TOGGLE SWITCH - 3-WAY
	TOGGLE SWITCH - 4-WAY
	TOGGLE SWITCH - σ - INDICATES TYPE T: TIMER, K: KEY OPERATED
	SWITCH - DIMMER
	SWITCH - FAN SPEED CONTROL
	WALL MOUNTED OCCUPANCY SENSOR
	CEILING MOUNTED OCCUPANCY SENSOR x = TYPE, SEE PLANS
	JUNCTION BOX
	HVAC THERMOSTAT
	HVAC HUMIDISTAT
	FURNITURE POWER POLE
	FURNITURE CABLE MANAGEMENT POLE.
	MUSHROOM HEAD RED PUSH BUTTON

DRAWING SYMBOLS	
	DETAIL NUMBER
	DRAWING NUMBER WHERE DRAWN
	SECTION LETTER
	DRAWING NUMBER WHERE DRAWN

SYMBOL	DESCRIPTION
	HORN / STROBE
	CEILING MOUNT
	WALL MOUNT
	SPEAKER/STROBE
	CEILING MOUNT
	WALL MOUNT
	STROBE
	CEILING MOUNT
	WALL MOUNT
	BELL
	CEILING MOUNT
	WALL MOUNT
	SMOKE DETECTOR
	HEAT DETECTOR
	PULL STATION
	ELEVATOR WARNING LIGHT
	FIREFIGHTER PHONE JACK
	TAMPER SWITCH
	FLOW SWITCH
	F.A.A.P. REMOTE ANNUCIATOR
	FIRE ALARM CONTROL PANEL
	DOOR RELEASE DEVICE - FIRE ALARM ACTIVATED
	SPEAKER - FIRE ALARM
	AUTOMATIC DUCT DETECTOR ("X" DENOTES AS FOLLOWS): NONE = PHOTO ELECTRIC TYPE S = SUPPLY R = RETURN
	EQUIPMENT SHUT DOWN RELAY
	REMOTE DUCT DETECTOR INDICATOR LIGHT X = AIR HANDLER / ROOF TOP UNIT
	FSS FIRE SUPPRESSION SYSTEM

SYMBOL	DESCRIPTION
	INTERCOM SYSTEM ROUGH-IN - SINGLE GANG BACKBOX MOUNTED AT +46"

SYMBOL	DESCRIPTION
	DOOR CONTACT ROUGH-IN
	PROXIMITY CARD READER ROUGH-IN
	ELECTRO-MAGNETIC DOOR LOCK

COMMUNICATION SYSTEMS	
SYMBOL	DESCRIPTION
	WALL MOUNTED VOICE OUTLET
	WALL MOUNTED DATA OUTLET
	WALL MOUNTED COMBINATION VOICE / DATA OUTLET
	FLOOR MOUNTED VOICE OUTLET.
	FLOOR MOUNTED DATA OUTLET.
	FLOOR MOUNTED COMBINATION VOICE / DATA OUTLET.
	TELEPHONE CABINET
	COMMUNICATIONS CABINET

PAGING / AUDIO SYSTEM	
SYMBOL	DESCRIPTION
	LOUDSPEAKER - CEILING MOUNTED CONTROLLED BY VOLUME CONTROL "1"
	VOLUME CONTROL - CONTROLS SPEAKERS "1"
	PAGING ROUGH-IN
	AUDIO JACK ROUGH-IN
	MICROPHONE ROUGH-IN
	PROJECTOR ROUGH-IN

SYMBOL	DESCRIPTION
	TELEVISION ROUGH-IN

SYMBOL	DESCRIPTION
	CCTV ROUGH-IN
	CAMERA ROUGH-IN

1 REFER TO LIKE NUMBER NOTES.
1 REFER TO LIKE NUMBER NOTES.

GENERAL NOTES (APPLY TO ALL DRAWINGS):

- THE WORK INDICATED ON THESE DRAWINGS IS DIAGRAMMATIC AND IS INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT AND DEVICES FOR A COMPLETE SYSTEM IN EVERY RESPECT AND DETAIL, TESTED AND LEFT READY IN PERFECT OPERATING CONDITION FOR THE OWNER'S USE. MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES AND SHALL BE INSTALLED IN ACCORDANCE WITH SUCH LISTINGS. INSTALLATIONS SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. WORK SHALL MEET THE REQUIREMENTS OF THE SPECIFICATIONS AND CONFORM TO THE NEC (NFPA 70 & 72) AND ALL APPLICABLE CODES, AND BE COMPLETED BY A QUALIFIED, EXPERIENCED, LICENSED ELECTRICAL CONTRACTOR.
- THE ENGINEER HAS MADE AN EFFORT TO COORDINATE WORK WITH OTHER TRADES AND IDENTIFY ANY AND ALL CONFLICTS. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE FIELD WORK BETWEEN TRADES AND TO IDENTIFY FIELD CONDITIONS PRIOR TO INSTALLATION AND REPORT ANY CONFLICTS TO THE ENGINEER.
- WHEN A CONFLICT OCCURS BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE ITEMS OF GREATER QUANTITY AND/OR COST SHALL BE PROVIDED.
- CONTRACTOR SHALL VERIFY THE LOCATION AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT FURNISHED BY OTHER TRADES PRIOR TO INSTALLATION. COORDINATE ROUGH-IN INSTALLATION WITH EQUIPMENT DETAILS.
- ALL OPENINGS IN FIRE AND SMOKE PARTITIONS SHALL BE SEALED AS REQUIRED BY THE NEC/ FLORIDA BUILDING CODE. PROVIDE UL LISTED COMPOUND TO MATCH PARTITION RATING.
- DO NOT SCALE DRAWINGS. VERIFY FIELD CONDITIONS PRIOR TO AND DURING CONSTRUCTION FOR EXACT DEVICE / EQUIPMENT LOCATION.
- DEMOLITION WORK: PROVIDE DEMOLITION AND REMOVAL WORK AS INDICATED OR NEEDED. EQUIPMENT THAT IS TO BE REMOVED INCLUDES ALL ASSOCIATED WIRING, BOXES AND CONDUIT BACK TO SOURCE. CLOSE ALL UNUSED OPENINGS IN JUNCTION BOXES THAT REMAIN WITH SUITABLE PLUG OR COVER. WHEN REMOVING OR RELOCATING LIGHT FIXTURES OR OTHER DEVICES, FIELD VERIFY REMAINING DEVICES IN THE SAME CIRCUIT AND RECONNECT FOR CONTINUED SERVICE. EXISTING ELECTRICAL WORK INTERFERING WITH NEW CONSTRUCTION SHALL BE RELOCATED OR REROUTED TO SUIT FINAL INSTALLATION. CUTTING AND PATCHING REQUIRED SHALL BE DONE TO RESTORE AREAS TO ORIGINAL CONDITION.
- CONTRACTOR SHALL PROVIDE TO LOCAL AHJ OR PERMITTING AGENCY A COPY OF ALL MAJOR EQUIPMENT CUT SHEETS AT TIME OF APPLICATION IF REQUESTED.

ABBREVIATIONS	
A	AMPERE
AC	AIR CONDITIONING OR ALTERNATING CURRENT
ACC	ACCESS
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT
AM	AMMETER
ARCH	ARCHITECT
AT	AMPERE TRIP
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CAT	CATEGORY
CB	CIRCUIT BREAKER
CH	CHILLER
CKT	CIRCUIT
CL	CENTER LINE
CLF	CURRENT-LIMITING FUSE
CM	CEILING MOUNTED
CNTL	CONTROL
CU	COPPER
DWG(S)	DRAWING(S)
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
EW	ELECTRIC WATER COOLER
EW	ELECTRIC WATER HEATER
EX	EXISTING TO REMAIN
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FACC	FIRE ALARM COMMAND CENTER
FATC	FIRE ALARM TERMINAL CABINET
FLOOR	FLOOR
FMC	FURNISHED BY MECHANICAL CONTRACTOR
FO	FIBER OPTIC
FOTC	FIBER OPTIC TERMINAL CABINET
FSS	FIRE SUPPRESSION SYSTEM
FWE	FURNISHED WITH EQUIPMENT
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GND.G	GALVANIZED RIGID STEEL CONDUIT
GRS	HEATING/AIR CONDITIONING-RATED
HOA	HAND-OFF-AUTO
HACR	HEATING/AIR CONDITIONING-RATED
HID	HIGH INTENSITY DISCHARGE
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
HP	HORSEPOWER
IG	ISOLATED GROUND
IMC	INTERMEDIATE METALLIC CONDUIT
JB	JUNCTION BOX
KAIC	KILO AMPERE INTERRUPTING CAPACITY
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KW	KILOWATT
LC	LIGHTING CONTACTOR
MC	MECHANICAL CONTRACTOR
M-C	MOTOR CONTROL CENTER
M-G	MOTOR GENERATOR
MDP	MAIN DISTRIBUTION PANEL
MH	METAL HALIDE
MOD	MOTOR OPERATED DAMPER OR DOOR
MTD	MOUNTED
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OCPD	OVER CURRENT PROTECTIVE DEVICE
PNL	PANEL
P	PHASE
PB	PUSHBUTTON
PE	PHOTOELECTRIC CONTROLLER
PC	PLUMBING CONTRACTOR
PVC	POLYVINYL CHLORIDE CONDUIT
R	RELOCATED
RTU	ROOF TOP UNIT
SCH	SCHEDULE
SEC	SECURITY
SW	SWITCH
SWGR	SWITCHGEAR
TEL.T	TELEPHONE
TBB	TELEPHONE BACKBOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TC	TIME CLOCK
TRFM	TRANSFORMER
XFR	TRANSFER
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UL.U.L.	UNDERWRITERS LABORATORIES
UPS	UNINTERRUPTIBLE POWER SUPPLY
U.O.N.	UNLESS OTHERWISE NOTED
VAP	VAPORTIGHT
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
V	VOLT
WM	VOLTMETER
WT	WATT
WHM	WATTHOUR METER
WM	WATTMETER
WP	WEATHER PROOF

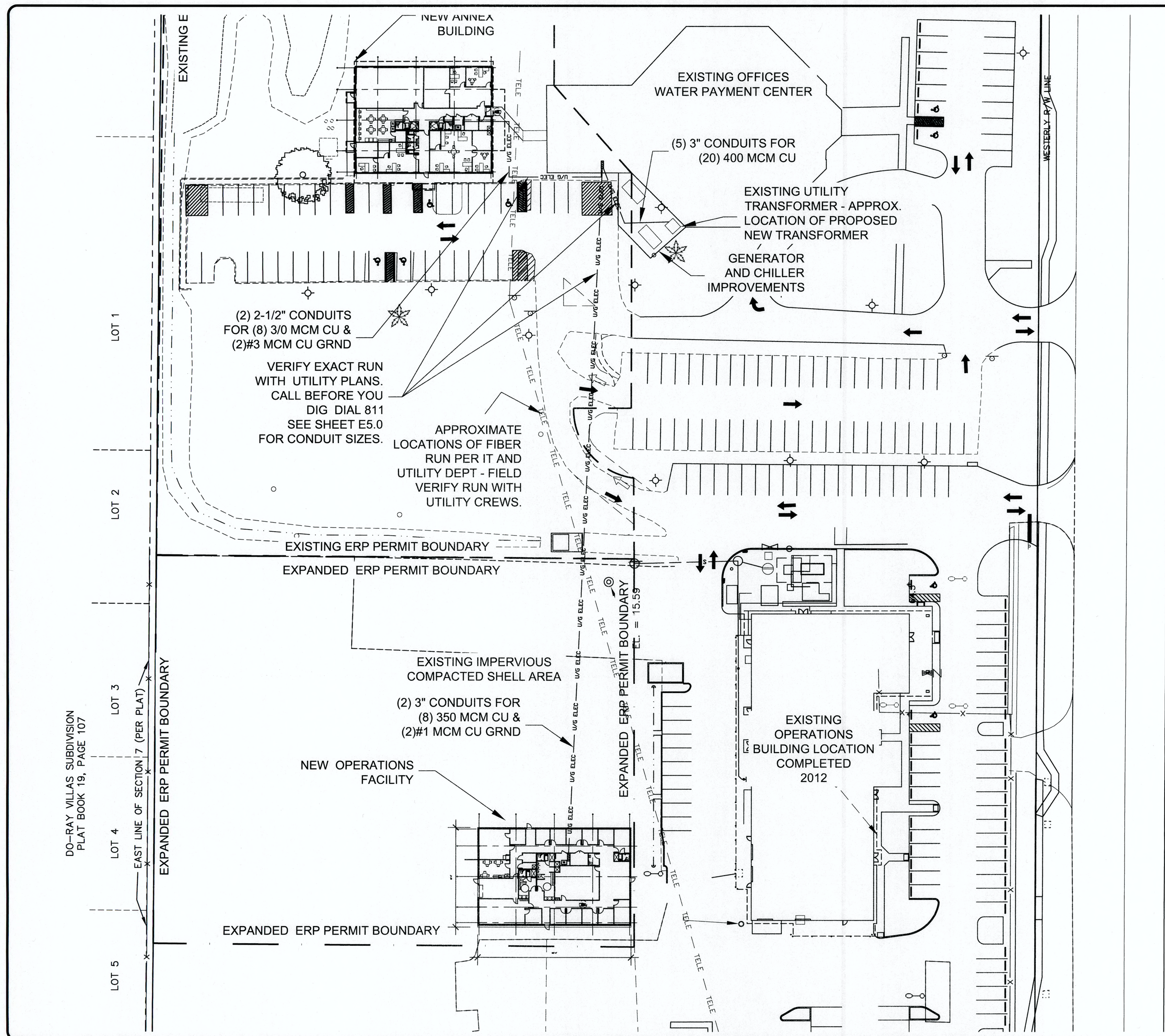


ATP ENGINEERING SOUTH, PLLC
BRADENTON, FLORIDA
ENGR. BUSINESS #8808
941-751-8485

DATE	DESCRIPTION

MANATEE COUNTY UTILITIES DEPARTMENT
ADMIN. BUILDING ELECTRICAL REVISIONS
4410 66TH ST. W.,
BRADENTON, FL 34210
WA#20, IFASW#300254

ELECTRICAL SYMBOLS, LEGENDS AND GENERAL NOTES	
FILE:	MC Octagon Distribution
JOB NO.:	2013.72
DATE:	07/10/2013
PLOT SIZE:	1:1
DRAWN BY:	CMD/MC
CHECKED BY:	JDC
SHEET NO.:	E10



DO-RAY VILLAS SUBDIVISION
PLAT BOOK 19, PAGE 107

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5

EAST LINE OF SECTION 17 (PER PLAT)

EXPANDED ERP PERMIT BOUNDARY

EXISTING E

(2) 2-1/2" CONDUITS
FOR (8) 3/0 MCM CU &
(2) #3 MCM CU GRND

VERIFY EXACT RUN
WITH UTILITY PLANS.
CALL BEFORE YOU
DIG DIAL 811
SEE SHEET E5.0
FOR CONDUIT SIZES.

APPROXIMATE
LOCATIONS OF FIBER
RUN PER IT AND
UTILITY DEPT - FIELD
VERIFY RUN WITH
UTILITY CREWS.

