Tom Green County

IT Cabling

Construction Documents
Project Manual

Bid Package

November 16, 2021

HDR Project No. 10163575

TABLE OF CONTENTS

DIVISION 00

PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00 26 00
SUBSTITUTIONS PRIOR TO BIDDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling requests for substitutions made prior to bid.
   1. Any product proposed by Contractor which does not meet requirements of Contract Documents, whether in product characteristics, size, performance, quality, manufacturer, or brand name is considered a substitution.
   2. In case of non-availability of materials contact Architect for review and action.

B. For bidding purposes, base all bids on materials, equipment, and procedures specified, or approved by Addenda.

1.2 SUBSTITUTION PRIOR TO BID

A. Submit complete data substantiating compliance of proposed substitution with Contract Documents.

B. Products and Systems:
   1. Product identification, including manufacturer's name.
   2. Manufacturer's literature marked to indicate specific model, type, size, and options to be considered:
      a. Product description.
      b. Performance and test data.
      c. Reference standards.
      d. Difference in power demand, connectivity, etc.
      e. Dimensional differences from specified unit.
      f. Finishes differences if specified finish is not available.
   3. Samples:
      a. Architect reserves right to request and retain sample until physical units are installed on project for comparison purposes.
      b. Samples shall be available in the Dallas/Fort Worth metroplex for testing by Architect and in Tom Green County for the Owner's review.
      c. Full size product samples should display the equivalent feature(s) and type of finish(es) for each item specified but are not required to match in color.
      d. Requester pay all costs of furnishing and return of samples.
      e. Architect is not responsible for loss of or damage to samples.
   4. Name and address of at least three similar projects that proposed product has been in use on for at least four years, and name and phone number of owner's and architect's or engineer's representative, which Owner or Architect can contact to discuss product, installation, and field performance data.

C. Construction Methods:
   1. Detail description of proposed method.
   2. Illustrate with drawings.

D. Itemized comparison of proposed substitute to specified item; make clear variations.

E. Identify effect and changes required on other trades, subcontractors or contracts.

F. Data related to any change in contract time.

G. Cost of proposed substitution in comparison with product, system or method specified.

H. Availability of maintenance and repair services, and sources of repair or replacement items.

I. Warranty comparison with specified product or system.

1.3 PRODUCT SELECTION - GENERAL

A. Certain types of products are described in Project Manual by means of trade names, catalog numbers or manufacturer's names, or both.
   1. This is not intended to exclude products from consideration which may be capable of accomplishing purpose indicated if price, quality, design esthetic, functional aspects and warranty are equal to or exceed specified products.

B. Other types of products may be considered acceptable to Owner and Architect in place of those specified.

C. Listing of a manufacturer implies acceptance of them only as supplier of a product which complies with specified item.

D. **No substitutions are permitted after execution of contract**, unless allowed by Contract Documents.

E. Conditional bids and voluntary alternates will not be considered unless allowed by Instructions to Bidders.

1.4 SUBSTITUTION REQUESTS

A. Only written requests with complete data for evaluation will be considered.
   ~~1.~~ Request must be received by 5:00 PM fourteen calendar days prior to bid day.
   2. Requests received late will not be considered.
   3. Submit evaluation data with attached form to martin.aguirre@hdrinc.com.

B. In making request for substitution, Suppliers represent:
   1. Personal investigation of proposed product, system or method, has been conducted and determined it equal or superior in all respects to that specified, and will perform intended function.
   2. Product, system or method is in full compliance with applicable codes.
   3. Warranty for substitute item as for product, system or method specified meets or exceeds specified product.
   4. Finish products shall comply relative to color and pattern with base specified items.
   5. Contractor will coordinate installation of accepted substitution into Work, to include building modifications if necessary, and be responsible for such modifications as may be required for Work to be complete and functional in all respects.
   6. Certified cost data is complete and includes all related costs, excluding Architect's review and redesign cost.
   7. Waives claims for additional costs or time extensions related to substitution which subsequently become apparent or are caused by substitution.
   8. Pay additional costs to other trades, subcontractors or contracts caused by substitution.
   9. Pay all Architect's review and redesign cost, special inspections, and other costs incurred by substitutions or revisions made necessary by acts or omissions of Contractor, due to product submittal or product not being ordered in a timely manner, due to ease of construction progress or Work, or which are in interest of or are for convenience of supplier, subcontractor or Contractor.
   10. Acknowledge acceptance of these provisions.

C. Supplier to sign substitution request in space provided on form acknowledging acceptance of terms.

1.5 APPROVAL OF SUBSTITUTION REQUEST

A. No verbal or written approvals other than by Addenda will be valid.
   1. Addendum listing approved substitutions will be published prior to Bid date.

1.6 REJECTION OF SUBSTITUTION REQUESTS

A. Substitutions may not be considered if:
   1. Submitted after stipulated date or time period.
   2. Not submitted in accord with this Section.
   3. Acceptance will require substantial revision of Contract Documents, building or system.
   4. Substitution request does not indicate specific item for which request is submitted.
   5. Substitution Request form is not properly executed and signed.
   6. Substitution request for manufacturer acceptance only.
   7. Insufficient information submitted.
   8. Substitution color, pattern or appearance does not comply with base specified item.
   9. Substitution does not appear to comply with requirements of specifications for base item.

END OF SECTION

SUBSTITUTION REQUEST

PROJECT: Tom Green County – IT Cabling

PROJECT NUMBER: 10163575

To Office of Architect via _____

SPECIFIED PRODUCT:

Substitution request for Item

Tag: _____

Item description: _____

_____

REASON FOR SUBSTITUTION REQUEST:

- ☐ Fails to comply with building code requirements
- ☐ Unavailable to meet Project schedule
- ☐ No qualified installer for specified item
- ☐ Supplier refuses to warrant item or installation
- ☐ Supplier, Subcontractor or Contractor convenience
- ☐ Other:
- ☐ Not available
- ☐ Reduce Project contract time
- ☐ Project cost savings
- ☐ Unsuitable for application
- ☐ Constructability issue

Explanation in Detail: ☐ See attached: _____

SUPPORTING DATA:

Attach product description, specifications, drawings, photographs, performance data, test data, environmental criteria, and any additional data or information for evaluation of the proposed substitution in accord with requirements of Section 00 26 00.

Sample is included:	Yes ☐	No ☐
Sample will be sent if requested:	Yes ☐	No ☐
Maintenance Service Available:	Yes ☐	No ☐

If yes, location: _____

Spare Parts Source: _____

PRODUCT/SYSTEM COMPARISON:
Provide a one-to-one comparison of proposed substitution with ALL specified attributes and qualities of specified item(s)

	SPECIFIED PRODUCT	PROPOSED SUBSTITUTION
Manufacturer:		
Name, brand:		
Catalog No.:		
Unit Cost:		
Attributes / Qualities / Variations / Warranty / etc:		

REFERENCES:
LIST MINIMUM OF THREE PREVIOUS INSTALLATIONS, WHICH PROPOSED PRODUCT HAS BEEN INSTALLED FOR AT LEAST FOUR YEARS:

Project: ______________________________
Address: ______________________________
Architect (name a phone): ______________________________
Owner (name & phone): ______________________________
Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name & phone): ______________________________
Owner (name & phone): ______________________________
Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name & phone): ______________________________
Owner (name & phone): ______________________________
Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name & phone): ______________________________
Owner (name & phone): ______________________________
Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name & phone): ______________________________
Owner (name & phone): ______________________________
Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name & phone): ______________________________
Owner (name & phone): ______________________________
Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

EFFECT OF SUBSTITUTION:

Substitution affects other parts of Work:	No ☐	Yes ☐	(If yes, explain below)
Substitution requires dimensional revision or redesign of structure, mechanical, electrical or other connectivity Work:	No ☐	Yes ☐	(If yes, explain below)
Same warranty provided as specified base product:	No ☐	Yes ☐	(If no, explain below)

Explanation: _____

Cost difference:	$ _____	(add / deduct).
Total cost implications of substitution on Project:	$ _____	(add / deduct).
Total time implications:	$ _____	(add / deduct) calendar days.

STATEMENT OF CONFORMANCE OF REQUEST TO CONTRACT REQUIREMENTS:

Supplier, Subcontractor and Contractor in making substitution request or in using an approved substitution represent:

- ☐ Has personally investigated the proposed substitution and determined it is equal or superior in all respects to specified product or system and will perform intended function, except as stated above.
- ☐ Is in full compliance with applicable code requirements.
- ☐ Will provide same warranty for substitute item as for product, system or method specified.
- ☐ Will coordinate installation of accepted substitution into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects.
- ☐ Waive all claims for additional costs or time extensions related to substitution that subsequently become apparent or are caused by substitution.
- ☐ If a finish product, color wise and pattern wise complies with base specified items.
- ☐ Certifies cost data presented is complete and includes all related costs under this Contract, excluding Architect's review and redesign cost.
- ☐ Will pay Architect's review and redesign cost, special inspections, and other costs caused by substitution. (refer to full wording in Section 00 26 00.1.4.B.9 above)
- ☐ Will pay additional costs to other contractors caused by substitution.
- ☐ Will modify other parts of Work as may be needed, to make all parts of Work complete and functioning.
- ☐ Acknowledge acceptance of these provisions.

List of Attachments: _____

_____

ACKNOWLEDGEMENTS:

FOLLOWING FIRM HEREBY REQUESTS CONSIDERATION OF FOLLOWING PRODUCT OR SYSTEMS AS A SUBSTITUTION IN ACCORD WITH PROVISIONS OF CONTRACT DOCUMENTS:

Supplier/Vender: _____

Acknowledged by (print): _____ Date: _____

Signature: _____ Phone _____

Position: _____

END OF SUBSTITUTION REQUEST

SECTION 00 41 13
BID FORM

DATE: _____

Bidder, _____, a * _____ organized and existing under

the laws of the State of _____, does business as ** _____.

* Insert corporation, partnership, or individual, as applicable.
** Insert trade or business name.

TO: Tom Green County, Texas, 112 W. Beauregard Ave., San Angelo, Texas 76903
Hereinafter referred to as Owner

Gentlemen:
The Bidder, in compliance with your invitation for bids for procurement and installation of Audio Visual and Court Technology for: Tom Green County, having examined the Bidding Documents prepared by HDR Architecture, Inc., and other related documents and being familiar with site of proposed Work, and with all conditions surrounding delivery to and installation of proposed Project including availability of materials and labor, hereby propose to furnish all labor, materials, tools, equipment, machinery, equipment rental, transportation, superintendence, perform all Work, provide all services, and to provide and install all Work in accordance with Bidding Documents, within time and amounts stated herein. These amounts are to cover all expenses incurred in performing Work required under Bidding Documents, of which this Bid is a part, and utilizing industry standard best practices to govern requirements not herein stated.

Bidder, if awarded contract, hereby agrees to perform Work under this contract according to the phased installation schedule included in the Bidding Documents.

PART A – MATERIALS AND INSTALLATION:

Bid amount shall be expressed in words and in figures. In case of discrepancy, amount shown in words will govern.

BASE BID - FOR CONTRACT: Bidder agrees to perform all Work as described in Bidding Documents,

for Lump Sum of _____ dollars (Bidder to fill in)
($_____). This is a tax-exempt project.

This is a tax-exempt project.**PART B – ALTERNATES - NOT USED for this Bid**

PART C – BID SECURITY:

Bid Security attached in sum of _____ ($_____), as required by this RFB/P, becomes property of Owner in event contract agreement is not executed and Performance Bond, and Labor and Material Payment Bonds are not delivered within time set forth.

If awarded a contract, Contractor shall furnish Performance Bond, and Labor and Material Payment Bond within thirty days following date agreement is entered into, and prior to commencement of Work. The bidder's Surety for Performance and Payment Bonds will be: _____

_____.

PART D – ADDENDA:

Bidder acknowledges receipt of following addenda. (Note: All published Addenda must be acknowledged here.)

ADDENDUM NO. _____ DATED: _____

ADDENDUM NO. _____ DATED: _____

ADDENDUM NO. _____ DATED: _____

Bidder agrees that this Bid shall be good and will not be withdrawn for period of 90 calendar days after date for opening of bid.

Bidder understands that Owner reserves right to reject any or all bids and to waive any informalities or irregularities therein.

Upon notice of award of this Bid, bidder and Owner will execute Contract Agreement prior to start of Work, or may begin with issuance of an official Notice to Proceed.

Respectfully submitted,

Signature if an Individual: _____

Doing Business as: _____

Business Address: _____

Signature if a Partnership: _____

By: _____ Member of Firm

_____ Member of Firm

Business Address: _____

Signature if a Corporation

_____

By: _____ Title: _____

Business Address: _____

Telephone Number: _____

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 10 00
SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Project information.
   2. Contract, Job Conditions
   3. Work covered by Contract Documents.
   4. Phased construction.
   5. Owner-furnished products.
   6. Definitions.
   7. Referenced Standards.

B. Related Sections include but are not necessarily limited to:
   1. Section 01 31 26 - Newforma Contract Management System Requirements.

1.2 PROJECT INFORMATION

A. Project Identification: Tom Green County Courthouse – IT Cabling Replacement
   1. Project Location:
      a. Historic Courthouse - 112 W. Beauregard Ave., San Angelo, Texas 76903

B. Architect: HDR Architecture, Inc., 8750 N. Central Expressway, Suite 100, Dallas, TX 75231.

C. Web-Based Project Software: Project software administered by Architect will be used for purposes of managing communication and documents during the construction stage.
   1. See Section 01 31 26 for requirements for establishing, administering and using web-based Project software.

1.3 CONTRACT, JOB CONDITIONS

A. Type of Contract:
   1. Project will be constructed under a single prime contract.

B. Owner, through another contractor or on their own, will provide temporary building conditioning. The IT Cabling Bidder will be responsible for providing for removal of trash generated by this work. Bidder shall not use another dumpster on site, if there is one. Coordinate trash removal procedure with Construction Manager.

C. Work for this Contract shall be performed concurrently with and/or in close coordination with Work performed on the Project under other Contracts to make a functionally complete Project.

D. Coordination: The Project will require close coordination and cooperation with Owner, Construction Manager/Building Contractor, Architect and other Contractors. The work under this Contract is one of the last phases of the Project. The timely and orderly coordination and completion of the work under this Contract is critical to Owner occupancy of the Project. Contractor shall provide management of their Contract Work. This includes on- and off-site management necessary to coordinate with the other contractors and the Owner, and to complete the Work within the Contract time.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and generally consists of the following. Bidder to provide everything necessary to make a functionally complete Project.
   1. Ordering and procuring all items specified herein.
   2. Shop drawings and other submittals are the responsibility of this Contractor.

3. Coordinating power, data and other infrastructure (including blocking/mounting support) requirements with Architect and Building Contractor.
4. Coordinating delivery location of IT Cabling from factory. Bidder to arrange and pay for climate-controlled warehousing if not shipping directly to site. Note: There is no loading dock at the site.
5. Staging IT Cabling for installation. Do not plan for this to be able to happen on site.
6. Coordinating installation schedule and technicalities with Building Contractor and Owner.
7. Protecting building from damage due to IT Cabling install.
8. Installing IT Cabling where and how indicated in Contract Documents.
9. Run power and data systems in IT Cabling where required.
10. Cleanup.
11. Ordering and installing incomplete parts and repairing damaged items.
12. User demonstration.
13. Compiling spare parts and maintenance and warranty manuals.