EXISTING ERP PERMIT BOUNDARY
EXPANDED ERP PERMIT BOUNDARY

EXISTING IMPERVIOUS
COMPACTED SHELL AREA

(2) 3" CONDUITS FOR
(8) 350 MCM CU &
(2) #1 MCM CU GRND

NEW OPERATIONS
FACILITY

EXPANDED ERP PERMIT BOUNDARY

EXISTING OFFICES
WATER PAYMENT CENTER

(5) 3" CONDUITS FOR
(20) 400 MCM CU

EXISTING UTILITY
TRANSFORMER - APPROX.
LOCATION OF PROPOSED
NEW TRANSFORMER

GENERATOR
AND CHILLER
IMPROVEMENTS

EXISTING
OPERATIONS
BUILDING LOCATION
COMPLETED
2012

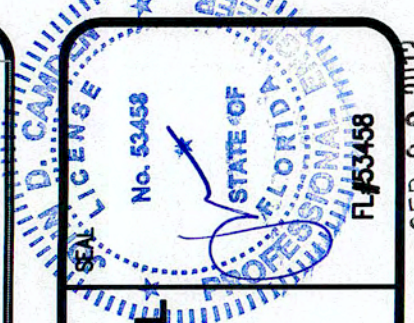
WESTERLY R/W LINE

1 SITE PLAN
E2.0 1" = 30'-0"

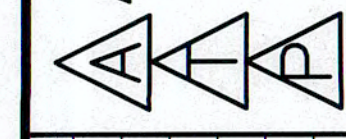


CALL BEFORE YOU DIG

EXISTING UTILITIES AND FACILITIES ARE IN PLACE. CALL BEFORE YOU DIG. CALL SUNSHINE STATE ONE-CALL OF FLORIDA AT "811" TWO FULL BUSINESS DAYS BEFORE ANY EXCAVATION TO LOCATE ALL UNDERGROUND UTILITIES. (IN FLORIDA, THE LAW REQUIRING EXCAVATORS TO CALL 811 BEFORE DIGGING IS THE UNDERGROUND FACILITY DAMAGE PREVENTION AND SAFETY ACT, CHAPTER 556, FLORIDA STATUTES.) CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL EXISTING UTILITIES LOCATED PRIOR TO THE START OF ANY WORK, AND SHALL REPAIR/ REPLACE ANY SYSTEMS HE/SHE DAMAGES DURING CONSTRUCTION AT HIS/HER OWN EXPENSE.



ATP ENGINEERING SOUTH, FLORIDA
BRADENTON, FLORIDA
ENGR. BUSINESS #6908
941-751-6485



REV	DESCRIPTION	DATE

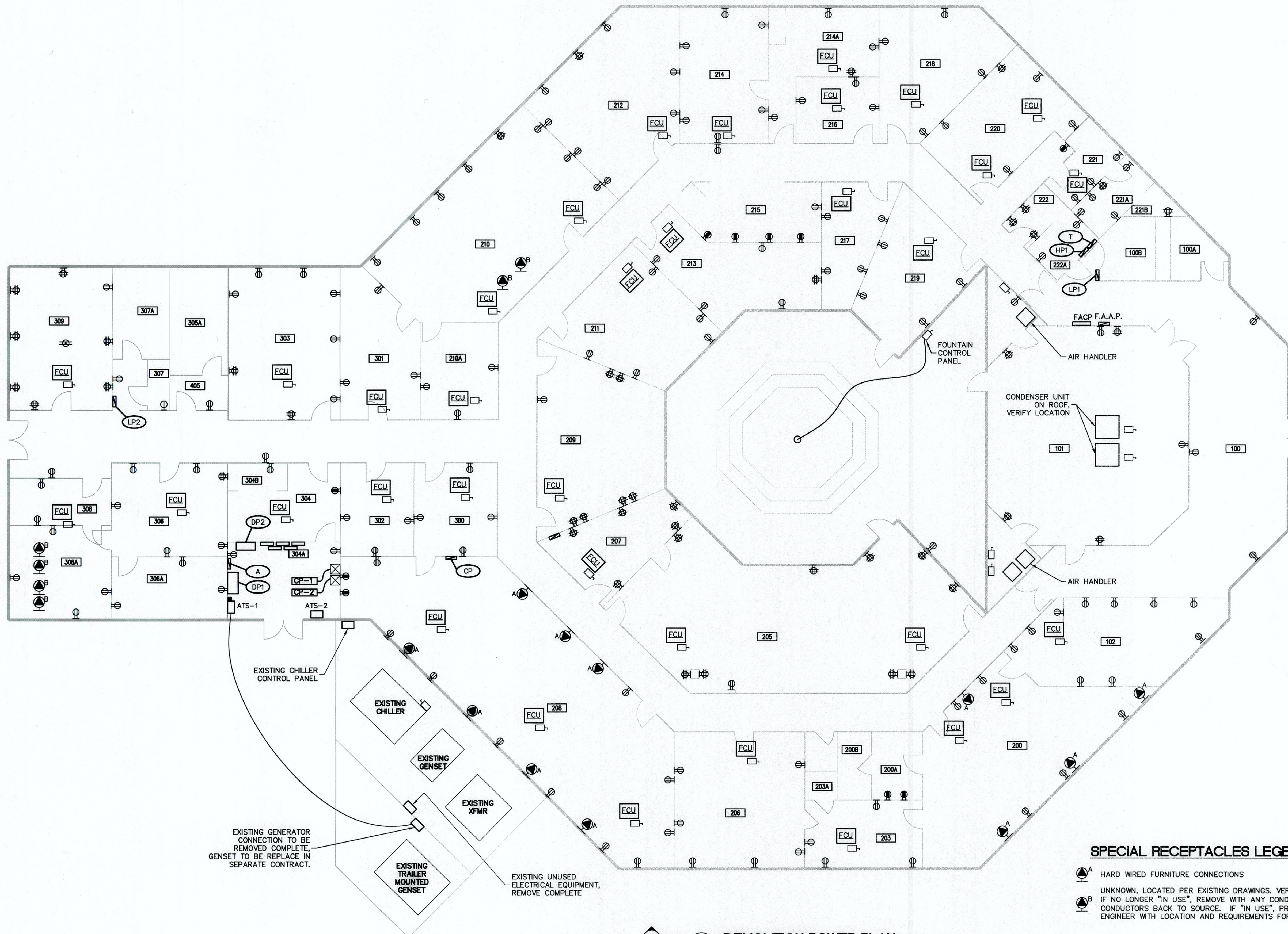
MANATEE COUNTY UTILITIES DEPARTMENT
ADMIN. BUILDING ELECTRICAL REVISIONS
4410 66TH ST. W.,
BRADENTON, FL. 34210
WA#20, IFAS#W1300254

DRAWING TITLE
ELECTRICAL SITE PLAN

FILE: MC Octagon Distribution
JOB NO.: 2013.72
DATE: 07/10/2013
PLOT SIZE: 1:1
DRAWN BY: CMD/MC
CHECKED BY: JDC
SHEET No.:

E2.0

SEP 03 2013



1
E3.0
DEMOLITION POWER PLAN
1/8" = 1'-0"

PLAN NOTES:

- ALL ITEMS ON THIS PLAN ARE EXISTING. ALL LOCATIONS ARE DIAGRAMMATIC, VERIFY PRIOR TO START OF WORK.
- REMOVE OR PRESERVE SWITCHGEAR AND PANELS AS SHOWN ON ONE-LINE RISER DIAGRAM, SHEET E5.0.
- REMOVE ALL ABANDONED CONDUITS, CONDUCTORS, SWITCHES, ETC. COMPLETE.
- VERIFY ALL CIRCUITS ON PANEL "A". THE LOAD SIDE OF PANEL "A" IS TO REMAIN COMPLETE. PRESERVE ALL CIRCUITS AND CONNECTIONS TO PANEL "T". PROVIDE THIS ENGINEER WITH DETAILED SCHEDULE AND SKETCH LOCATING ITEMS ON PANEL.
- VERIFY ALL CIRCUITS ON PANEL "T". BOTH THE LOAD AND LINE SIDES OF PANEL "T" ARE TO REMAIN COMPLETE. PRESERVE ALL CIRCUITS AND CONNECTIONS TO PANEL "T". PROVIDE THIS ENGINEER WITH DETAILED SCHEDULE AND SKETCH LOCATING ITEMS ON PANEL.
- ALL HVAC EQUIPMENT (FAN COIL UNITS (FCU), OUTSIDE AIR UNITS (OAU), CONDENSERS, ETC.) ARE PRESUMED TO BE ON PANELS "A" AND "HP1". VERIFY CIRCUITS. ALL HVAC EQUIPMENT AND ASSOCIATED SERVICE DISCONNECT SWITCHES SHALL REMAIN. FOR UNITS NOT ON PANEL "A", DISCONNECT AND REMOVE CONDUITS AND CONDUCTORS FROM DISCONNECT SWITCH BACK TO SOURCE, PRESERVE DISCONNECT AND FINAL CONNECTION.
- ALL RECEPTACLES AND FURNITURE CONNECTIONS ARE TO REMAIN IN WALLS, TO INCLUDE ANY NOT SHOWN. RECEPTACLES AND FURNITURE CONNECTIONS SHOWN ARE BASE UPON EXISTING PLANS AND SITE VISITS. LOCATIONS SHOWN ARE DIAGRAMMATIC. INFORM THIS ENGINEER OF ANY ADDITIONAL RECEPTACLES OR FURNITURE CONNECTIONS. PRESERVE CONDUITS AND CONDUCTORS IN WALLS FROM DEVICE TO ABOVE CEILING JUNCTION BOX. REMOVE REMAINDER OF CIRCUIT BACK TO PANELBOARD, TO INCLUDE CONDUITS AND CONDUCTORS.
- ALL CHILLER AND CHILLER PUMPS AND ASSOCIATED SERVICE DISCONNECT SWITCHES AND CONTROL PANELS SHALL REMAIN. REMOVE CONDUITS AND CONDUCTORS FROM DISCONNECT SWITCH OR CONTROL PANEL BACK TO SOURCE, PRESERVE DISCONNECT, CONTROL PANEL AND FINAL CONNECTION.
- FOUNTAIN PUMP AND ASSOCIATED SERVICE DISCONNECT SWITCH AND CONTROL PANEL SHALL REMAIN. DISCONNECT AND REMOVE CONDUITS AND CONDUCTORS FROM DISCONNECT SWITCH OR CONTROL PANEL BACK TO SOURCE, PRESERVE DISCONNECT AND FINAL CONNECTION.
- FIRE ALARM SYSTEM SHALL REMAIN, PRESERVE CONDUITS AND CONDUCTORS IN WALLS FROM FIRE ALARM CONTROL PANEL TO ABOVE CEILING JUNCTION BOX. REMOVE REMAINDER OF CIRCUIT BACK TO SOURCE, TO INCLUDE CONDUITS AND CONDUCTORS.
- PROVIDE THIS ENGINEER WITH A LIST OF ANY OTHER EQUIPMENT OR DEVICES THAT ARE NOT IDENTIFIED ON THIS PLAN.
- TURN OVER ANY SERVICEABLE EQUIPMENT THAT IS REMOVED TO OWNERS REPRESENTATIVE.
- COORDINATE ALL DOWNTIME WITH OWNER.

SPECIAL RECEPTACLES LEGEND:

- HARD WIRED FURNITURE CONNECTIONS
- UNKNOWN, LOCATED PER EXISTING DRAWINGS. VERIFY LOCATION. IF NO LONGER "IN USE", REMOVE WITH ANY CONDUITS AND CONDUCTORS BACK TO SOURCE. IF "IN USE", PROVIDE THIS ENGINEER WITH LOCATION AND REQUIREMENTS FOR NEW CIRCUITING.

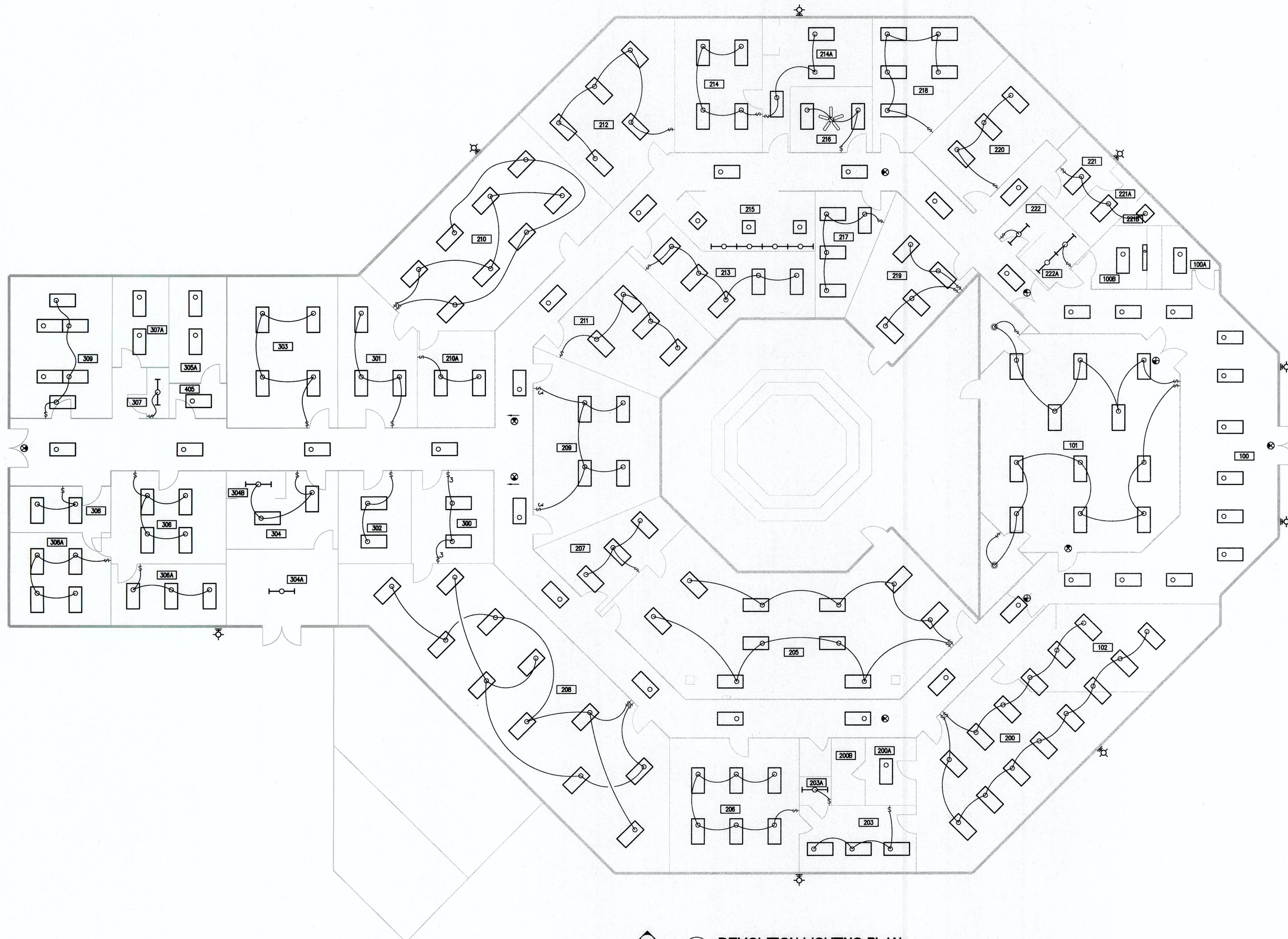


ATP ENGINEERING SOUTH, INC.
BRADENTON, FLORIDA
ENGR. BUSINESS #6808
941-751-6485

DATE	DESCRIPTION

MANATEE COUNTY UTILITIES DEPARTMENT
ADMIN. BUILDING ELECTRICAL REVISIONS
4410 66TH ST. W.,
BRADENTON, FL 34210
WA#20, IFASW300254