B. IT Cabling Contractor will be responsible for their own equipment, materials and whatever else is needed to comply with Contract Documents.

C. IT Cabling Contractor shall coordinate, pay for and assume full responsibility for any subcontractors necessary for the installation of their work unless otherwise noted including, but not limited to, outfitting workstations with data.

D. IT Cabling Contractor will be responsible for cleaning up their messes and hauling their trash off site daily.

1.5 PHASED CONSTRUCTION

A. The Work shall be conducted in phases, with each phase substantially complete as indicated. This is intended to dovetail with the building contractor's efforts and the installation of new equipment with the intent to have as little down time as possible for existing outlets.
1. Phase 1: Pull new cabling throughout courthouse.
2. Phase 2: When new IT closets are in place, run lines to those locations.
3. Phase 3: When new equipment is installed in the IT closets, connect new cabling to the equipment in the closets.
4. Phase 4: Connect the new cabling to the terminus outlets. The remaining Work shall be substantially complete and ready for occupancy at time of Substantial Completion for the Work.
5. Contractor to coordinate phase scheduling with Owner and Building Contractor.

1.6 OWNER-FURNISHED PRODUCTS

A. Owner will furnish products indicated. The Work includes receiving, unloading, handling, protecting, and installing Owner-furnished products and coordinating building services connections.

1.7 DEFINITIONS

A. The terms "Architect, Architect/Engineer, Arch/Eng, A/E, Engineer" or like terms shall mean Design Professional.

B. The term "GC" or like terms shall mean General Contractor, CMAR or Building Contractor.

C. The term "Provide" shall mean furnish and install.

D. The term "By Others" or "NIC" or like terms shall mean the Owner or other individual Contractor.

E. The term "Contractor" shall mean the Successful Bidder of Work related to this contract.

1.8 REFERENCED STANDARDS

A. Referenced standards or codes shall not supersede the division of responsibility established in the Contract Documents.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

SECTION 01 11 16
WORK BY OWNER

PART 1 - GENERAL

1.1 SUMMARY

A. Owner may perform work with their staff or may award separate contracts for performance of certain construction operations at site.

B. Owner operations may be scheduled to be performed during Work under this Contract.

C. Separate contracts include but are not limited to following:
   1. Equipment and items indicated in documents as Owner furnished.
   2. Owner furnished furnishings, such as, furniture.
   3. Refer to Documents for additional items.

D. Contractors holding separate contracts with Owner to perform work for Owner may be non-union contractors.
   1. By executing this Contract, the Contractor and subcontractors acknowledge and have no objection and agree it will not impact the Project negatively.

E. Schedule activities to minimize interference with work of others and cooperate with other parties involved in such concurrent Work.

F. Cooperation by Contractor shall not be grounds for a claim of delay or additional cost.

END OF SECTION

SECTION 01 14 16
COORDINATION WITH OCCUPANTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Contractor use of site and premises.

B. Working days and hours

C. Directed premium time

D. Work sequence.

E. Owner occupancy.

F. Disruption of existing services.

1.2 CONTRACTOR USE OF SITE AND PREMISES

A. Limit operations and use of site to "Limits of Construction," and as required to perform Work.

B. Secure written approval of Owner to disturb portions of site beyond area of required Work.
   1. Obtain written approval from Owner at least seven (7) calendar days in advance when scheduling Work outside limits of construction.
   2. Provide Owner an estimate of time needed to perform Work outside limits of construction.
   3. Cutting, capping, and reconnecting utility systems outside limits of construction shall be performed by Contractor, unless otherwise noted.
   4. Conform to laws, ordinances, permits and regulations affecting Work on site.
   5. Maintain existing roads, streets, drives, parking lots, entrances and required fire exit ways clear and available at all times for their intended use.
      a. Do not use these areas for parking, staging or storage without Owner's written approval.
      b. Coordinate with Owner and provide alternate routes for public and Owner access if normal routes are affected.
   6. Do not encumber site with equipment, materials or vehicles.
   7. Return improvements on, or about, site and adjacent property which are not shown to be altered, removed or otherwise changed; to conditions which existed previous to starting performance under Contract.
   8. Owner will have limited parking spaces available for construction personnel. Coordinate parking location for each site with Owner. Other parking must be arranged by the Contractor away from the site to allow public and employee parking for the facility.
   9. Coordinate with Owner if exterior space will be required for storage. If required, space to be secured by Contractor. At end of project restore location to pre-project condition.

C. Use of Facilities:
   1. Limit use and operation within existing facilities to areas indicated for construction Work and as required to perform Work.
   2. Areas within facility shall not be disturbed or disrupted.
   3. Do not to interfere or inconvenience public, staff and Owner's operation.
   4. Maintain and keep clear required fire exit ways throughout facility within and in vicinity of construction areas.
   5. Coordinate alternate temporary egress routes with Owner and Local Fire Authority.
   6. Do not load structure with weights that will endanger structure.
   7. Smoking is prohibited within facilities and on Owner's property.
   8. Audio devices and radios are prohibited, except two-way radios needed for Contractor's operations.
   9. Limit use of two-way radios within occupied facilities, so not to disrupt occupants.

10. Use of toilet facilities, washrooms, and telephones within existing facility or occupied areas is not allowed. Contractor to provide own temporary facilities.
11. Elevators in existing facility or within occupied areas of addition may not be used by construction personnel without Owner's written approval and such use shall meet following conditions:
    a. Protect and maintain system and finishes during use.
    b. Repair or replace damaged components of system and finishes.
    c. Clean finishes.
12. Clothing with derogatory depictions, language, or slogans which are racial, gang-related or sexual in nature, shall not be worn on premises.
13. Clothing with depictions, language, or slogans regarding alcohol or drugs shall not be worn on premises.
14. Derogatory language or graphic display of artifacts which are racial, sexual or religious in nature, shall not be used on premises.
15. Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials.
16. Maintain existing building in weather tight condition throughout construction period.
17. Repair damage and leaks caused by construction operations.
18. Protect building and its occupants during construction period.
19. Keep noise to a minimum in construction operation and employ reasonable noise control measures during operations.
20. Jack hammers and other impact and loud noise-generating equipment will not be permitted within existing building without Owner's consent. Notify and schedule loud noises with the Owner at least 24 hours in advance.

D. Limit Use of Site and Premises to Allow:
    1. Owner occupancy.
    2. Work by Others.
    3. Use of site and premises by public.

1.3 WORKING DAYS AND HOURS

A. Days: Monday through Friday.

B. Hours: 8:00 AM to 5:00 PM.

C. Work performed during Holidays or other than normal working days or hours shall be scheduled in advance with and approved by Owner.

1.4 DIRECTED PREMIUM TIME

A. Actual premium wages paid for original contract Work directed by Owner to be performed other than normal working hours, including; social security taxes, unemployment insurance, and union fringe benefits if required by union agreements; to be without overhead and profit mark-ups.
    1. Owner approved scheduled utility line tie-in or shutdown affecting building operation that is not allowed to be completed during normal working hours shall be completed on premium time basis.

1.5 OWNER OCCUPANCY

A. Perform Work within existing building. Each Contractor will have access to areas in which work occurs, subject to rights of Owner.

B. Owner will occupy existing building during life of this contract.

C. Schedule work at such time and in such a manner to minimize interference and inconvenience to public, staff and Owner's operations.

D. Activities which may disrupt court proceedings shall be rescheduled to non-courthouse operations time and coordinated with courthouse security. Court schedules are generally set at least one week in advance which will allow adequate advance time for scheduling construction activities.

E. Obtain approval of Owner prior to commencement of work within existing area of building.

F. Area immediately surrounding areas of Work shall be protected from danger of materials being dropped or dislodged.

G. Carry out Work in a manner that does not impose hardship, danger, or inconvenience to public, staff or occupants.

H. Prior to commencement of Work, Contractor and Owner shall jointly survey construction site and surrounding areas, making permanent record of such existing damage as cracks, malfunctioning utility equipment and fixtures, or other similar damage.
   1. This record shall serve as a basis for determination of subsequent damage to these structures and adjacent areas due to Contractor's operations.

I. Report damage to structures and adjacent areas not noted in original survey to Owner.

J. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

K. Schedule work to accommodate this requirement.

1.6 DISRUPTION OF EXISTING SERVICES

A. Plan Work to minimize shutdown time of service.
   1. Request approval of a utility or equipment shutdown in writing to Owner not less than seven working days before time shutdown is desired.
   2. Provide Owner an estimate of duration of shutdown and how facility is going to be affected.
   3. Coordinate with Owner's building engineering staff in advance of shut down.
   4. Begin work only after engineering staff is fully informed and has agreed to schedule of shut offs.
   5. Do not cut into existing services without first verifying with Owner that service has been correctly identified and shut off.
   6. Operation of existing valves, switches, etc., to affect service shutdown will be completed by Owner, unless arranged otherwise.

B. Limit duration of disruptions of service to maximum of 4 HRS or as approved by Owner.

C. Fabricate and install interconnecting portions of these systems prior to shut down for final connections.

D. Maintain utilities or other service, indicated to be abandoned, in service or provide alternate means of service until new facilities are provided, tested, and put in operation.

E. Maintain fire protection and fire alarm systems operational within existing facilities.

F. Review existing conditions, drawings and other documents for proper coordination between new and existing construction.

G. Active utilities whose locations are unknown to Owner but suspected to exist.
   1. Exercise caution of their existence. If encountered report to Owner for direction.

H. Repair or replace to original conditions damage to existing structures, utilities and other items caused by Contractor's operations at Contractor's expense.

END OF SECTION

SECTION 01 25 13
SUBSTITUTION PROCEDURES AFTER EXECUTION OF CONTRACT

PART 1 - GENERAL

1.1 DEFINITION

A. Products proposed by Contractor that do not meet requirements of Contract Documents, whether in product characteristics, performance, quality, or manufacturer or brand names, is considered a substitution.

B. No substitutions will be considered:
   1. In case of non-availability of materials contact Architect for review and action.

1.2 SUBSTITUTION AFTER EXECUTION OF CONTRACT

A. All costs including Architect cost will be responsibility of Contractor for substitutions or revisions made necessary by acts or omissions of Contractor, requested due to product submittal or product not being ordered in a timely manner, requested due to ease of installation progress or Work, or requests which are in interest of or for convenience of supplier, subcontractor or Contractor.

1.3 SUBSTITUTION REQUESTS

A. Only written requests with complete data for evaluation will be considered.
   1. Submit evaluation data with attached form to Architect.
   2. Submit in timely manner to allow Architect adequate time for evaluating, making recommendation, and for Owner approval.

B. Supplier, Subcontractor and Contractor in making substitution request, or in using an approved substitution, represent:
   1. has personally investigated proposed product, system or method, and has determined that it is equal or superior in all respects to that specified, and that it will perform intended function;
   2. is in full compliance with applicable code;
   3. will provide same warranty for substitute item as for product, system or method specified;
   4. if a finish product, complies color wise and pattern wise with base specified items;
   5. will coordinate installation of accepted substitution into Work, to include building modifications if necessary, and be responsible for such modifications as may be required for Work to be complete and functional in all respects;
   6. certifies cost data presented is complete and includes all related costs, excluding Architect's review and redesign cost;
   7. waive all claims for additional costs or time extensions related to substitution which subsequently become apparent or are caused by substitution;
   8. will pay additional costs to other trades, subcontractors or contracts caused by substitution;
   9. will pay all Architect's review and redesign cost, special inspections, and other costs caused by substitutions or revisions made necessary by the acts or omissions of Contractor, due to product submittal or product not being ordered in a timely manner, due to ease of construction progress or Work, or which are in interest of or are for convenience of supplier, subcontractor or Contractor;
   10. responsibility of Contractor for substitutions or revisions made necessary by the acts or omissions of Contractor, requested due to product submittal or product not being ordered in a timely manor, requested to ease construction progress or Work, or which are in interest of or requests for convenience of supplier, subcontractor or Contractor;
   11. acknowledge acceptance of these provisions.

C. Contractor sign Substitution Request in space provided on form acknowledging acceptance of terms.

1.4 SUBSTITUTION DATA

A. Submit complete data substantiating compliance of proposed substitution with Contract Documents.

B. For products and systems:
   1. Product identification, including manufacturer's name.
   2. Manufacturer's literature, marked to indicate specific model, type, size, and options to be considered:
      a. Product description.
      b. Performance and test data.
      c. Reference standards.
      d. Difference in power demand, connectivity, etc.
      e. Dimensional differences from specified unit.
      f. Finishes difference if specified finish is discontinued.
   3. Samples:
      a. Architect reserves right to request and retain sample until physical units are installed on project for comparison purposes.
      b. Samples shall be available in the Dallas/Fort Worth metroplex for testing by Architect and in Tom Green County for the Owner's review.
      c. Full size product samples should display the equivalent feature(s) and type of finish(es) for each item specified but are not required to match in color.
      d. Requester pay all costs of furnishing and return of samples.
      e. Owner and Architect are not responsible for loss of or damage to samples.
   4. Name and address of at least three similar projects that proposed product has been in use for at least four years, and name and phone number of owner's and architect's or engineer's representative, which Owner or Architect can contact to discuss; product, installation, and field performance data.

C. For construction methods:
   1. Detailed description of proposed system or method.
   2. Illustrate with drawings.

D. Itemized comparison of proposed substitute to specified item; indicate variations.

E. Warranty comparison with specified product or system.

F. Effect and changes required on other trades, subcontractors or contracts.

G. Data relating to any change in contract time.

H. Complete breakdown of costs, of proposed substitution that shall include additional costs or saving generated by proposed substitution and shall indicate amount, if any, to be deducted from Contract Sum if proposed substitution is accepted.

I. Include life cycle cost savings by product, system or assembly proposed, if applicable.

J. Availability of maintenance and repair services, and sources of repair or replacement items.

1.5 APPROVAL OF SUBSTITUTION REQUEST

A. For substitutions which have no cost or time impacts, no verbal or written approvals other than by Owner's signed approval on attached Substitution Request form.

B. For substitutions which have cost or time impacts, no verbal or written approvals other than by Owner's signed approval of a Change Order.

1.6 REJECTION OF SUBSTITUTION REQUEST

A. Substitution may not be considered if:
   1. Submitted after stipulated time period.
   2. Not submitted in accord with this section.
   3. Acceptance will require substantial revision of Contract Documents, building or systems.

4. Substitution request does not indicate specific item for which request is submitted.
5. Substitution Request form is not properly executed and signed.
6. Substitution request for manufacturer acceptance only.
7. Subcontractor or supplier requested directly.
8. Insufficient information submitted.
9. Substitution color, pattern or appearance does not comply with base specified item.
10. Substitution does not appear to comply with requirements of specifications for base product.
11. Owner or Architect does not want to consider.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION – (NOT USED)

END OF SECTION

SUBSTITUTION REQUEST

PROJECT: Tom Green County – IT Cabling

PROJECT NUMBER: 10163575 REQUEST NO.:

TO: Office of the Architect:

HDR Architecture, Inc.
8750 N. Central Expressway, Suite 100
Dallas, TX 75231
Attention: Martin Aguirre

If no physical samples are included/needed, email request with all documentation to be considered to martin.aguirre@hdrinc.com.