DRAWING TITLE:	ELECTRICAL DEMOLITION POWER PLAN
FILE:	MC Octagon Distribution
JOB NO.:	2013.72
DATE:	07/10/2013
PLOT SIZE:	1:1
DRAWN BY:	CMD/MC
CHECKED BY:	JDC
SHEET No.:	E3.0



1
E.3.1
DEMOLITION LIGHTING PLAN
1/8" = 1'-0"

PLAN NOTES:

- ALL LIGHTING FIXTURES SHOWN ARE EXISTING AND SHALL REMAIN AS CURRENTLY LOCATED. LOCATIONS SHOWN ARE DIAGRAMMATIC AND REPRESENT QUANTITIES OF FIXTURES IN EACH ROOM.
- VERIFY ALL CIRCUITS ON PANEL "A". THE LOAD SIDE OF PANEL "A" IS TO REMAIN COMPLETE. PRESERVE ALL CIRCUITS AND CONNECTIONS TO PANEL "A" EXCEPT AS DETAILED FOR SITE LIGHTING ON THIS SHEET. PROVIDE THIS ENGINEER WITH DETAILED SCHEDULE.
- VERIFY ALL CIRCUITS ON PANEL "T". BOTH THE LOAD AND LINE SIDES OF PANEL "T" ARE TO REMAIN COMPLETE. PRESERVE ALL CIRCUITS AND CONNECTIONS TO PANEL "T". PROVIDE THIS ENGINEER WITH DETAILED SCHEDULE AND SKETCH LOCATING ITEMS ON PANEL.
- FIXTURES NOT SHOWN CONNECTED TO A LOCAL SWITCH ARE CONTROLLED BY CIRCUIT BREAKERS. THESE FIXTURES SHALL BE SWITCHED VIA NEW TIME CLOCK/LIGHTING CONTACTOR, SEE NEW PLANS FOR INFORMATION.
- FOR ROOMS WITH MULTIPLE SWITCHES, VERIFY WHICH FIXTURES ARE CONTROLLED BY EACH SWITCH.
- FOR ALL FIXTURES, PRESERVE ALL CONDUITS AND CONDUCTORS AND SWITCH LEGS FROM NEAREST ABOVE CEILING JUNCTION BOX TO FIXTURES. REMOVE ALL CONDUITS AND CONDUCTORS FROM JUNCTION BOX BACK TO SOURCE.
- VERIFY CIRCUITS FOR EXTERIOR WALLPACKS AND SITE POLE LIGHTING. (SITE POLES NOT SHOWN) THESE SHOULD BE CONTROLLED VIA LIGHTING CONTACTORS IN MAIN ELECTRICAL ROOM. CONTACTORS APPEAR TO BE FEED VIA PANEL "A". PREPARE THIS CONNECTION AS EXISTING (2) CONTACTORS SHALL BE REPLACED WITH (2) NEW CONTACTORS, VERIFY SIZE AND EXISTING LOAD ON CONTACTORS. IF THIS IS NOT CORRECT, CONTACT THIS ENGINEER. VERIFY CONTROLS FOR THESE CONTACTORS, PRESERVE.
- PROVIDE THIS ENGINEER WITH A LIST OF ANY OTHER FIXTURES THAT ARE NOT IDENTIFIED ON THIS PLAN.
- COORDINATE ALL DOWNTIME WITH OWNER.



ATP ENGINEERING SOUTH, P.C.
BRADENTON, FLORIDA
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941-751-8485

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MANATEE COUNTY UTILITIES DEPARTMENT
ADMIN. BUILDING ELECTRICAL REVISIONS
4410 66TH ST. W.
BRADENTON, FL 34210
WA#20, IFA#W1300254

DRAWING TITLE:
**ELECTRICAL
DEMOLITION LIGHTING
PLAN**

FILE: MC Octagon Distribution
JOB NO.: 2013.72
DATE: 07/10/2013
PLOT SIZE: 1:1
DRAWN BY: CMD/MC
CHECKED BY: JDC
SHEET No.:

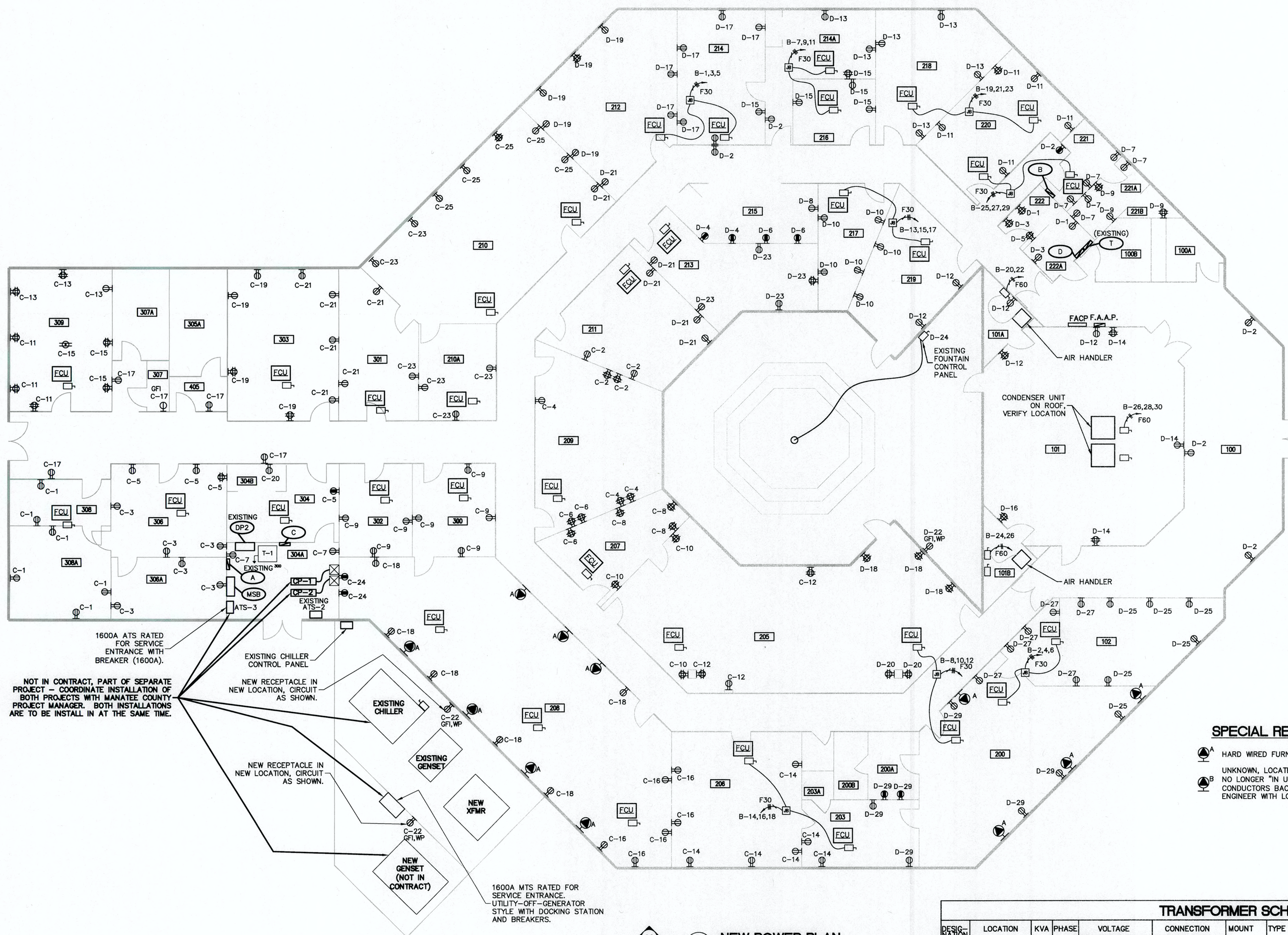
E3.1

ATP ENGINEERING SOUTH, P.L.
 BRADENTON, FLORIDA
 ENGR. BUSINESS #8908
 941-751-8485

REV#	DESCRIPTION	DATE

MANATEE COUNTY UTILITIES DEPARTMENT
 ADMIN. BUILDING ELECTRICAL REVISIONS
 4410 66TH ST. W.,
 BRADENTON, FL 34210
 WA#20, IFA#W1300254

DRAWING TITLE:
ELECTRICAL POWER PLAN
 FILE: MC Octagon Distribution
 JOB NO.: 2013.72
 DATE: 07/10/2013
 PLOT SIZE: 1:1
 DRAWN BY: CMD/MC
 CHECKED BY: JDC
 SHEET No.:
E4.0



PLAN NOTES:

- ALL RECEPTACLES AND MECHANICAL EQUIPMENT SHOWN ON THIS PLAN ARE EXISTING UNLESS OTHERWISE NOTED. ALL LOCATIONS ARE DIAGRAMMATIC. VERIFY PRIOR TO START OF WORK. PROVIDE CONDUITS AND CONDUCTORS ON CIRCUITS SHOWN, RE-USE EXISTING CONDUITS AND CONDUCTORS AS POSSIBLE.
- PROVIDE AND INSTALL NEW SWITCHGEAR AND PANELS AS SHOWN ON ONE-LINE RISER DIAGRAM, SHEET E5.0.
- ANY CONNECTIONS FOUND TO BE FED FROM PANELS "A" & "T" SHALL REMAIN "AS FED" REGARDLESS OF CIRCUITING ON THIS SHEET.
- RECONNECTED RECEPTACLES AND FURNITURE CONNECTIONS TO CIRCUITS SHOWN. RECEPTACLES AND FURNITURE CONNECTIONS SHOWN ARE BASE UPON EXISTING PLANS AND SITE VISITS. LOCATIONS SHOWN ARE DIAGRAMMATIC. INFORM THIS ENGINEER OF ANY ADDITIONAL RECEPTACLES OR FURNITURE CONNECTIONS. RE-USE CONDUITS AND CONDUCTORS IN WALLS TO DEVICES AS POSSIBLE. NO NEW RECEPTACLES ARE TO BE INSTALLED IN INTERIOR WALLS. ANY DAMAGE TO DRYWALL SHALL BE PATCHED AND REPAINTED TO MATCH EXISTING WALLS.
- ALL HVAC EQUIPMENT (FAN COIL UNITS (FCU), OUTSIDE AIR UNITS (OAU), CONDENSERS, ETC.) ARE TO BE ON PANELS "A" AND "B", UNLESS OTHERWISE NOTED. FOR ALL HVAC EQUIPMENT NOT ON PANEL "A", PROVIDE AND INSTALL CONDUITS AND CONDUCTORS FROM PANEL "B" TO EXISTING SERVICE DISCONNECT, RE-USE DISCONNECT AND FINAL CONNECTION.
- RECONNECT CHILLER AND CHILLER PUMPS, RE-USE EXISTING SERVICE DISCONNECT SWITCHES AND CONTROL PANELS.
- RECONNECT COURTYARD FOUNTAIN PUMP TO CIRCUIT SHOWN, RE-USE EXISTING DISCONNECT AND FINAL CONNECTION.
- RECONNECT FIRE ALARM SYSTEM ON CIRCUIT SHOWN, RE-USE CONDUITS AND CONDUCTORS IN WALLS FROM FIRE ALARM CONTROL PANEL TO ABOVE CEILING JUNCTION BOX.
- COORDINATE ALL DOWNTIME WITH OWNER.

SPECIAL RECEPTACLES LEGEND:

- A** HARD WIRED FURNITURE CONNECTIONS
- B** UNKNOWN, LOCATED PER EXISTING DRAWINGS. VERIFY LOCATION. IF NO LONGER "IN USE", REMOVE ANY ABANDONED CONDUITS AND CONDUCTORS BACK TO SOURCE. IF "IN USE", PROVIDE THIS ENGINEER WITH LOCATION AND REQUIREMENTS FOR NEW CIRCUITING.

1600A ATS RATED FOR SERVICE ENTRANCE WITH BREAKER (1600A).

EXISTING CHILLER CONTROL PANEL

NEW RECEPTACLE IN NEW LOCATION, CIRCUIT AS SHOWN.

EXISTING CHILLER

EXISTING GENSET

NEW XFMR

NEW GENSET (NOT IN CONTRACT)

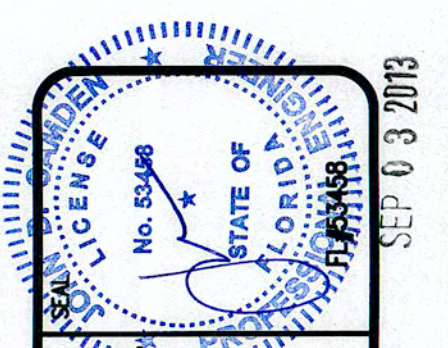
1600A MTS RATED FOR SERVICE ENTRANCE. UTILITY-OFF-GENERATOR STYLE WITH DOCKING STATION AND BREAKERS.

NOT IN CONTRACT. PART OF SEPARATE PROJECT - COORDINATE INSTALLATION OF BOTH PROJECTS WITH MANATEE COUNTY PROJECT MANAGER. BOTH INSTALLATIONS ARE TO BE INSTALL IN AT THE SAME TIME.

TRANSFORMER SCHEDULE

DESIGNATION	LOCATION	KVA	PHASE	VOLTAGE		CONNECTION		MOUNT	TYPE	LOAD SERVED	REMARKS
				PRIMARY	SECONDARY	PRIMARY	SECONDARY				
T-1	ROOM 304A	300	3φ	480	120/208	DELTA	WYE	FLOOR	DRY	DP2	COPPER WINDINGS, 150' RISE, NEMA1 VENTED

NEW POWER PLAN
 1/8" = 1'-0"



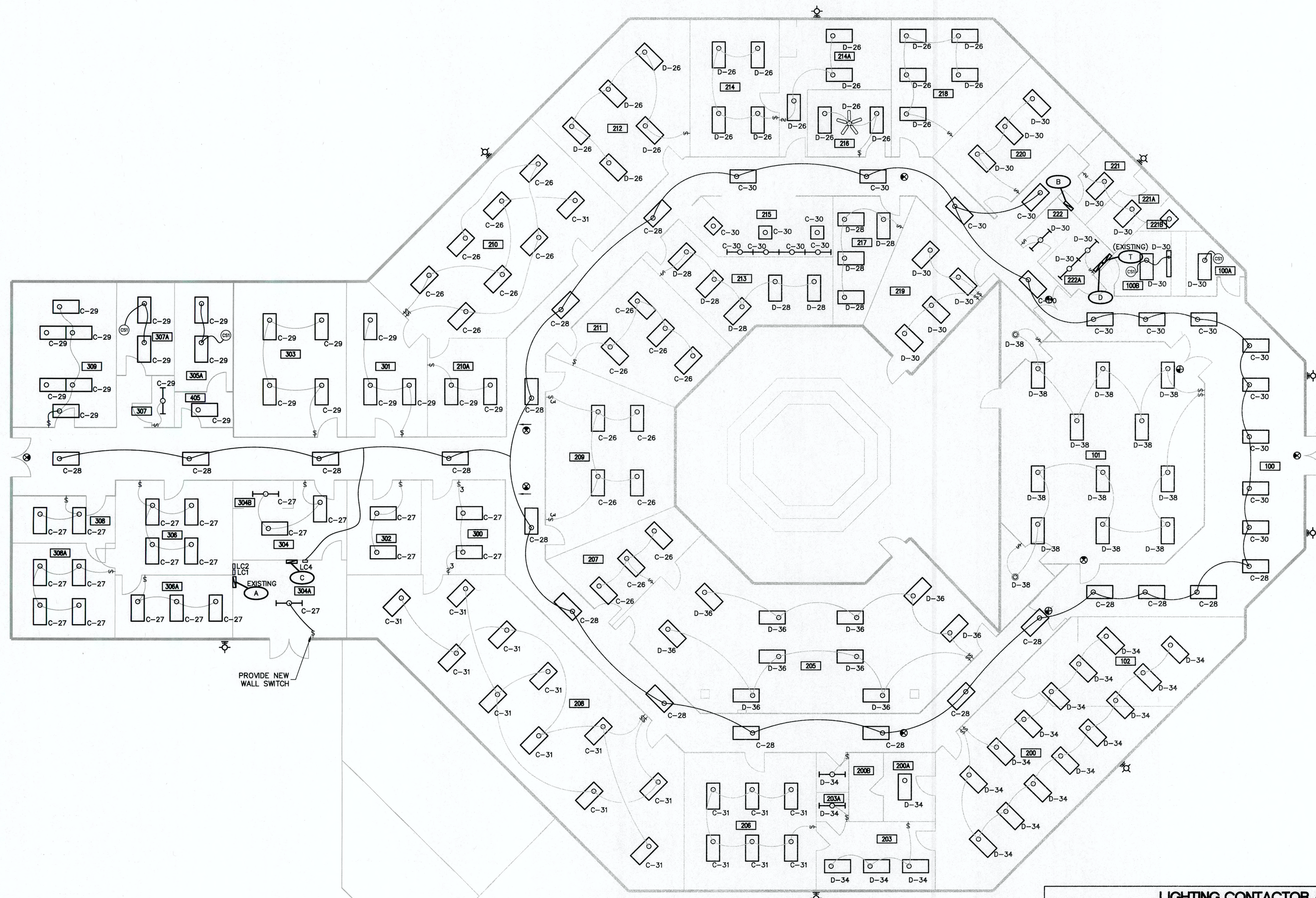
ATP ENGINEERING SOUTH, FL
 BRADENTON, FLORIDA
 ENGR. BUSINESS #8908
 941-751-6485