SPECIFIED PRODUCT:

Substitution request for Item Tag:

Item Description:

REASON FOR SUBSTITUTION: Non-availability due to:

- ☐ Strike
- ☐ Lockout
- ☐ Bankruptcy
- ☐ Discontinuation of Production
- ☐ Proven Shortage (Explain)
- ☐ Similar Occurrence (Explain)
- ☐ Fails to comply with building code requirements
- ☐ Unavailable to meet Project schedule
- ☐ No qualified installer for specified item
- ☐ Supplier refuses to warrant item or installation
- ☐ Supplier, Subcontractor or Contractor convenience
- ☐ Other:
- ☐ Not available
- ☐ Reduce Project contract time
- ☐ Project cost savings
- ☐ Unsuitable for application
- ☐ Constructability issue

Explanation in Detail: ☐ See attached:

REASON FOR NOT GIVING PRIORITY TO SPECIFIED ITEMS: ☐ See attached:

SUPPORTING DATA:

Attach product description, Specifications, Drawings, photographs, performance data, test data, environmental criteria, and any additional data or information for evaluation of the proposed substitution in accord with requirements of Section 01 25 13.

Sample is attached: Yes ☐ No ☐

Sample will be sent if requested: Yes ☐ No ☐

Maintenance Service Available: Yes ☐ No ☐

If yes, location: _____

Spare Parts Source: _____

PRODUCT / SYSTEM COMPARISON:

Provide a one-to-one comparison of proposed substitution with ALL specified attributes and qualities of specified item(s)

	SPECIFIED PRODUCT	PROPOSED SUBSTITUTION
Manufacturer:		
Name, brand:		
Catalog No.:		
Unit Cost:		
Attributes /		
Qualities /		
Variations /		
Warranty /		
etc:		

REFERENCES:

LIST MINIMUM OF THREE PREVIOUS INSTALLATIONS, WHICH PROPOSED PRODUCT HAS BEEN INSTALLED FOR AT LEAST FOUR YEARS:

Project: _____

Address: _____

Architect (name & phone): _____

Owner (name & phone): _____

Contractor: _____

Date Installed: _____

Dollar Value this Work: $ _____

Project: _____

Address: _____

Architect (name & phone): _____

Owner (name & phone): _____

Contractor: _____

Date Installed: _____

Dollar Value this Work: $ _____

Project: _____

Address: _____

Architect (name & phone): _____

Owner (name & phone): _____

Contractor: _____

Date Installed: _____

Dollar Value this Work: $ _____

Project: _____

Address: _____

Architect (name & phone): _____

Owner (name & phone): _____

Contractor: _____

Date Installed: _____

Dollar Value this Work: $ _____

EFFECT OF SUBSTITUTION:

Substitution affects other parts of Work:	No ☐	Yes ☐	(If yes, explain below)
Substitution requires dimensional revision or redesign of structure, mechanical, electrical or connectivity Work:	No ☐	Yes ☐	(If yes, explain below)
Same warrantee provided as specified base product:	No ☐	Yes ☐	(If no, explain below)

Explanation: _____

_____

_____

Cost difference:	$ _____	(add / deduct).
Total cost implications of substitution on Project:	$ _____	(add / deduct).
Total time implications:	$ _____	(add / deduct) calendar days.

STATEMENT OF CONFORMANCE OF REQUEST TO CONTRACT REQUIREMENTS:

Supplier, Subcontractor and Contractor in making substitution request or in using an approved substitution represent:

- ☐ Has personally investigated the proposed substitution and determined it is equal or superior in all respects to specified product or system and will perform intended function, except as stated above.
- ☐ Is in full compliance with applicable code requirements.
- ☐ Will provide same warranty for substitute item as for product, system or method specified.
- ☐ Will coordinate installation of accepted substitution into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects.
- ☐ Waive all claims for additional costs or time extensions related to substitution that subsequently become apparent or are caused by substitution.
- ☐ If a finish product, color, pattern and appearance complies with base specified items.
- ☐ Certifies cost data presented is complete and includes all related costs under this Contract, excluding Architect's review and redesign cost.
- ☐ Will pay Architect's review and redesign cost, special inspections, and other costs caused by substitution.
- ☐ Will pay additional costs to other contractors caused by substitution.
- ☐ Will modify other parts of Work as may be needed, to make all parts of Work complete and functioning.
- ☐ Acknowledge acceptance of these provisions.

List of Attachments: _____

_____

ACKNOWLEDGEMENTS:

FOLLOWING FIRM HEREBY REQUESTS CONSIDERATION OF FOLLOWING PRODUCT OR SYSTEMS AS A SUBSTITUTION IN ACCORD WITH PROVISIONS OF CONTRACT DOCUMENTS:

Requested by (firm): _____

Acknowledged by (print): _____ Date: _____

Position: _____ Phone _____

Signature _____

ARCHITECT'S ACTION / RECOMMENDATION:

- ☐ Recommend Owner's approval.
- ☐ Submitted to Owner for authorization for Architect's as Change in service to further evaluate and make recommendation.
- ☐ Do not recommend (see comments below).
- ☐ Rejected:
  - ☐ Submitted after stipulated time period.
  - ☐ Not submitted in accordance with Section 01 25 13.
  - ☐ Acceptance will require substantial revision of Contract Documents, building or systems.
  - ☐ Request does not indicate specific item which is being requested.
  - ☐ Requested for manufacturer acceptance only.
  - ☐ Request form is not properly executed and signed.
  - ☐ Subcontractor or supplier requested directly.
  - ☐ Insufficient information submitted.
  - ☐ Does not comply color, pattern or appearance wise with base specified items.
  - ☐ Insufficient information submitted to evaluate.
  - ☐ Does not appear to comply with requirements of specifications for base product.
  - ☐ Other:
- ☐ Additional information needed - Returned to Contractor for providing following:

Comments: _____

_____

_____

_____

_____

_____

Architect: _____

By (print & sign): _____ Date: _____

Position: _____

Distribution: ☐Owner ☐Contractor ☐file

OWNER ACTION:

- ☐ Reject - Do not want to consider.
- ☐ Approved - Contractor may proceed with request as submitted.
- ☐ Approved – Architect directed as Change in Services to issue change document to incorporate substitution into contract Documents, adjust Contract Sum and/or Project time.
- ☐ Architect authorized as Change in Services to further evaluate and make recommendation.
- ☐ Additional information needed - Returned for providing following:

Comments: _____

_____

_____

Owner: _____

By: (print & sign) _____ Date: _____

Position: _____

Distribution: ☐ Architect ☐ Contractor

ARCHITECT FURTHER ACTION / RECOMMENDATION (if needed):

- ☐ Incorporating into change document _____ as directed by Owner.
- ☐ Recommend Owner's approval.
- ☐ Do not recommend.

Comments: _____

_____

_____

_____

Architect: _____ _____

By: (print & sign) _____ Date: _____

Position:

Distribution: ☐ Owner ☐ Contractor ☐ file

OWNER FURTHER ACTION (if needed):

- ☐ Reject - Do not want to consider.
- ☐ Approved - Contractor may proceed with request as submitted.
- ☐ Approved – Architect directed as Change in Services to issue change document to incorporate substitution into contract Documents, adjust Contract Sum and/or Project time.
- ☐ Additional information needed - Returned for providing following:

Comments: _____

_____

Owner: _____

By: (print & sign) _____ Date: _____

Position: _____

Distribution: ☐ Architect ☐ Contractor ☐ file

END OF SUBSTITUTION REQUEST

SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section defines administrative and procedural requirements for handling and processing Changes in Work.

B. Provisions within this section take precedence over provisions in General Conditions governing Changes in Work.

C. Provisions followed by an asterisk (*) include some or all provision as obtained from AIA Document A201- General Conditions of the Contract for Construction.