REV#	DESCRIPTION	DATE

MANATEE COUNTY UTILITIES DEPARTMENT
 ADMIN. BUILDING ELECTRICAL REVISIONS
 4410 66TH ST. W.,
 BRADENTON, FL 34210
 WA#20, IFASW130254

DRAWING TITLE:
ELECTRICAL LIGHTING PLAN
 FILE: MC Octagon Distribution
 JOB NO.: 2013.72
 DATE: 07/10/2013
 PLOT SIZE: 1:1
 DRAWN BY: CMD/MC
 CHECKED BY: JDC
 SHEET No.: **E4.1**



PLAN NOTES:

ALL LIGHTING FIXTURES SHOWN ARE EXISTING AND SHALL REMAIN AS CURRENTLY LOCATED. LOCATIONS SHOWN ARE DIAGRAMMATIC AND REPRESENT QUANTITIES OF FIXTURES IN EACH ROOM.

ANY LIGHTING FIXTURES FOUND TO BE FED FROM PANELS "A" & "T" SHALL REMAIN "AS FED" REGARDLESS OF CIRCUITING ON THIS SHEET.

ALL WALL SWITCH (\$) LOCATIONS ARE EXISTING AND SHALL REMAIN, UNLESS OTHERWISE NOTED. FOR ROOMS WITH MULTIPLE SWITCHES, VERIFY WHICH FIXTURES ARE CONTROLLED BY EACH SWITCH. SWITCH LEGS SHOWN IN GREYSKALE ARE EXISTING, SWITCH LEGS SHOWN BOLD ARE NEW.

PROVIDE AND INSTALL NEW TIMECLOCK AND LIGHTING CONTACTOR AS SHOWN TO CONTROL PUBLIC AREAS.

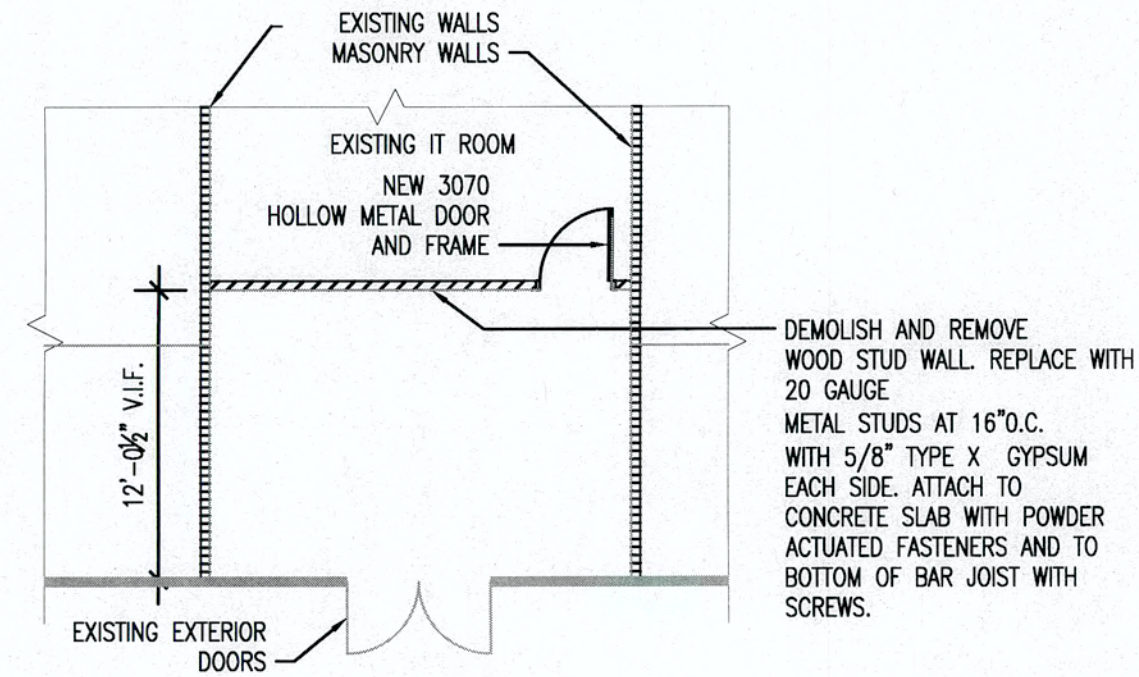
PROVIDE AND INSTALL NEW MOTION SENSOR FOR RESTROOM FIXTURES, CEILING MOUNT MOTION SENSOR (⊙) TO BE LEVITON OCCUPANCY SENSORS OSC05-M. MULTI-TECHNOLOGY, 180 DEGREE, 500 SQ. FT. COVERAGE, SELF-ADJUSTING, CEILING MOUNT OCCUPANCY SENSOR, COMMERCIAL GRADE - WHITE OR APPROVED EQUAL. POWER PACKS SHALL MATCH SENSOR MANUFACTURER. COORDINATE LOCATIONS WITH EXISTING PARTITIONS.

VERIFY CIRCUITS FOR EXTERIOR WALLPACKS AND SITE POLE LIGHTING. (SITE POLES NOT SHOWN) THESE SHOULD BE CONTROLLED VIA LIGHTING CONTACTORS IN MAIN ELECTRICAL ROOM. CONTACTORS APPEAR TO BE FEED VIA PANEL "A". REPLACE EXISTING (2) CONTACTORS WITH (2) NEW 40A CONTACTORS. RE-USE EXISTING CONTROLS FOR CONTACTORS.


COORDINATE ALL DOWNTIME WITH OWNER.

LIGHTING CONTACTOR / TIMECLOCK SCHEDULE										
DESIGNATION	LOCATION	POLES		CONTROL		CONTACT		ENCLOSURE	CIRCUITS CONTROLLED	REMARKS
		N.O.	N.C.	DEVICE	VOLTAGE	VOLTAGE	AMP RATING			
LC1	23A	4	---	EXISTING	120	120	40	NEMA 1	EXISTING	----
LC2	23A	4	---	EXISTING	120	120	40	NEMA 1	EXISTING	----
LC3	23A	4	---	TC-1	120	120	30	NEMA 1	C-28, C-30	LABEL "HALLWAY LIGHTS"
TC1	23A	---	---	---	120	---	30	NEMA 1	LC3	LABEL "HALLWAY LIGHTS"

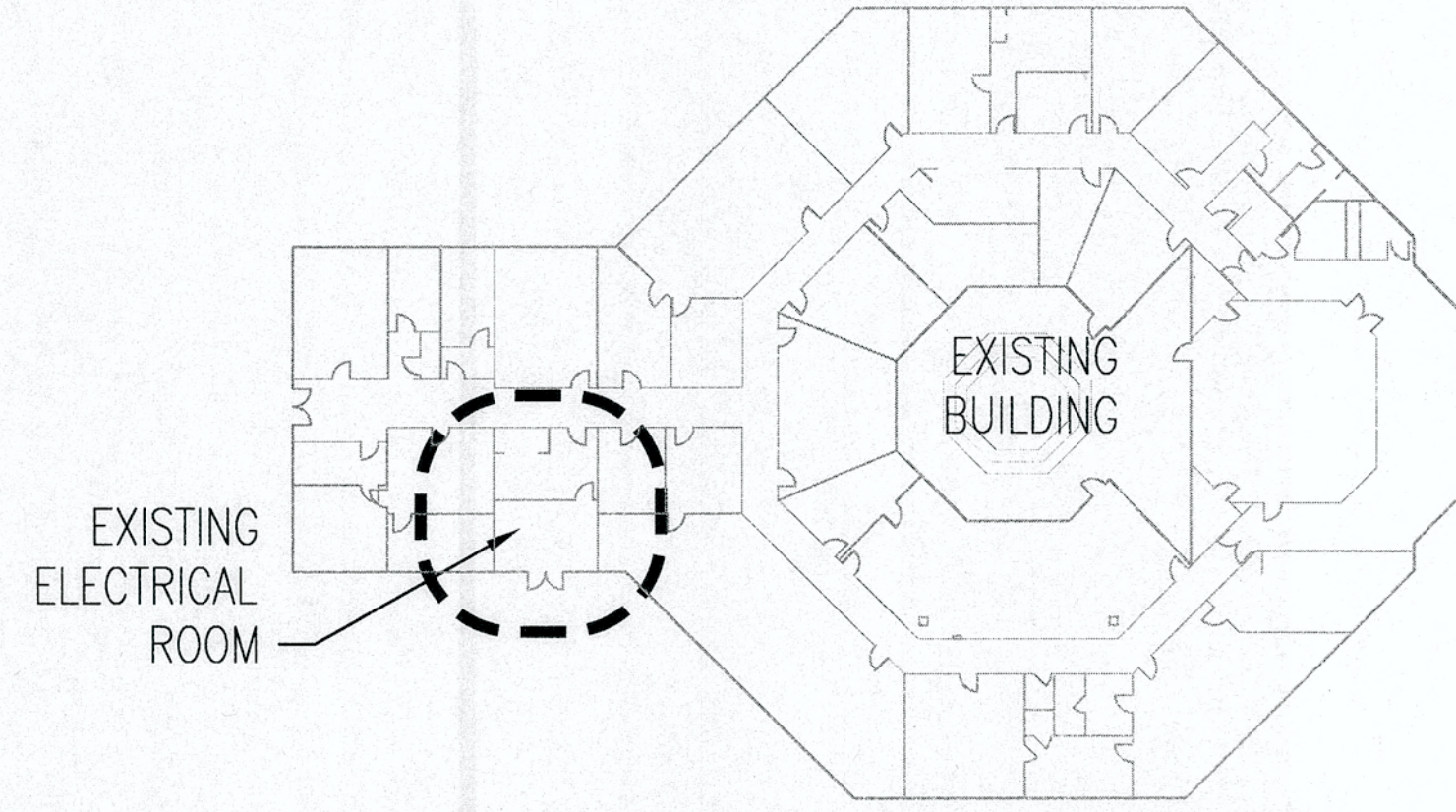
NEW LIGHTING PLAN
 1/8" = 1'-0"




DEMOLISH AND REMOVE WOOD STUD WALL. REPLACE WITH 20 GAUGE METAL STUDS AT 16\"/>

2
E4.2 **NEW WALL DETAIL** 
1/8" = 1'-0"

ELECTRICAL WALL DETAILS PROVIDED BY MR. DAVID BISHOP OF UGARTE AND ASSOCIATES ARCHITECTURE.

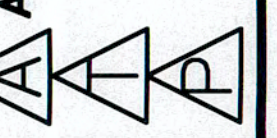


1
E4.2 **LOCATION OF ELECTRICAL ROOM** 
1/32" = 1'-0"

ELECTRICAL WALL DETAILS PROVIDED BY MR. DAVID BISHOP OF UGARTE AND ASSOCIATES ARCHITECTURE.



ATP ENGINEERING SOUTH, P.L.L.C.
BRADENTON, FLORIDA
ENGR. BUSINESS #8908
941-751-6485



REV#	DESCRIPTION	DATE

MANATEE COUNTY UTILITIES DEPARTMENT
ADMIN. BUILDING ELECTRICAL REVISIONS
4410 66TH ST. W.,
BRADENTON, FL 34210
WA#20, IFAS#W1300254

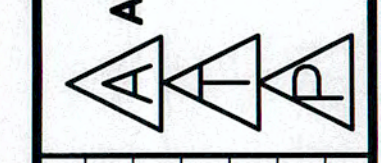
ELECTRICAL NEW WALL DETAILS

FILE: MC Octagon Distribution
JOB NO.: 2013.72
DATE: 07/10/2013
PLOT SIZE: 1:1
DRAWN BY: CMD/MC
CHECKED BY: JDC
SHEET No.:

E4.2



ATP ENGINEERING SOUTH, FL
BRADENTON, FLORIDA
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DATE	
REV#	DESCRIPTION

MANATEE COUNTY UTILITIES DEPARTMENT
ADMIN. BUILDING ELECTRICAL REVISIONS
4410 66TH ST. W.,
BRADENTON, FL 34210
WA#20, IFAS#W300254

DRAWING TITLE:
**ELECTRICAL ONE-LINE
RISER**

FILE: MC Octagon Distribution
JOB NO.: 2013.72
DATE: 07/10/2013
PLOT SIZE: 1:1
DRAWN BY: CMD/MC
CHECKED BY: JDC
SHEET No.:

E5.0

SEP 0 2013

FEEDER AND BRANCH CIRCUIT SCHEDULE

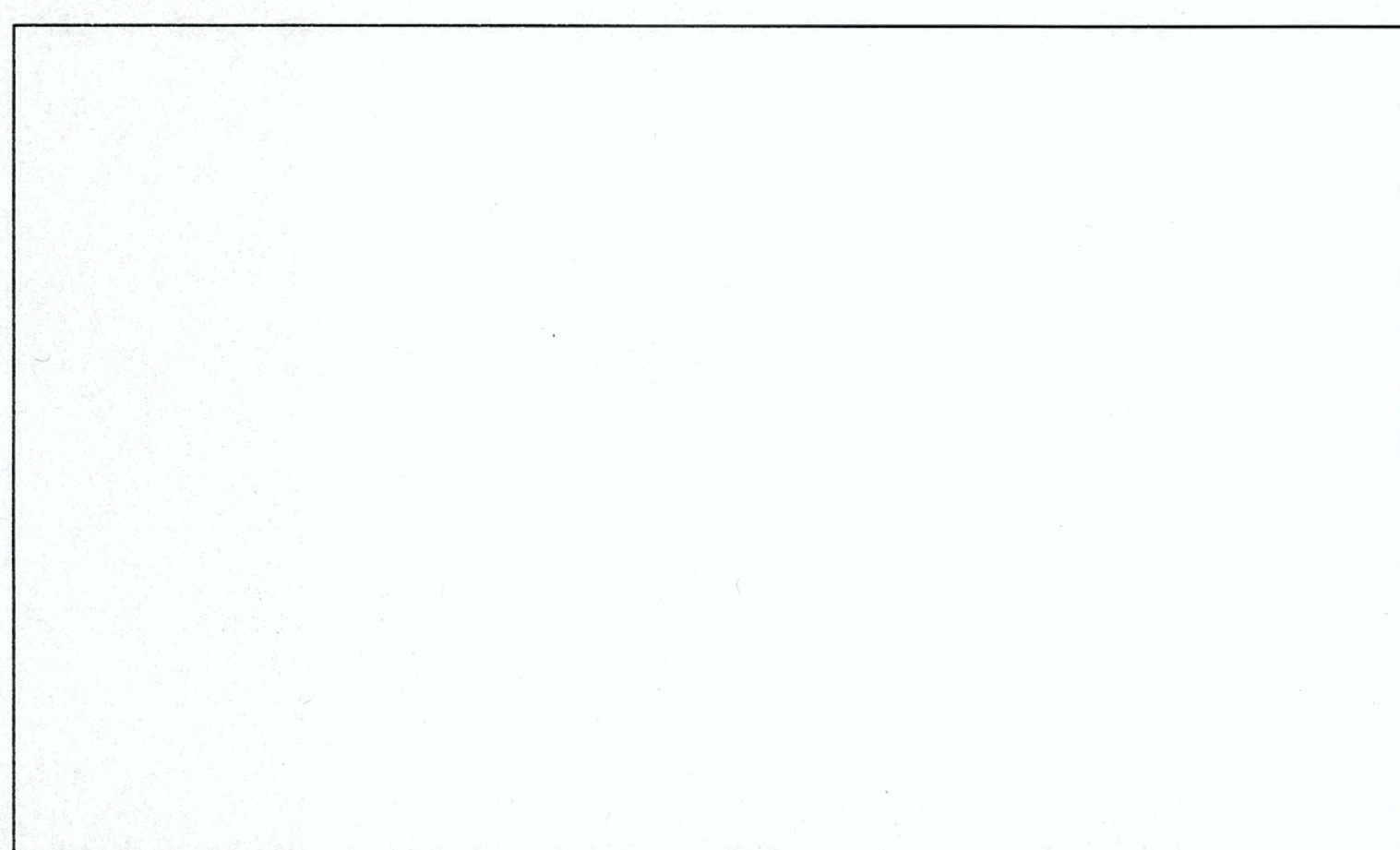
FEEDER BRANCH CIRCUIT DESIGNATION	COPPER CONDUCTOR THIN, THWN, & THWN-2		CONDUIT SIZE AND QUANTITY [QUANTITY IS 1, UNLESS NOTED IN ()]							
	PHASE & NEUTRAL	EQUIPMENT GROUND	1P, 1N, 1G, 2P, 1G	2P, 1N, 1G, 3P, 1G	3P, 1N, 1G	3P, 2N, 1G	3P, 3N, 1G	3P, 1N, 2G		
F20	12	12	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	
F30	10	10	3/4"	3/4"	3/4"	1"	1"	1"		
F40-50	8	10	3/4"	1"	1"	1 1/4"	1 1/4"	1 1/4"		
F60	6	10	1"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"		
F70-F80	4	8	1"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"		
F90-F100	3	8	1 1/4"	1 1/4"	1 1/2"	1 1/2"	2"	1 1/2"		
F110	2	6	1 1/4"	1 1/2"	1 1/2"	2"	2"	2"		
F125	1	6	1 1/2"	2"	2"	2"	2 1/2"	2"		
F150	1/0	6	1 1/2"	2"	2"	2 1/2"	2 1/2"	2 1/2"		
F175	2/0	6	2"	2"	2 1/2"	2 1/2"	3"	2 1/2"		
F200	3/0	6	2"	2 1/2"	2 1/2"	3"	3"	3"		
F225	4/0	4	2"	2 1/2"	3"	3"	3"	3"		
F250	250	4	2 1/2"	3"	3"	3 1/2"	3 1/2"	3-1/2"		
F300	350	4	3"	3"	3 1/2"	3 1/2"	4"	3 1/2"		
F350	2/0	3	(2) 2"	(2) 2 1/2"	(2) 2 1/2"	(2) 2 1/2"	(2) 3"	(2) 2 1/2"		
F400	3/0	3	(2) 2"	(2) 2 1/2"	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 2 1/2"		
F450	4/0	2	(2) 2"	(2) 2 1/2"	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 3"		
F500	250	2	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 3"	(2) 3 1/2"	(2) 3 1/2"		
F600	350	1	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 3"	(2) 3 1/2"	(2) 3"		
F800	300	1/0	(3) 2 1/2"	(3) 3"	(3) 3"	(3) 3 1/2"	(3) 3 1/2"	(3) 3 1/2"		
F900	350	2/0	(3) 3"	(3) 3"	(3) 3 1/2"	(3) 3 1/2"	(3) 4"	(3) 3 1/2"		
F1000	400	2/0	(3) 3"	(3) 3"	(3) 3 1/2"	(3) 3 1/2"	(3) 4"	(3) 4"		
F1200	350	3/0	(4) 3"	(4) 3"	(4) 3 1/2"	(4) 3 1/2"	(4) 4"	(4) 4"		
F1600	400	4/0	(5) 3"	(5) 3"	(5) 3 1/2"	(5) 3 1/2"	(5) 4"	(5) 4"		
F2000	400	250	(6) 3"	(6) 3"	(6) 3 1/2"	(6) 3 1/2"	(6) 4"	(6) 4"		
F2500	500	350	(7) 3"	(7) 3 1/2"	(7) 4"	(7) 4"	(7) 4"	(7) 4"		
F3000	500	400	(8) 3"	(8) 3 1/2"	(8) 4"	(8) 4"	(8) 4"	(8) 4"		
F3500	500	500	(10) 3"	(10) 3 1/2"	(10) 4"	(10) 4"	(10) 4"	(10) 4"		

NOTES:
1. DO NOT COMBINE NEUTRAL CONDUCTORS FOR ALL CIRCUITS. USE SEPARATE INDEPENDENT NEUTRAL CONDUCTORS FOR ALL CIRCUITS.

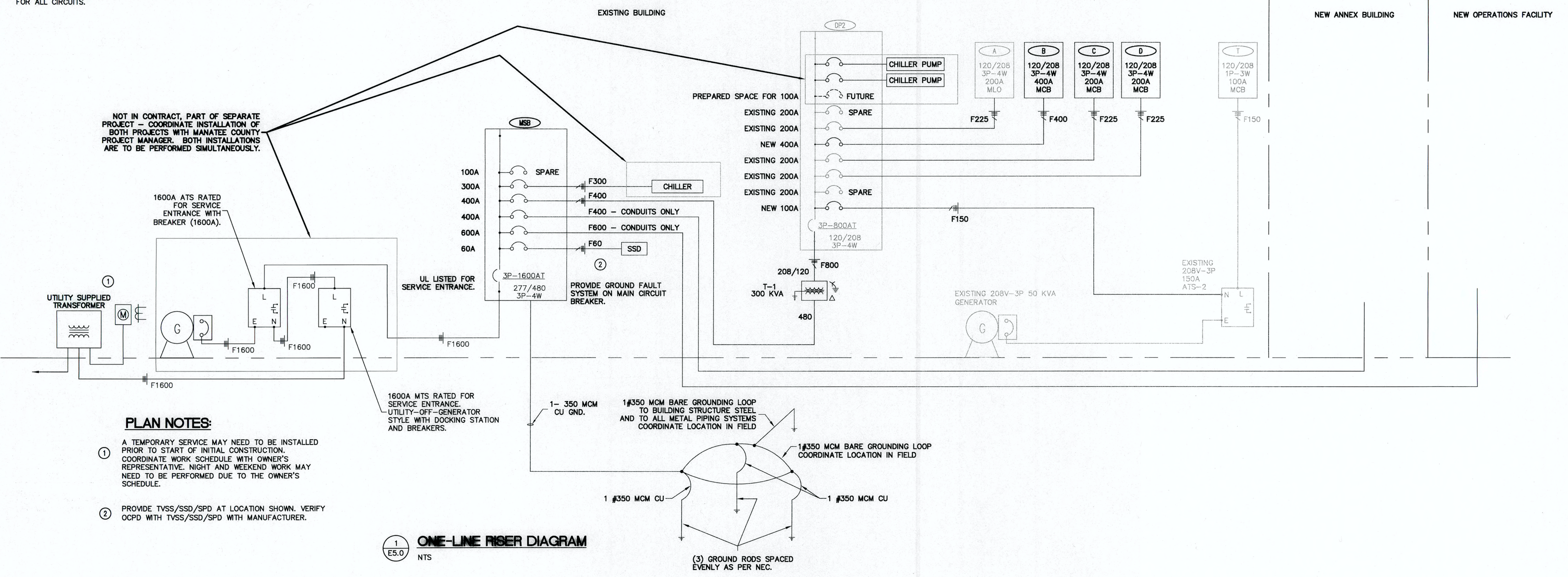
VOLTAGE DROP FOR 1φ, 20A BRANCH CIRCUITS

FEEDER SIZE TO USE	DISTANCE ALLOWED			
	120V	208V	277V	480V
F20	0 - 45 FEET	0 - 79 FEET	0 - 105 FEET	0 - 182 FEET
F30	45 - 72 FEET	79 - 126 FEET	105 - 168 FEET	182 - 290 FEET
F40-50	72 - 115 FEET	126 - 201 FEET	168 - 267 FEET	290 - 463 FEET
F60	115 - 183 FEET	201 - 318 FEET	267 - 423 FEET	463 - 733 FEET
F70-80	183 - 292 FEET	318 - 506 FEET	423 - 675 FEET	733 - 1169 FEET
F90-100	292 - 367 FEET	506 - 637 FEET	675 - 848 FEET	1169 - 1469 FEET
F110	367 - 464 FEET	637 - 804 FEET	848 - 1071 FEET	1469 - 1856 FEET
F125	464 - 584 FEET	804 - 1013 FEET	1071 - 1349 FEET	1856 - 2338 FEET
F150	584 - 738 FEET	1013 - 1279 FEET	1349 - 1703 FEET	2338 - 2951 FEET

NOTES:
1. 20 A BRANCH CIRCUITS SHALL BE SIZED FOR VOLTAGE DROP. WIRE SIZES ARE NOT INDICATED ON THE DRAWINGS TO COMPENSATE FOR VOLTAGE DROP FOR THESE CIRCUITS. CONTRACTOR SHALL UTILIZE WIRE SIZE SHOWN ABOVE FOR DISTANCES LISTED ABOVE.
2. VOLTAGE DROP WIRE SIZES WILL BE STRICTLY ENFORCED. CONTRACTOR SHALL SUBMIT A LIST OF CIRCUITS THAT WILL EXCEED THE DISTANCES ALLOWED AND INDICATE WIRE SIZE TO BE USED PRIOR TO ANY WIRE BEING INSTALLED.



AWAITING SHORT CIRCUIT VALUE FROM UTILITY COMPANY (FP&L) TO CALCULATE THE SHORT CIRCUIT VALUE. LOCAL UTILITY (FP&L) PROJECT MANAGER: MR. MICHAEL BERNARD, PHONE: 941-723-4421.



NOT IN CONTRACT, PART OF SEPARATE PROJECT - COORDINATE INSTALLATION OF BOTH PROJECTS WITH MANATEE COUNTY PROJECT MANAGER. BOTH INSTALLATIONS ARE TO BE PERFORMED SIMULTANEOUSLY.

PLAN NOTES:

- A TEMPORARY SERVICE MAY NEED TO BE INSTALLED PRIOR TO START OF INITIAL CONSTRUCTION. COORDINATE WORK SCHEDULE WITH OWNER'S REPRESENTATIVE. NIGHT AND WEEKEND WORK MAY NEED TO BE PERFORMED DUE TO THE OWNER'S SCHEDULE.
- PROVIDE TVSS/SSD/SPD AT LOCATION SHOWN. VERIFY OCPD WITH TVSS/SSD/SPD WITH MANUFACTURER.

ONE-LINE RISER DIAGRAM
E5.0 NTS



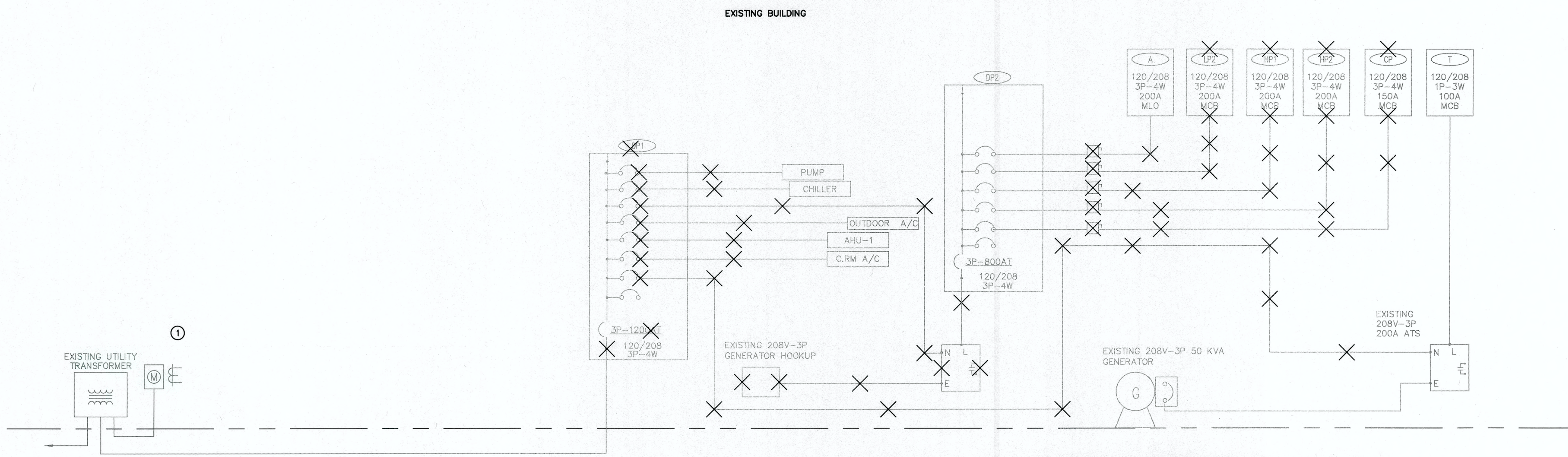
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 BRADENTON, FLORIDA
 ENGR. BUSINESS #8908
 941-751-6485

REV#	DESCRIPTION	DATE

MANATEE COUNTY UTILITIES DEPARTMENT
 ADMIN. BUILDING ELECTRICAL REVISIONS
 4440 66TH ST. W.,
 BRADENTON, FL 34210
 WA#20, IFAS#WT300254

DRAWING TITLE:
ELECTRICAL ONE-LINE RISER

FILE: MC Octagon Distribution
 JOB NO.: 2013.72
 DATE: 07/10/2013
 PLOT SIZE: 1:1
 DRAWN BY: CMD/MC
 CHECKED BY: JDC
 SHEET No.: **E5.1**



PLAN NOTES:

① A TEMPORARY SERVICE MAY NEED TO BE INSTALLED PRIOR TO START OF INITIAL CONSTRUCTION. COORDINATE WORK SCHEDULE WITH OWNER'S REPRESENTATIVE. NIGHT AND WEEKEND WORK MAY NEED TO BE PERFORMED DUE TO THE OWNER'S SCHEDULE. COORDINATE REPLACEMENT OF THE TRANSFORMER WITH THE UTILITY COMPANY.