1.2 DESCRIPTION

A. Changes in Work may be accomplished after execution of Contract, and without invalidating Contract, by Change Order (CO), Change Proposal Request (CPR), Construction Change Directive (CCD) or order for a minor change in Work, subject to the limitations stated in this Section and elsewhere in Contract Documents. *
   1. A Change Order or Change Proposal Request shall be based upon agreement among Owner, Contractor and Architect.*
   2. A Construction Change Directive requires agreement by Owner and Architect and may or may not be agreed to by Contractor.*
   3. An order for a minor change in Work may be issued by Architect alone. *

B. Changes in Work shall be performed under this Section and other applicable provisions of Contract Documents, and Contractor shall proceed promptly, unless otherwise provided in a Change Order, Change Proposal Request, Construction Change Directive or order for a minor change in Work. *

C. Contractor may anticipate a minimum of zero (0) change documents being issued during Project duration: however such quantities shall not guarantee nor limit total quantity of changes.

D. Manage changes issued so as not to adversely affect Project Schedule.

E. Neither Owner nor Architect recognize “reservation of rights” or similar language from Contractor that would state or purport to preserve ability to make additional claims or demands related to a change, not in conformance with terms and provisions provided by Contract Documents.
   1. Claims or other demands for changes, compensation or an extension of time must be made in strict conformance with the provisions of Contract Documents.
   2. Agreement on any Change Order, Construction Change Directive or Change Proposal Request shall constitute a final settlement of the event and all matters related thereto.
   3. Contractor waives and releases Owner and Architect of direct material costs, labor costs, equipment costs, overhead and profit, costs or losses due to productivity loss, morale, attitude, staffing changes, supervision, acceleration, delay, interference, logistics, fatigue, ripple effect, overtime, time extensions related to costs, and other costs related to any change that are not expressly included in an agreement on any Change Order, Change Proposal Request or Construction Change Directive.

F. Verbal or other informal orders provided by Owner or Architect should be considered as temporary or emergency instructions.
   1. Verbal or other informal orders shall be formally documented, using one of procedures indicated in this Section.
   2. Should Contractor choose to proceed with any verbal or informal instructions, Contractor does so at their own risk.

3. Should Contractor not receive written verification of verbal or informal instructions in a timely manner, Contractor should request verification using Request for Information (RFI) process.
4. Contractor shall not proceed with verbal or informal instructions which may result in a change to Contract Sum or Contract Time, until an approved Change Order or Change Proposal Request is received.

G. Incorporate approved changes in Project Record Documents and Construction Schedules for Project.
1. Submit revised schedules for Project to Owner and Architect.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CHANGE ORDERS*

A. A Change Order (CO) is a written instrument prepared by Architect and signed by Owner, Contractor and Architect, stating their agreement upon following:
1. Change in Work,
2. amount of adjustment, if any, in Contract Sum, and
3. extent of adjustment, if any, in Contract Time.

3.2 CHANGE PROPOSAL REQUEST

A. Change Proposal Request (CPR) is prepared and initiated by Architect at Owner's request or may be issued in response to an Request for Information which has a cost or time impact, or some other required or desired change in the Work that may require an adjustment to Contract Sum or Contract Time.
1. Change Proposal Requests will include a description of proposed change and may include supplemental or revised Drawings and Specifications, or written instruments prepared by Architect.
2. Initiation and issuance of a Change Proposal Request is not direction to either stop Work in progress or to proceed with change.
3. Architect will issue Change Proposal Request via Newforma.
4. Contractor can download electronic documents for further processing from email and/or from HDR's Newforma Info Exchange for the project.
5. Upon receipt, Contractor and Subcontractors shall review and evaluate scope of change, and potential impact on Project.
    a. If potential impact to schedule, Contractor shall immediately initiate and forward Change proposal to Owner for processing.
    b. If potential impact, Owner may direct Contractor to stop Work in area affected by change to minimize cost impact, or may issue a Construction Change Directive (CCD) directing Contractor to proceed with change.
6. Evaluate Subcontractor's cost proposals, make recommendations and submit proposal to Architect on CPR form issued by Architect within twenty-one (21) calendar days of receipt so not to delay progress of Project.
    a. Proposals shall include Contractor's Cost Summary form from Contractor and each Subcontractor with complete itemized accounting, together with appropriate supporting data to substantiate adjustments in Contract Sum and Contract Time, including labor, materials and equipment.

B. Method used to determine an adjustment in Contract Sum shall be limited to following:
1. Labor Wages:
    a. Itemized by each craft involved, indicating hourly rate for each and hours required, excluding premium pay, paid to employees directly engaged in Work.

b. Rates shall be actual rate paid the workman in accordance with established management labor agreements.
c. Labor rates indicated in Contractor Agreement or Subcontractor Agreements are not applicable if they cannot be substantiated in writing as direct labor burden when requested by Owner or Architect.

2. Labor Burden:
   a. Percent of actual wages for each craft including:
      1) Mandatory fringe benefits required by established agreements.
      2) Health and Welfare.
      3) Pension.
      4) Apprenticeship and other required programs.
      5) Social Security.
      6) Unemployment Insurance.
3. Subsistence, Mileage, or both:
   a. If in union agreements.
4. Materials and Equipment:
   a. Materials incorporated in Work at Contractor's actual invoice cost, including freight and applicable sales tax, and any volume or other discounts.
   b. Indicate rates and units required.
5. Amount of credit allowed for a deletion or change which results in net decrease in Contract Sum shall be net cost.
   a. When both additions and credits covering related Work or substitutions are involved in a change, allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.
6. Overhead and Profit:
   a. Ten percent (10%) of net increase of labor and material for work performed by own forces including, but not limited to:
      1) Project Manager.
      2) Estimating.
      3) Field supervision above foremen level superintendents.
      4) Assistant superintendents.
      5) General foremen.
      6) Engineers.
      7) Accountants.
      8) Timekeepers.
      9) Office managers and others on staff.
      10) Office supplies.
      11) Computers and software.
      12) Drinking water.
      13) Temporary heat.
      14) Temporary cooling.
      15) Light and power.
      16) Sanitation facilities.
      17) Small tools valued at $500 or less.
      18) Record documents; and other
      19) Cost of materials, equipment or both not incorporated in Work or directly associated with Work, including home office and on site office costs.
7. Directed Premium Time on Contract Work:
   a. Actual premium portion of wages for original contract Work which was directed by Owner to be performed other than normal working hours, including:
      1) Social Security Taxes.
      2) Unemployment Insurance.
      3) Union Fringe Benefits if required by Union Agreements.
8. Major Construction Equipment:
   a. Owned:

1) Cost not to exceed eighty-five percent (85%) of current prevailing rates or blue book rates for rental of appropriate equipment for job and time period of use.

b. Leased:

1) Contractor's reasonable invoiced cost, except lease-purchase equipment which is considered "Contractor owned".

9. Contractor's overhead and profit on Subcontractor's Work:
   a. Contractor's overhead and profit on Subcontractor's Work shall not exceed five percent (5%) on net increase of Work performed by Subcontractor.
10. Subcontractor overhead and profit markup is not allowed on their Sub-subcontractor's Work.
11. Subcontractor Cost:
    a. Quote in same manner as prescribed herein for "Contractor".
12. Bond and Insurance:
    a. Actual amount based on net increase or deduct to be paid to surety and insurance carrier.

C. Only delay impacting critical path of Work shall be considered when determining if Contractor is entitled to additional time.
   1. If proposals include a change in time, Contractor shall substantiate number of days proposed.
      a. An estimate of cost and of probable effect of delay of the Work progress and Project schedule shall be included to substantiate potential delay, including a comparison of Project Construction Schedule and schedules prepared to substantiate a change in time.
      b. Indicate in CPM format both critical and non-critical path activities affected, and show Project Construction Schedule and change sequences, durations and float.

D. Owner shall have right within its sole discretion to require Contractor to commence performance of changes to Work prior to submission by Contractor of proposal, or Owner's approval of proposal.
   1. Proceed with Work upon receipt of a Construction Change Directive from Owner, and thereafter submit to Owner and Architect as soon as possible any cost proposal required for approval.