FIELD VERIFY CONDITIONS PRIOR TO BIDDING AND STARTING CONSTRUCTION.

GENERAL NOTES:

✕ DENOTES ITEMS TO BE REMOVED.
 ITEMS IN GRAYSCALE ARE EXISTING.
 ITEMS BOLD ARE NEW.

① ONE-LINE RISER DEMOLITION DIAGRAM
 E5.1 NTS

NEW SWITCHBOARD SCHEDULE table with columns: CKT NO., LOAD DESCRIPTION, LOAD CODE, CONN. KVA, BREAKER AMPS POLE, CONNECTED LOAD A B C, BREAKER AMPS POLE, CONN. KVA, LOAD CODE, LOAD DESCRIPTION, CKT NO.

NEW PANEL M9B

EXISTING PANELBOARD SCHEDULE table with columns: CKT NO., LOAD DESCRIPTION, LOAD CODE, CONN. KVA, BREAKER AMPS POLE, CONNECTED LOAD A B C, BREAKER AMPS POLE, CONN. KVA, LOAD CODE, LOAD DESCRIPTION, CKT NO.

EXISTING PANEL DP2

EXISTING DISTRIBUTION PANELBOARD SCHEDULE table with columns: CKT NO., LOAD DESCRIPTION, LOAD CODE, CONN. KVA, BREAKER AMPS POLE, CONNECTED LOAD A B C, BREAKER AMPS POLE, CONN. KVA, LOAD CODE, LOAD DESCRIPTION, CKT NO.

EXISTING PANEL A

NEW DISTRIBUTION PANELBOARD SCHEDULE table with columns: CKT NO., LOAD DESCRIPTION, LOAD CODE, CONN. KVA, BREAKER AMPS POLE, CONNECTED LOAD A B C, BREAKER AMPS POLE, CONN. KVA, LOAD CODE, LOAD DESCRIPTION, CKT NO.

NEW PANEL B

NEW PANELBOARD SCHEDULE table with columns: CKT NO., LOAD DESCRIPTION, LOAD CODE, CONN. KVA, BREAKER AMPS POLE, CONNECTED LOAD A B C, BREAKER AMPS POLE, CONN. KVA, LOAD CODE, LOAD DESCRIPTION, CKT NO.

NEW PANEL C

NEW PANELBOARD SCHEDULE table with columns: CKT NO., LOAD DESCRIPTION, LOAD CODE, CONN. KVA, BREAKER AMPS POLE, CONNECTED LOAD A B C, BREAKER AMPS POLE, CONN. KVA, LOAD CODE, LOAD DESCRIPTION, CKT NO.

NEW PANEL D

EXISTING PANELBOARD SCHEDULE table with columns: CKT NO., LOAD DESCRIPTION, LOAD CODE, CONN. KVA, BREAKER AMPS POLE, CONNECTED LOAD A B C, BREAKER AMPS POLE, CONN. KVA, LOAD CODE, LOAD DESCRIPTION, CKT NO.

EXISTING PANEL T



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Table with columns: DATE, REV# and DESCRIPTION.

MANATEE COUNTY UTILITIES DEPARTMENT ADMIN. BUILDING ELECTRICAL REVISIONS 4410 66TH ST. W., BRADENTON, FL 34210 WA#20, IFAS#W1300254

ELECTRICAL PANELBOARD SCHEDULES FILE: MC Octagon Distribution JOB NO.: 2013.72 DATE: 07/10/2013 PLOT SIZE: 1:1 DRAWN BY: CMD/MC CHECKED BY: JDC SHEET No.: E5.2

SPECIFICATIONS:

(APPLY TO ALL ELECTRICAL SHEETS)

- PROVIDE AND INSTALL NEW GREEN INSULATED COPPER GROUNDING CONDUCTORS AS THE EQUIPMENT GROUNDING MEANS FOR ALL ELECTRICAL DEVICES AND EQUIPMENT.
- ALL NEW PANELBOARDS AND SWITCHBOARDS SHALL HAVE COPPER BUS, COPPER GROUND BAR, AND RATINGS AS SPECIFIED. REFERENCE STANDARDS SHALL BE GENERAL ELECTRIC "A" SERIES "PRO-STOCK" BRANCH PANELS AND SPECTRA SERIES DISTRIBUTION PANELS WITH BOLT IN TYPE CIRCUIT BREAKERS.
 - ALL ELECTRICAL CONNECTORS, LUGS, BREAKERS, EQUIPMENT, ETC. SHALL BE RATED AT A MINIMUM OF 75 DEG. C.
- PROVIDE LABELING FOR ALL NEW AND EXISTING PANELBOARDS, SWITCHBOARDS, AND DISCONNECT SWITCHES TO INCLUDE AN ENGRAVED PLASTIC LABEL IDENTIFYING THE EQUIPMENT AND WHERE IT IS FED FROM.
 - ALL BRANCH DEVICES IN THE MAIN SWITCHBOARD SHALL HAVE AN ENGRAVED PLASTIC LABEL.
 - ALL PANELBOARDS SHALL INCLUDE A TYPEWRITTEN DIRECTORY.
 - ALL JUNCTION BOX COVERS SHALL BE IDENTIFIED TO INDICATE CIRCUITS CONTAINED. WHERE MULTIPLE SWITCHES ARE GANGED TOGETHER THE SWITCHES SHALL BE IDENTIFIED.
 - PROVIDE (1) 3/4" SPARE CONDUIT FOR EACH 3 SPACES OR SPARES IN EACH FLUSH MOUNTED PANEL FROM PANEL TO ABOVE ACCESSIBLE CEILING FOR FUTURE USE.
 - ALL NEW BRANCH DEVICES IN THE MAIN SWITCHBOARD SHALL HAVE AN ENGRAVED PLASTIC LABEL.
 - ALL NEW AND EXISTING PANELBOARDS SHALL HAVE NEW TYPEWRITTEN DIRECTORY.
 - ALL RECEPTACLES SHALL HAVE CIRCUIT NUMBERS WRITTEN ON THE INSIDE OF THE COVERPLATE.
 - ALL JUNCTION BOX COVERS SHALL BE IDENTIFIED TO INDICATE CIRCUITS CONTAINED.
 - WHERE MULTIPLE SWITCHES ARE GANGED TOGETHER THE SWITCHES SHALL BE IDENTIFIED.
- CONDUITS:
 - ALL NEW CONDUIT INSIDE THE BUILDING SHALL BE A ELECTRICAL METALLIC TUBING (EMT) AND SHALL BE A MINIMUM 1/2" UNLESS OTHERWISE NOTED.
 - ALL NEW CONDUIT INSTALLED UNDERGROUND SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE NOTED.
 - ALL NEW CONDUIT INSTALLED ABOVE GRADE OUTSIDE THE BUILDING SHALL BE GALVANIZED RIGID STEEL.
 - NO PVC CONDUIT SHALL BE USED ABOVE THE FLOOR SLAB.
- WIRING METHODS:

ALL WIRING SHALL BE COPPER. NO ALUMINUM WIRING WILL BE ALLOWED.
MC TYPE CABLE SHALL NOT BE USED.
- SWITCHES SHALL BE 20 AMPERE RATED, 120/277 VOLT, LEVITON 1221-21 SERIES OR APPROVED EQUIVALENT, UNLESS OTHERWISE NOTED.
 - RE-USE EXISTING LIGHTING WALL SWITCHES. REPLACE WITH MATCHING SWITCH AS NEEDED.
 - SWITCHES CONTROLLING LIGHTING SHALL HAVE NEUTRAL CONDUCTOR.
- RECEPTACLES SHALL BE 20A, 120V GROUNDING TYPE LIKE LEVITON 5340 SERIES, UNLESS OTHERWISE NOTED.
 - RE-USE EXISTING RECEPTACLES. REPLACE WITH MATCHING AS NEEDED.
 - MATCH EXISTING COLOR IF REPLACEMENT RECEPTACLE IS REQUIRED.
 - PROVIDE GROUND FAULT CIRCUIT-INTERRUPTER (GFI) TYPE RECEPTACLE IF SHOWN OR AS REQUIRED BY NEC.
- REPLACE EXISTING COVERPLATES FOR INTERIOR WIRING DEVICES ONLY AS REQUIRED, RE-USE EXISTING.
 - REPLACEMENTS SHALL BE NYLON TYPE, MATCH EXISTING COLOR.
- ALL EXTERIOR RECEPTACLES SHALL BE GFCI (GFI) TYPE AND HAVE IN-USE TYPE WEATHERPROOF COVERPLATES.
- TIME CLOCK, THE TIME SWITCH SHALL BE OF THE 24-HOUR ELECTRONIC TYPE, CAPABLE OF PERMITTING UP TO 28 SETPOINTS OR EVENTS. THE TIME SWITCH SHALL PROVIDE A MINIMUM ON OR OFF TIME OF 1 MINUTE. THE TIME SWITCH SHALL BE POWERED BY 120VAC POWER SUPPLY. THE TIME SWITCH MECHANISM SHALL BE A SNAP-IN DESIGN TO PROVIDE EASE OF MECHANISM REMOVAL FOR MOUNTING THE ENCLOSURE. THE TIME SWITCH ENCLOSURE SHALL BE A TYPE 1 STEEL LOCKABLE ENCLOSURE, WHICH SHALL BE PAINTED WITH AN ELECTROSTATIC PROCESS TO ELIMINATE THE POTENTIAL FOR CORROSION. THE TIME SWITCH SHALL PROVIDE CLEAR TERMINAL IDENTIFICATION ON A NON-CURLING TERMINAL INSULATOR. TERMINAL CONNECTIONS SHALL BE MADE USING TEETER-TYPE TERMINAL SCREWS TO PROVIDE SECURE CONNECTIONS FOR WIRE SIZES UP TO #10 AWG. SWITCH CONFIGURATION SHALL BE SPST WITH A UL OR CSA LISTED SWITCH RATING OF:
 - RESISTIVE: 30 AMPS @ 120/240 VAC
 - RESISTIVE: 20 AMPS @ 28 VDC
 - INDUCTIVE: 30 AMPS @ 120/240 VAC
 - TUNGSTEN: 5 AMPS @ 120/240 VAC
 - BALLAST: 20 AMPS @ 120-277 VAC
 - MOTOR: 1 HP @ 120 VAC
 - MOTOR: 2 HP @ 240 VAC
 THE TIME SWITCH SHALL BE UL OR CSA LISTED UNDER UL CATEGORY 916 ENERGY MANAGEMENT EQUIPMENT AND SHALL BE INTERMATIC MODEL ET1105C, OR PRE-APPROVED EQUAL.
 - PANEL BOARD HEIGHT AND LOCATIONS
 - PANEL BOARDS SHALL BE ABOVE THE FLOOD PLANE.
 - DISCONNECT SWITCHES:
 - VERIFY SIZES OF ALL DISCONNECT SWITCHES WITH EQUIPMENT MANUFACTURER'S SPECIFICATION.
 - PROVIDE FUSES AS SHOWN ON DRAWINGS, VERIFY SIZES WITH MFG'S SPECIFICATIONS.
 - FOR FUSED SWITCHES, PROVIDE (2) SPARE FUSES.
 - DISCONNECTS SHALL NOT BE MOUNTED ON THE PIECE OF EQUIPMENT. THE EXCEPTION SHALL BE DISCONNECTS THAT ARE FACTORY INSTALLED ON THE EQUIPMENT.
 - ALL DISCONNECTS SHALL BE LOCATED NEAR THE PIECE OF EQUIPMENT THAT IT SERVES ON A SUPPORT STRUCTURE.

PROPOSED ORDER OF WORK:

- PRIOR TO STARTING ANY WORK DISCUSS PROCESS WITH THE ENGINEER AND THE PROJECT MANAGER.
- THE CONTRACTOR SHALL PROVIDE A FLOOR PLAN WITH A SCHEDULE OF AREAS OF WORK AT THE KICK OFF MEETING.
- THE DEMOLITION AND INSTALLATION/REPLACEMENT WITH NEW EQUIPMENT SHALL PROCEED SIMULTANEOUSLY IN THIS PROJECT.
- WORK WILL NEED TO BE COMPLETED OVER NIGHTS AND WEEKENDS PER THE PROJECT MANAGER'S SCHEDULE. DAY WORK MAY BE PERMITTED IF THERE ARE NO OUTAGES DURING THE PERIOD.
- DO ALL REQUIRED PREPARATION WORK FOR THE PROJECT: A TEMPORARY SERVICE AND TEMPORARY PANELS PLACEMENT IF NECESSARY, LARGE CONDUIT RUNS, ETC.
- VERIFY ALL CIRCUITS PRIOR TO STARTING DEMOLITION. THIS SHOULD IDENTIFY THE CIRCUITS THAT ARE ABLE TO BE RE-USED/REPLACED DURING THE NORMAL WORKING HOURS AND REDUCE THE AMOUNT OF TIME DURING THE CONSTRUCTION PROCESS.
- THE SPECIFIED EMERGENCY EQUIPMENT SHALL BE DEMO'D INITIALLY TO PROVIDE ROOM FOR THE NEW INCOMING EQUIPMENT.
- THE DEMOLITION MAY BEGIN WITH THE PANEL BOARDS AND DISCONNECTS -- THE REPLACEMENT OF THE EXISTING PANELS WITH THE NEW PANELS SHALL BE PERFORMED. REPLACE PANELS IN AN ORDERLY MANNER AND RE-WIRE TO THE EXISTING DISTRIBUTION PANEL (DP2) AND THE BRANCH CIRCUITS.
- INSTALL THE NEW 277/480 V SERVICE FOR THE FACILITY AND THEN:
- REMOVAL OF OLD SWITCHGEAR AND INSTALL THE NEW SWITCHGEAR AND A TRANSFORMER OVER A WEEKEND.