E. Change Proposal Request signed by Contractor and Owner indicates agreement therewith, and shall be considered a Change Order.
   1. Contractor is authorized to proceed with the change after Owner approval thereof.

F. Construction Change Directive may be prepared if Contractor's proposal is not acceptable or change need be expedited to reduce or eliminate impact on project.

3.3 CONSTRUCTION CHANGE DIRECTIVES

A. Written order prepared by Architect or Owner and signed by Owner, directing a change in Work prior to agreement on adjustment, if any, in Contract Sum, Contract Time, or both.

B. Owner may by Construction Change Directive, without invalidating Contract, order changes in Work within general scope of Contract consisting of additions, deletions or other revisions, Contract Sum and Contract Time being adjusted accordingly.*

C. Construction Change Directive may be used in absence of total agreement on terms of a Change Order or Change Proposal Request.*

D. If Construction Change Directive provides for an adjustment to Contract Sum, the adjustment shall be based on one of following methods: *
   1. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation, *
   2. Unit prices stated in Contract Documents or subsequently agreed upon, *
   3. cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee,
   4. or as provided in Paragraph 3.2 B and C.

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

F. Failure of Contractor and Owner to agree on an adjustment of Contract Sum or Contract Time shall not excuse Contractor from proceeding with prosecution and performance of Work. Contractor and Subcontractors, Sub-subcontractors and Suppliers shall administer all disputes in a manner that will permit Work to proceed on schedule while matter in dispute is being resolved.

G. Construction Change Directive signed by Contractor indicates agreement of Contractor therewith, including adjustment in Contract Sum and Contract Time or method for determining them.
   1. Such agreement shall be effective immediately and shall be recorded as a Change Order.*

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

I. Present an itemized accounting together with appropriate supporting data in accordance with Paragraph 3.2 B and C.

J. When Owner and Contractor reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.*

K. For any portion of such cost that remains in dispute, Owner shall hire independent professional estimator to make determination. Resulting determination of cost shall adjust Contract Sum, subject to right of either party to disagree and assert a claim.*

L. When Owner and Contractor agree with determination made by independent professional estimator concerning the adjustments in Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.*

3.4 MINOR CHANGES IN WORK

A. Architect has authority to order minor changes in Work not involving adjustment in Contract Sum or extension of Contract Time and not inconsistent with the intent of Contract Documents.*

B. Such changes shall be effected by written order and shall be binding on Owner and Contractor.*

C. Following may be used as a written order to order minor change in the Work:
   1. Clarification-Interpretation (C-I) or Architect's Supplemental Instruction (ASI) issued by Architect.
   2. Response to a Request for Information by Architect.
   3. Architect's comments or direction on a Contractor's Submittal.
   4. Minor changes indicated in Architect's project visit report.

D. Contractor shall carry out such written orders promptly. *

E. If Contractor perceives direction in a written order requires adjustment to Contract Time or Contract Sum, Contractor shall not execute such direction, and shall submit a claim to Architect along with substantiation within twenty-one (21) working days of receipt of such written order.

3.5 CONTRACTOR'S PROPOSED CHANGES TO WORK

A. Architect and Owner may consider properly prepared, timely Contractor Proposed Changes (CPC) to Work, if requested by Owner or Architect, or at any time Contractor believes unforeseen conditions may require modifications to the Contract Sum or Contract time.

1. A Contractor Proposed Change shall be properly prepared, accompanied by proposed cost, sufficient supporting data and information to permit Architect to make a reasonable determination without extensive investigation to determine if change may be considered warranted.
    a. Include a statement outlining reasons for change and effect of change on Work.
    b. Provide a complete description of proposed change.
    c. Indicate effect of proposed change on Contract Sum and the Contract Time.
    d. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made.
        1) Indicate separately any credit due Owner for products eliminated.
        2) If requested, furnish survey data to substantiate quantities.
    e. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    f. Include costs of labor and supervision directly attributable to change and identify separately any credit for work previously bid but would be eliminated.
    g. In event proposed change effects construction schedule, include an updated Contractor's Construction Schedule indicating effect of change, including, but not limited to:
        1) Changes in activity duration.
        2) Start and finish times.
        3) Activity relationship.
        4) Use available total float before requesting an extension of Contract Time.
        5) Document use of float or proposed alternate methods to maintain original schedule or both.
2. Contractor Proposed Change shall be submitted to Architect in such format and on such form included herein or as Architect may require.

B. Architect will take appropriate action on Contractor Proposed Changes.
1. Architect may issue an order for a minor change in Work if it is determined that proposed change is not materially different from requirements of Contract Documents.
2. Architect may incorporate proposed change into a change document and issue for Owner's consideration.
3. If Architect determines that implementation of proposed change would result in a material change to Contract that may cause an adjustment in Contract Time or Contract Sum, Architect may make a recommendation to Owner who may authorize further evaluation of proposed change or may authorize issuance of such change.
4. Architect may reject such proposed change if it will require substantial revisions to Contract Documents, building or systems or if Architect determines they are not appropriate or substantiated.

END OF SECTION

CHANGE PROPOSAL IMPACT EVALUATION

PROJECT: Tom Green County IT Cabling **CPR NO.:**

HDR PROJECT NO.: 10163575

TO OWNER:

We have reviewed and evaluated the scope of above referenced change and potential impact on Project. If the change is required or desired we recommend following in order to expedite Work and avoid or minimize delays in the Work which may affect cost of the change or impact to the schedule:

☐ Recommend Work stop in area affected by this change for _____ calendar days so change can be priced and processed. Contract Sum or Contract Time due to stopping Work will not increase.

☐ Recommend proceeding with change immediately:

1. Proposed basis of adjustment to Contract Sum or Guaranteed Maximum Price is:
   - ☐ No additional cost.
   - ☐ GMP amount will not change. Cost indicated will be taken from GMP Contingency.
   - ☐ Lump Sum (increase) (decrease) of $_____
   - ☐ Unit Price of $_____ per _____
   - ☐ Time & Materials, not to exceed $_____
     (Daily time, material, and equipment documentation required for above)
   - ☐ As follows: _____
     (Method used in determining above adjustments shall be as defined in Contract Documents)
2. Contract Time is proposed to (be adjusted) (remain unchanged), by an (increase) (decrease) of _____ calendar days.

FROM: CONTRACTOR: _____

BY: _____ DATE: _____

DISTRIBUTION: ☐ OWNER ☐ ARCHITECT ☐ _____

CONSTRUCTION CHANGE DIRECTIVE

TO CONTRACTOR: _____

You are hereby directed to:

☐ Stop work in area affected by above referenced change until it has been processed and appropriate action taken.

☐ Proceed with above referenced change immediately.

When signed by Owner and received by Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and Contractor shall proceed based per above.

FROM OWNER: _____

BY: _____ DATE: _____

DISTRIBUTION: ☐ CONTRACTOR ☐ ARCHITECT ☐ _____

CONTRACTOR'S COST SUMMARY

PROJECT: Tom Green County IT Cabling **CHANGE DOCUMENT:**

PROJECT NO.: 10163575
CONTRACTOR: **DATE:**
SUBCONTRACTOR: **DATE:**

This form, itemized accountings and appropriate supporting data must be attached to any change documents or claim.