GENERAL NOTES:

(APPLY TO ALL ELECTRICAL SHEETS)

- PROVIDE COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM.
- ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE CURRENT ANSI/NFPA 70 WITH STATE OF FLORIDA AMENDMENTS, ANSI/IEEE C2 AND ALL FEDERAL, STATE, LOCAL, AND MUNICIPAL CODES AND ORDINANCES. THE ELECTRICAL SUBCONTRACTOR SHALL COMPLY WITH THE DIRECTIONS OF ALL AUTHORITIES HAVING JURISDICTION.
- INSTALL WORK USING PROCEDURES DEFINED IN NECA STANDARDS OF INSTALLATION. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR CEILING AND MILLWORK WORK BY THE SEPARATE GENERAL CONTRACT. COORDINATE ALL ELECTRICAL WORK.
- THE ELECTRICAL SUBCONTRACTOR SHALL PROVIDE ALL FLOOR, WALL, AND CEILING PENETRATIONS TO COMPLETE HIS WORK. PROVIDE PROPER FIRE SAFING FOR ALL PENETRATIONS MADE.
- COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES TO ENSURE EFFECTIVE AND EFFICIENT OVERALL INSTALLATION.
- COORDINATE ALL ELECTRICAL SYSTEM DOWNTIME WITH THE OWNER, PERFORMANCE SERVICES, AND OTHER TRADES. DOWNTIME OF THE SYSTEM SHALL BE MINIMIZED. WEEKEND AND AFTER HOUR WORK SHALL BE REQUIRED TO PREVENT OR MINIMIZE INTERFERENCE WITH THE OWNER'S OPERATION.
- THE LOCATIONS OF RECEPTACLES, PHONE/DATA JACKS, AND ROOM EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED DURING THE CONSTRUCTION PHASE-- COORDINATE AND REFER TO DRAWINGS.
- ALL NEW EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION. ALL WORK AND EQUIPMENT SHALL HAVE A FULLY COMPREHENSIVE WARRANTY INCLUDING PARTS AND LABOR FOR AT LEAST 3 YEARS ON ALL MATERIALS, EQUIPMENT, AND WORK PERFORMED.
- PHYSICAL SIZES AND LOCATIONS OF ALL MECHANICAL EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. COORDINATE ELECTRICAL WORK FOR THIS EQUIPMENT WITH THE OTHER TRADES.
- PROVIDE APPROPRIATE SEALANT (I.E. FIRESAFING) TO MAINTAIN CONSTRUCTION INTEGRITY FOR ANY PENETRATIONS THROUGH FLOORS, STRUCTURAL CEILINGS, AND FIRE WALLS.
- ALL BRANCH CIRCUITS SHALL UTILIZE SEPARATE INDEPENDENT NEUTRAL CONDUCTOR, AND INSULATED GROUNDING CONDUCTOR. DO NOT COMBINE NEUTRAL CONDUCTORS.
- ALL FEEDER NEUTRAL/GROUNDED CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. DE-RATE MULTIPLE CONDUCTORS IN A RACEWAY ACCORDINGLY WITH NEC TABLES.
- INSTALL ALL CONDUITS, RACEWAYS, AND CABLE TRAY FOR MAXIMUM HEAD CLEARANCE IN MECHANICAL AREAS, AND ATTIC. COORDINATE CLEARANCES WITH PERFORMANCE SERVICES AND THE OWNER.
- ALL ELECTRICAL SERVICE WORK SHALL COMPLY WITH THE LOCAL UTILITY. COORDINATE ALL REQUIREMENTS AND MAXIMUM AVAILABLE FAULT CURRENT PRIOR TO BID AND INCLUDE ALL NECESSARY MATERIAL AND LABOR REQUIRED FOR THE ADDITION TO THE ELECTRICAL SERVICE. A TEMPORARY SERVICE MAY BE REQUIRED FOR THIS PROJECT-- ALL FEES ASSOCIATED SHALL BE INCLUDED IN THE BID. PROVIDE PRICING FOR ANY AND ALL UTILITY FEES.
- TEST GROUNDING SYSTEM AFTER COMPLETION OF JOB TO INSURE PROPER GROUND CONDUCTIVITY.
- TEST ALL RECEPTACLES, LIGHTING, FIRE ALARM, AND HVAC CIRCUITS AFTER RECONNECTION TO INSURE PROPER OPERATIONS OF ALL SYSTEMS.
- RECORD DRAWINGS: PROVIDE AMPERE READINGS ON ALL PANELBOARDS TO PROVE PANELS ARE BALANCED. PROVIDE PHASE ROTATION READINGS ON ALL PANELBOARDS. PROVIDE ALL RECORD DRAWINGS TO THE OWNER'S REPRESENTATIVE.
- WEEKEND AND NIGHT WORK WILL BE REQUIRED TO BE PERFORMED DUE TO THE OWNER'S REPRESENTATIVES REQUIREMENTS. HOURS OF NIGHT WORK SHALL COMMENCE AT 8:30PM (EST) AND END PRIOR TO 8:30AM (EST). ALL MATERIALS, EQUIPMENT, AND TRASH SHALL BE CLEANED UP PRIOR TO ENDING WORK FOR THE DAY. THE FACILITY SHALL ALSO BE COMPLETELY FUNCTIONING AT THE END OF THE WORKING DAY.
- WORK DURING THE DAY MAY BE PERFORMED AS LONG AS IT DOES NOT INTERFERE WITH THE DAILY OPERATIONS OF THE FACILITY AND IF THE FACILITY IS UNDER EMERGENCY OPERATIONS. COORDINATE ALL SHUTDOWNS IN THE FACILITY WITH THE OWNER'S REPRESENTATIVE PRIOR TO PERFORMING THE SHUT DOWN.
- COORDINATE ALL CONSTRUCTION WORK FOR THIS PROJECT. THERE ARE OTHER PROJECTS THAT ARE BEING PERFORMED DURING THIS CONSTRUCTION PROCESS. THIS PROJECT SHALL BE COORDINATED WITH THE OTHER PROJECTS AS WELL. THE MAJOR PROJECT COORDINATION SHALL OCCUR WITH THE GENERATOR/CHILLER PLANT PROJECT FOR THE FACILITY.

FIRE ALARM SPECIFICATIONS:

- FIRE ALARM SYSTEM IS AN EXISTING SYSTEM AND SHALL NOT BE TOUCHED OTHER THAN THE SOURCE OF POWER, AS SHOWN ON DRAWINGS. ALL DEVICES SHALL REMAIN AS CURRENTLY INSTALLED.

SURGE PROTECTION DEVICE (TVSS/SPD/SSD):

PROVIDE AND INSTALL AT ALL SWITCHBOARD, DISTRIBUTION PANELBOARDS AND PANELBOARD LOCATIONS AS SHOWN WITH THE FOLLOWING REQUIREMENTS: RATED AND TESTED FOR CATEGORY B & C3 AS DEFINED BY ANSI/IEEE C62.41 AND C62.45.

WITH SYSTEM VOLTAGE RATING: 120/208V AND 277/480V THREE PHASE, 4 WIRE GROUNDED, 60HZ; PROTECTION MODES: EACH LINE TO NEUTRAL, EACH LINE TO GROUND, NEUTRAL TO GROUND,

MAXIMUM SURGE CURRENT CAPACITY PER CATEGORY B & C3 FOR MULTIPLE OCCURRENCES: MINIMUM CAPACITY ALLOWED IS 100,000 AMPS PER PHASE FOR BRANCH PANELBOARDS AND 100,000 AMPS FOR DISTRIBUTION PANELBOARDS. UL-1449 VOLTAGE SUPPRESSION RATING: L-N, 600, L-G = 600, N-G = 900, AND L-L = 1000V FOR 120/208 AND 277/480 VOLT SYSTEMS.

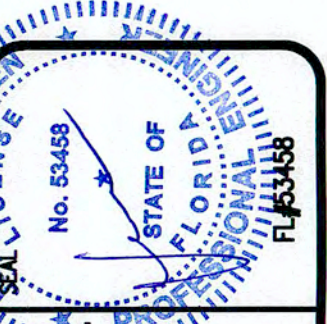
A 60 AMP 3 POLE BREAKER SHALL BE UTILIZED ON SERVICE ENTRANCE EQUIPMENT AND A 30 AMP 3 POLE BREAKER SHALL BE UTILIZED ON ALL OTHER PANELS.

SYSTEMS WILL BE PROVIDED WITH:

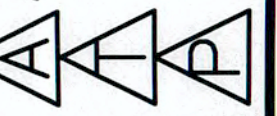
UNIT STATUS INDICATOR LIGHTS, AUDIBLE ALARM AND SILENCE SWITCH- IF APPLICABLE, AND TRANSIENT COUNTER, AND SHALL COMPLY WITH UL 1449 2ND EDITION, ANSI/IEEE C62.41 AND C62.45 - CATEGORY B AND C3 STANDARDS, AND MUST BE UL LISTED, ACCEPTABLE MANUFACTURERS: GE TRANQUILL, LEA, JOSLYN, INNOVATIVE TECHNOLOGY, AND SQUARE D SURGELOGIC, DITEK. INTEGRATED OR EXTERNAL MOUNTED. A 10 YEAR LIMITED WARRANTY ON THE PRODUCT SHOULD BE STANDARD. A 3 YEAR FULLY COMPREHENSIVE WARRANTY SHALL BE INCLUDED.

VOLTAGE TRANSFORMER:

- BUILT TO AT LEAST 1986 ANSI AND NEMA STANDARDS FOR SOUND LEVELS.
- 100% FACTORY TESTED FOR SHORTS, COIL INTEGRITY, CURRENT LOSS, VOLTAGE, IMPEDANCE, AND NOISE.
- KVA SIZE AS SPECIFIED.
- PRIMARY VOLTAGE - 480 VOLTS DELTA CONNECTED, 95 KV BIL.
- SECONDARY VOLTAGE - 120/208 Y VOLTS, 30 KV BIL, THE LOW VOLTAGE NEUTRAL SHALL BE BROUGHT OUT THROUGH A FULLY INSULATED BUSHING IN THE SECONDARY COMPARTMENT AND GROUNDED EXTERNALLY.
- THREE PHASES.
- 60 HERTZ FREQUENCY.
- TEMPERATURE RISE 150 C.
- 98% CONDUCTIVITY COPPER COIL.
- TWO WINDING TRANSFORMER - 3 COILS.
- EXTERNAL HANDLE FOR DE-ENERGIZED OPERATION.
- IMPEDANCE - NOT LESS THAN 4% AND NOT MORE THAN 7%.
- NOISE LEVEL - NOT TO EXCEED NEMA STANDARD LEVELS.
- SHALL BE SUPPLIED WITH LIGHTNING ARRESTORS ON THE HIGH VOLTAGE SIDE, IF NOT PROTECTED BY SWITCH EQUIPPED WITH LIGHTNING ARRESTORS.
- BOLTED CONNECTION WILL BE ACCEPTABLE ONLY FROM LEAD TO BUSHING. ALL OTHER CONNECTIONS SHALL BE WELDED OR ADEQUATELY CRIMPED.
- ACCESSORIES:
 - DIAL TYPE TEMPERATURE GAUGE
 - THREADED GROUNDING LUG
 - LIFTING LUGS AND THE ABILITY TO BE SKID IN ALL DIRECTIONS
 - WARRANTY PERIOD - 3 YEARS FULLY COMPREHENSIVE: PARTS, LABOR, SERVICE AND TRAVEL EXPENSES.



ATP ENGINEERING SOUTH, FL
BRADENTON, FLORIDA
ENGR. BUSINESS #8808
941-751-6485



DATE	DESCRIPTION

MANATEE COUNTY UTILITIES DEPARTMENT
ADMIN. BUILDING ELECTRICAL REVISIONS
4410 66TH ST. W.,
BRADENTON, FL 34210
WA#20, FAS#W1300254

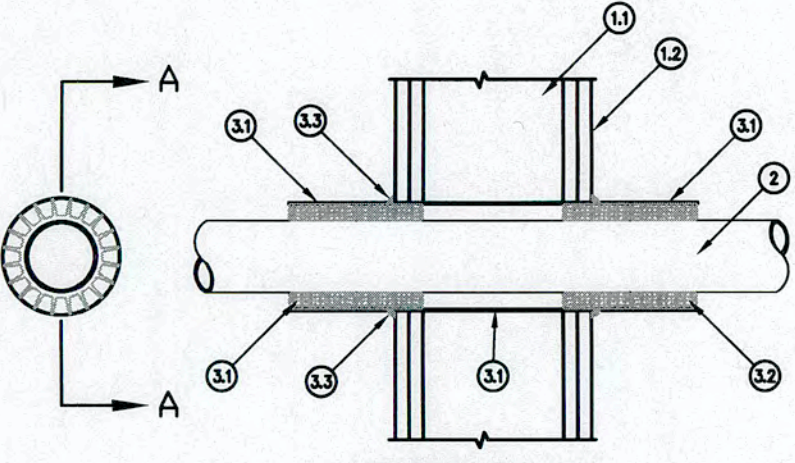
DRAWING TITLE:
**ELECTRICAL
SPECIFICATIONS**

FILE: MC Octagon Distribution
JOB NO.: 2013.72
DATE: 07/10/2013
PLOT SIZE: 1:1
DRAWN BY: CMD/MC
CHECKED BY: JDC
SHEET No.:

E6.0

SYSTEM NO. WL2154


F Rating - 1 or 2 HR (See Item 1)
T Rating - 1 or 2 HR (See Item 1)



SECTION A-A

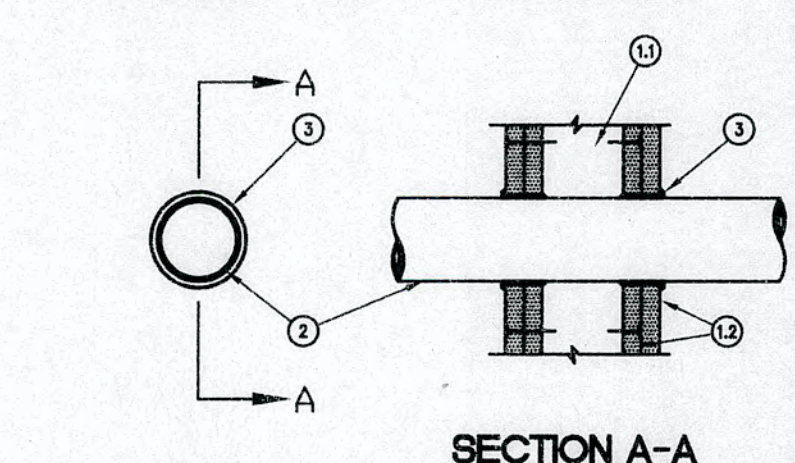
- WALL ASSEMBLY - THE 1 OR 2 HR FIRE RATED GYPSUM WALLBOARD / STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
 - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 3-1/2 IN. WIDE AND SPACED MAXIMUM 24 IN. OC.
 - WALLBOARD, GYPSUM BOARD* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 7-3/4 IN. THE HOURLY F AND T RATINGS OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
- THROUGH PENETRANTS - ONE NONMETALLIC PIPE OR CONDUIT TO BE CENTERED WITHIN OPENING WITH A NOM. 1/4 IN. ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDERS OF THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES OR CONDUITS MAY BE USED:
 - POLYVINYL CHLORIDE (PVC) PIPE - NOM. 6 IN. DIAMETER (OR SMALLER) SCHEDULE 40 SOLID CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.
 - RIGID NONMETALLIC CONDUIT ++ - NOM. 6 IN. DIAMETER (OR SMALLER) SCHEDULE 40 PVC CONDUIT INSTALLED IN ACCORDANCE WITH ARTICLE 347 OF THE NATIONAL ELECTRICAL CODE (NFPA NO. 70).
 - CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE - NOM 6 IN. DIAMETER (OR SMALLER) SDRI7 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- FIRESTOP SYSTEM - THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
 - STEEL SLEEVE - MINIMUM 26 GAUGE GALVANIZED STEEL CUT 6 IN. LONGER THAN OVERALL WIDTH OF WALL WITH THE OUTSIDE DIAMETER EQUAL TO DIAMETER OF OPENING IN WALL WITH A MINIMUM 1 IN. OVERLAP ALONG LONGITUDINAL SEAM. SLEEVE PLACED IN WALL OPENING SUCH THAT 3 IN. EXTENDS BEYOND BOTH SIDERS OF WALL. EDGES OF SLEEVE TO BE PROVIDED WITH 1/2 IN. LONG SLITS TO FORM RETAINING TABS.
 - FILL, VOID OR CAVITY MATERIALS* - WRAP STRIP - NOM. 1/8 IN. THICK INTUMESCENT MATERIAL SUPPLIED IN 2 IN. WIDE STRIPS. MINIMUM FOUR CONTINUOUS LAYERS OF WRAP STRIP TIGHTLY WRAPPED AROUND NONMETALLIC PIPE ON BOTH SIDERS OF WALL AND RECESSED WITHIN STEEL SLEEVE 2-1/2 IN. FROM THE END OF SLEEVE ON BOTH SIDE OF WALL. AN ADDITIONAL STACK OF FOUR CONTINUOUS LAYERS OF WRAP STRIP TIGHTLY WRAPPED AROUND NONMETALLIC PIPE ON BOTH SIDERS OF THE WALL AND BUTTED TIGHTLY AGAINST SLEEVE. THE SLIT EDGES OF SLEEVE TO BE BENT 90 DEGREES TOWARD PIPE. TWO MINIMUM 1/2 IN. WIDE BY 0.028 IN. THICK STAINLESS STEEL BAND CLAMPS SHALL BE TIGHTLY FASTENED AROUND SLEEVE ON BOTH SIDERS OF WALL, APPROXIMATELY 1/2 IN. FROM THE WALL SURFACES AND 3/4 IN. FROM EACH END OF SLEEVE. MINNESOTA MINING & MFG. CO. - ULTRA OS
 - FILL, VOID OR CAVITY MATERIALS* - CAULK - MINIMUM 1/2 IN. DIAMETER BEAD OF CAULK SHALL BE APPLIED TO OUTER PERIMETER OF SLEEVE ON BOTH SIDERS OF WALL AT SLEEVE / WALL INTERFACE. MINNESOTA MINING & MFG. CO. - CP 25WB+ CAULK

* BEARING THE UL CLASSIFICATION MARKING
++ BEARING THE UL LISTED MARK



SYSTEM NO. WL1001

(FORMERLY SYSTEM NO. 147)
F RATING - 1, 2, 3 AND 4 HR. (SEE ITEM 2 AND 3)
T RATINGS - 0, 1, 2, 3, AND 4 HR. (SEE ITEM 3)



SECTION A-A

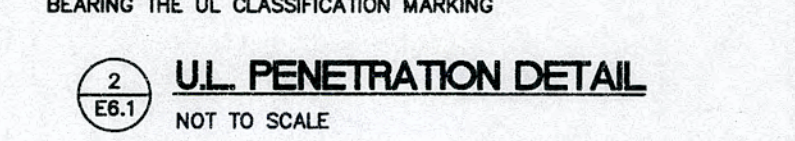
- WALL ASSEMBLY - THE 1, 2, 3 OR 4 HOUR FIRE-RATED GYPSUM WALLBOARD / STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
 - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS CONSIST OF NOMINAL 2 BY 4 IN. LUMBER SPACED 16 INCHES OC WITH NOMINAL 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN. 3-5/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.
 - WALL BOARD GYPSUM* - 1/2 IN. OR 5/8 IN. THICK 4 FOOT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 13-1/2 IN.
- PIPE OR CONDUIT - NOMINAL 12 IN. DIAM. (OR SMALLER) SCHEDULE 10 (OR HEAVIER STEEL CONDUIT, NOM. 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL CONDUIT MECHANICAL OR TYPE L OR (HEAVIER) COPPER TUBING OR MON. 1 IN. DIAM (OR SMALLER) FLEXIBLE STEEL CONDUIT.
- FILL, VOID OR CAVITY MATERIALS* - CAULK - CAULK FILL MATERIAL INSTALLED TO COMPLETELY FILL ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND GYPSUM WALLBOARD AND W/ A MIN. 1/4 IN. DIAM BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS GRESS FROM THE WALL. CAULK INSTALLED SYMMETRICALLY ON BOTH SIDERS OF WALL ASSEMBLY. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED BELOW:

MAXIMUM PIPE OR CONDUIT DIAMETER (IN INCHES)	ANNULAR SPACE (IN INCHES)	F RATING HR	T RATING HR
1	0 TO 3/16	1 OR 2	0+, 1 OR 2
1	1/4 TO 1/2	3 OR 4	3 OR 4
4	0 TO 1 1/2	1 OR 2	0
6	1/4 TO 1/2	3 OR 4	0
12	3/16 TO 3/8	1 OR 2	0

+WHEN COPPER PIPE IS USED, T RATING IS 0 H.

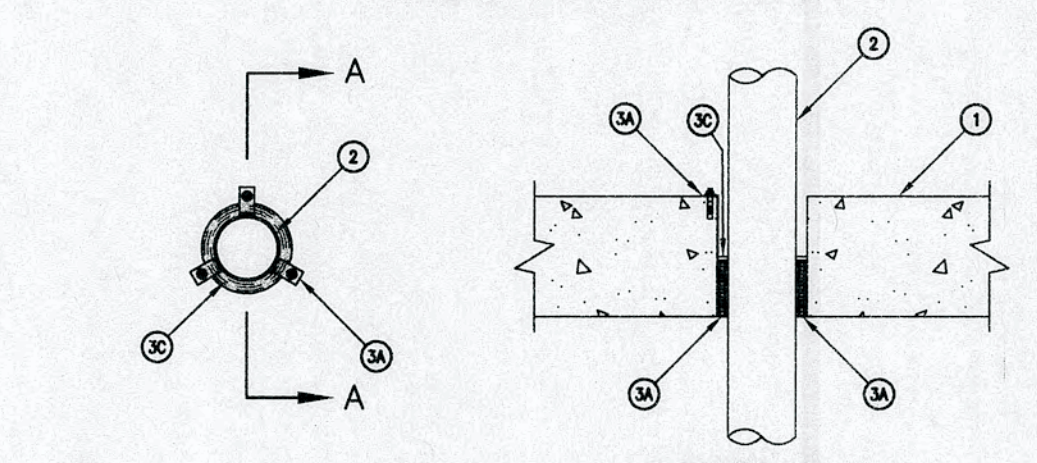
MINNESOTA MINING & MANUFACTURING CO. - TYPES CP-25 S/L CP-25 N/S, CP-25 WB, CP-25 WB+

* BEARING THE UL CLASSIFICATION MARKING



SYSTEM NO. C-AJ-2002

May 18, 2005
F Rating - 2 Hr
T Rating - 0 and 2 Hr
L Rating at Ambient - 7 CFM/sq ft
L Rating at 400 F - less than 1 CFM/sq ft (See Item 3C)
W Rating - Class I (See Item 3)

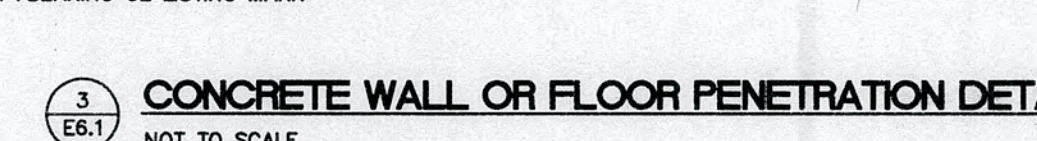


SECTION A-A

- FLOOR OR WALL ASSEMBLY - MIN 2-1/2 IN. (64 MM) THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS* MAX DIAM OF CIRCULAR OPENING IS 6-1/2 IN. (165 MM).
SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- NONMETALLIC PIPE OR CONDUIT - NOM 4 IN. (102 MM) DIAM (OR SMALLER) SCHEDULE 40 SOLID CORE OR CELLULAR CORE, POLYVINYL CHLORIDE (PVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS OR RIGID NONMETALLIC CONDUIT++ OR SDR 13.5 CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. A MAX OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM EXCEPT AS NOTED IN ITEM B. THE PIPE OR CONDUIT SHALL BE CENTERED IN THE THROUGH OPENING. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDERS OF FLOOR OR WALL ASSEMBLY.
SEE RIGID NONMETALLIC CONDUIT (DZKT) CATEGORY IN THE UL ELECTRICAL CONSTRUCTION MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS.
- FIRESTOP SYSTEM - THE HOURLY T RATINGS FOR THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE FIRESTOP ORIENTATION (WALL OR FLOOR), THE SIZE OF THE NONMETALLIC PIPE OR CONDUIT, AND THE FLOOR THICKNESS, AS TABULATED BELOW:

ORIENTATION (a)	NOMINAL PIPE DIAMETER in. (mm)	ANNULAR SPACE in. (mm)	F RATING HR	T RATING HR
F(b)	1/2-2 (13-51 mm)	1/4-1 (6-25 mm)	2	0
F(b)	2-1/2, 3 (64, 76 mm)	1/2-1 (13-25 mm)	2	0
W,F	1/2-2 (13-51 mm)	1/4-1 (6-25 mm)	2	2
W,F	2-1/2, 3 (64, 76 mm)	1/2-1 (13-25 mm)	2	2
W,F	3-1/2, 4 (89, 102 mm)	3/4-1 (19-25 mm)	2	2

(a) W = WALL, F = FLOOR
(b) MIN CONCRETE FLOOR THICKNESS IS 2-1/2 IN. (64 MM). THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
A. STEEL SUPPORT CLIPS - NOM 1 IN. (25 MM) WIDE BY NOM 0.019 IN. (0.5 MM) THICK (28 GAUGE) GALV STEEL STRIPS FIELD-FORMED INTO "Z"-SHAPE WITH HEIGHT OF Z-SHAPE EQUAL TO THE FLOOR THICKNESS AND WITH WIDTH OF BOTTOM (AS INSTALLED) LEG OF SUFFICIENT LENGTH TO SPAN ANNULAR SPACE. TOP (AS INSTALLED) LEG OF Z-SHAPE TO BE MIN 2 IN. (51 MM) LONG AND MAY OR MAY NOT BE SECURED TO TOP SURFACE OF FLOOR WITH MASONRY ANCHORS. AS AN ALTERNATE TO THE Z-SHAPE CLIPS, THE GALV STEEL STRIPS MAY BE FORMED INTO "L"-SHAPE WITH HEIGHT EQUAL TO 2 IN. (51 MM) AND WITH BOTTOM (AS INSTALLED) LEG OF SUFFICIENT LENGTH TO SPAN ANNULAR SPACE. CLIPS SECURED TO OUTERMOST WRAP STRIP LAYER WITH STEEL WIRE PRIOR TO INSERTION IN THROUGH OPENING. MIN OF THREE STEEL SUPPORT CLIPS TO BE USED, SYMMETRICALLY LOCATED, WITH BOTTOM LEG OF CLIPS FLUSH WITH BOTTOM PLANE OF FLOOR. WHEN ANNULAR SPACE AROUND NOM 1/2 IN. TO 2 IN. (13 MM TO 51 MM) DIAM PIPE IN FLOOR ASSEMBLY IS 1/4 IN. TO 3/8 IN. (6 MM TO 10 MM), STEEL SUPPORT CLIPS ARE NOT REQUIRED.
B. FILL, VOID OR CAVITY MATERIALS* - WRAP STRIP - NOM 1/4 IN. (6 MM) THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. NOM 2 IN. (51 MM) WIDE STRIPS TIGHTLY WRAPPED AROUND NONMETALLIC PIPE (FOIL SIDE EXPOSED) TO FILL ANNULAR SPACE AROUND PIPE. A MIN OF ONE LAYER OF WRAP STRIP IS REQUIRED FOR NOM 1/2 IN. TO 2 IN. (13 MM TO 51 MM) DIAM PIPES. A MIN OF TWO LAYERS OF WRAP STRIP IS REQUIRED FOR NOM 2-1/2 IN. AND 3 IN. (64 MM AND 76 MM) DIAM PIPES. A MIN OF THREE LAYERS OF WRAP STRIP IS REQUIRED FOR NOM 3-1/2 IN. AND 4 IN. (89 MM AND 102 MM) DIAM PIPES. EACH LAYER OF WRAP STRIP TO BE INSTALLED WITH BUTTED SEAM WITH BUTTED SEAMS IN SUCCESSIVE LAYERS STAGGERED. WRAP STRIP LAYERS SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO THROUGH OPENING SUCH THAT THE BOTTOM EDGES ARE FLUSH WITH THE BOTTOM PLANE OF THE FLOOR AND ARE RESTING ON THE STEEL SUPPORT CLIP LEGS. WHEN NOM 2 IN. TO 4 IN. (51 MM TO 102 MM) DIAM PVC PIPE IS USED IN MIN 4-1/2 IN. (114 MM) THICK CONCRETE FLOOR, THE PIPE MAY BE INSTALLED ECCENTRICALLY IN THE THROUGH OPENING (MIN ZERO CLEARANCE AT POINT CONTACT LOCATION) PROVIDED THAT (1) THE INSIDE DIAM OF THE THROUGH OPENING IS 1.5 TO 1.5 TIMES LARGER THAN THE OUTSIDE DIAM OF THE PIPE, (2) THE ANNULAR SPACE BETWEEN THE PIPE AND THE SIDERS OF THE OPENING AT THE BOTTOM 2 IN. (51 MM) OF THE THROUGH OPENING IS COMPLETELY FILLED WITH WRAP STRIP LAYERS INSTALLED FOLLOWING THE CONTOUR OF THE PIPE AND (3) THE BOTTOM EDGES OF THE WRAP STRIP LAYERS ARE RELIABLY SUPPORTED BY "Z"-SHAPE STEEL SUPPORT CLIPS ANCHORED TO THE TOP SURFACE OF THE CONCRETE FLOOR. IN WALL ASSEMBLIES, THE WRAP STRIP LAYERS ON THE NONMETALLIC PIPE ARE TO BE INSTALLED IN THE SAME MANNER USED FOR FLOOR ASSEMBLIES, BUT SHALL BE INSTALLED SYMMETRICALLY ON BOTH SIDERS OF THE WALL WITH THE EXPOSED EDGES OF THE WRAP STRIP LAYERS FLUSH WITH THE WALL SURFACES.
C. FILL, VOID OR CAVITY MATERIALS* - CAULK OR SEALANT - MIN 1/4 IN. (6 MM) DIAM CONTINUOUS BEAD APPLIED TO INSIDE WALLS OF THROUGH OPENING PRIOR TO INSTALLATION OF STEEL SUPPORT CLIPS AND/OR WRAP STRIP. CAULK BEAD TO BE RECESSED 1 IN. (25 MM) FROM THE BOTTOM PLANE OR FLOOR. IN WALL ASSEMBLIES, CAULK BEAD TO BE RECESSED 1 IN. (25 MM) FROM WALL SURFACE ON BOTH SIDERS OF WALL IN FLOOR ASSEMBLIES. A NOM 1/2 IN. (13 MM) THICK COATING OF CAULK IS TO BE APPLIED TO THE TOP EDGES OF THE WRAP STRIP LAYERS AND TO FILL ALL GAPS AT THE WRAP STRIP / CONCRETE INTERFACE. IN WALL ASSEMBLIES, THE EXPOSED EDGES OF THE WRAP STRIP LAYERS AND ALL GAPS AT THE WRAP STRIP / CONCRETE INTERFACE ON BOTH SIDERS OF THE WALL TO BE COATED WITH THIN LAYER OF CAULK.
(NOTE: W RATING APPLIES ONLY WHEN FB-3000 WT SEALANT IS USED. CP 25WB+ NOT SUITABLE FOR USE WITH CPVC PIPES.)
*BEARING THE UL CLASSIFICATION MARKING
++BEARING UL LISTING MARK



SEP 6 3 2013


A.T.P. ENGINEERING SOUTH, INC.
 BRADENTON, FLORIDA
 ENGR. BUSINESS #6808
 941-751-6485


MANATEE COUNTY UTILITIES DEPARTMENT
 ADMIN. BUILDING ELECTRICAL REVISIONS
 4410 66TH ST. W.,
 BRADENTON, FL 34210
 WA#20, IFAS#W1300254

ELECTRICAL DETAILS
 DRAWING TITLE:

FILE: MC Octagon Distribution
 JOB NO.: 2013.72
 DATE: 07/10/2013
 PLOT SIZE: 1:1
 DRAWN BY: CMD/MC
 CHECKED BY: JDC
 SHEET No.:

E6.1