(Only fill in applicable line items)

1.	Labor * (including benefits)	$		(Attach Cost Summaries and breakdowns)
2.	Materials and Products *	$		(Attach Cost Summaries and breakdowns)
3.	(Subtotal of lines 1 and 2)		$	
4.	Overhead and Profit (10% of line 3)		$	
5.	Premium Time on Contract Work		$	
6.	Major Construction Equipment Rental *		$	(Shall not exceed A.E.D. Schedules)
7.	Subcontractor's name and cost: (Attach Cost Summaries and breakdowns)			Work Category:
a		$		
b		$		
c		$		
d		$		
e		$		
f		$		
g		$		
h		$		
i		$		
j		$		
k		$		
l		$		
m		$		
n		$		
o		$		
p		$		
q		$		
8.	Total Subcontractor cost (total of lines 7a through 7q)		$	
9.	Contractor's O & P on Sub's. Work (5% of line 8)		$	
10.	(Subtotal of lines 3, 4, 5, 6, 8 and 9)			$
11.	Bond ____% and Insurance ____% (if required) = ____% of line 10			$

12. **TOTAL PROPOSED COST ADJUSTMENT** (total of lines 10 and 11): **$**

13 **PROPOSED CONTRACT TIME ADJUSTMENT** : _____ ☐ADD ☐DEDUCT (calendar days)
(Provide supportive data substantiating claim for additional days in accordance with Contract Documents)

* Attach complete breakdown of itemized accounting and supporting data, sufficient to permit evaluation.

CONTRACTOR PROPOSED CHANGE

PROJECT: Tom Green County IT Cabling

HDR PROJECT NUMBER: 10163575

TO: **HDR Architecture, Inc.**

REASON FOR PROPOSAL:

- ☐ Design to comply with building code requirements
- ☐ Product / material unavailable to meet Project schedule
- ☐ No qualified installer for specified item
- ☐ Supplier refuses to warrant product or installation
- ☐ Project cost cutting / cost reduction
- ☐ Supplier, Subcontractor or Contractor convenience
- ☐ Value Engineering (may be used for "Value Engineering Change Proposal" govern by Federal Acquisition Regulations)
- ☐ Other:
- ☐ Product not available
- ☐ Reduce Project construction time
- ☐ Unanticipated / existing condition
- ☐ Specified product / system unsuitable for application
- ☐ Owner suggested or requested
- ☐ Constructability issue

Explanation in Detail: ☐ See attached: _____

REASON FOR NOT GIVING PRIORITY TO SPECIFIED METHOD, ITEMS OR SYSTEM: ☐ See attached:

REFERENCES:

Specification Section number: _____ Article(s)/paragraph(s): _____

Drawings / Sections / Details: _____

DESCRIPTION OF PROPOSAL:

SUPPORTING DATA:

Attach description, specifications, drawings, photographs, performance data, test data, environmental criteria, and any additional data or information for evaluation.

Sample is attached:	Yes ☐	No ☐
Sample will be sent if requested:	Yes ☐	No ☐
Maintenance Service Available:	Yes ☐	No ☐

If yes, location:

Spare Parts Source:

PRODUCT / SYSTEM COMPARISON:

Provide a one-to-one comparison of proposed item with ALL specified attributes and qualities of specified item(s)

	SPECIFIED PRODUCT	PROPOSED SUBSTITUTION
Manufacturer:		
Name, brand:		
Catalog No.:		
Unit Cost:		
Attributes /		
Qualities /		
Variations /		
Warranty /		
etc:		

REFERENCES:

LIST MINIMUM OF FIVE PREVIOUS INSTALLATIONS, WHICH PROPOSED METHOD / SYSTEM / PRODUCT HAS BEEN INSTALLED FOR AT LEAST FOUR YEARS:

Project: ______________________________
Address: ______________________________
Architect (name and phone): ______________________________
Owner (name and phone): ______________________________
General Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name and phone): ______________________________
Owner (name and phone): ______________________________
General Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name and phone): ______________________________
Owner (name and phone): ______________________________
General Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name and phone): ______________________________
Owner (name and phone): ______________________________
General Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name and phone): ______________________________
Owner (name and phone): ______________________________
General Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

Project: ______________________________
Address: ______________________________
Architect (name and phone): ______________________________
Owner (name and phone): ______________________________
General Contractor: ______________________________
Date Installed: ______________________________
Dollar Value this Work: $ ______________________________

EFFECT OF PROPOSAL:

Effects on other parts of Work:	No ☐	Yes ☐	(If yes, explain below)
Proposal requires dimensional revision or redesign of structure or mechanical and electrical Work:	No ☐	Yes ☐	(If yes, explain below)
Same warranty provided as specified item:	No ☐	Yes ☐	(If yes, explain below)

Explanation:

Cost difference:	$ _____	(increase / decrease)
Total Contract Sum implications of proposal on Project:	$ _____	(increase / decrease)
Total Contract Time implications:	_____	(increase / decrease) calendar days.

STATEMENT OF CONFORMANCE OF PROPOSAL TO CONTRACT REQUIREMENTS:

Supplier, Subcontractor, Contractor in making substitution request or in using an approved substitution represent:

- ☐ Has personally investigated the proposal and determined it is equal or superior in all respects to specified product, system or method and will perform intended function, except as stated above.
- ☐ Has same quality and life-cycle cost as design in the Contract Documents, except as stated above.
- ☐ Is in full compliance with applicable code requirements.
- ☐ Will provide same warranty for substitute item as for product, system or method specified.
- ☐ Will coordinate installation of proposal into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects.
- ☐ Waive all claims for additional costs or time extensions related to proposal that subsequently become apparent or are caused by proposal.
- ☐ If a finish product, color wise and pattern wise complies with base specified items.
- ☐ Certifies cost data presented is complete and includes all related costs under this Contract, excluding Architect's review and redesign cost.
- ☐ Will pay Architect's review and redesign cost, special inspections, and other costs caused by proposal.
- ☐ Will pay additional costs to other contractors caused by proposal.
- ☐ Will modify other parts of Work as may be needed, to make all parts of Work complete and functioning.
- ☐ Acknowledge acceptance of these provisions.

List of Attachments: _____

ACKNOWLEDGEMENTS:

FOLLOWING FIRM HEREBY REQUESTS CONSIDERATION OF PROPOSAL:

Requested by (firm):			
Acknowledged by (print & sign):		Date:	
Position:		Phone	
Subcontractor:			
Acknowledged by (print & sign):		Date:	
Position:		Phone	
Contractor:			
Acknowledged by (print & sign):		Date:	
Position:		Phone	

ARCHITECT'S ACTION / RECOMMENDATION:

- ☐ Recommend Owner's approval.
- ☐ Submitted to Owner for authorization for Architect's as Change in Service to further evaluate and make recommendation.
- ☐ Submitted to Owner for authorization for Architect's as Change in Service to revised Contract Documents to incorporate proposal, and issue change document to the contractor for submitting a complete cost proposal for Owner's consideration.

☐ Do not recommend (see comments below).
☐ Rejected:
- ☐ Acceptance will require substantial revision of Contract Documents, building or systems.
- ☐ Request does not indicate specific item, system or method which is being proposed.
- ☐ Requested for manufacturer acceptance only.
- ☐ Request form is not properly executed and signed.
- ☐ Subcontractor or supplier requested directly.
- ☐ Insufficient information submitted.
- ☐ Does not comply color wise or pattern wise with base specified items.
- ☐ Insufficient information submitted to evaluate.
- ☐ Does not appear to comply with requirements of specifications for base specified product.
- ☐ Other:

☐ Additional information needed - Returned to Contractor for providing following:

Comments: _____

_____

_____

Architect: _____

By (print & sign): _____ Date: _____

Position: _____

Distribution: ☐Owner ☐Contractor ☐file

OWNER ACTION:

☐ Reject - Do not want to consider.
☐ Product substitution approved - Contractor may proceed with request as a submitted.
☐ Approved – Architect directed as Change in Services to issue change document to incorporate substitution into contract Documents, and adjust Contract Sum and/or Contract time.
☐ Architect authorized as Change in Services to further evaluate and make recommendation.
☐ Architect authorized as Change in Services to revised Contract Documents to incorporate proposal, and issue change document to the contractor for submitting a complete cost proposal for Owner's consideration.
☐ Additional information needed - Returned for providing following:

Comments: _____

_____

_____

Owner: _____

By: (print & sign) _____ Date: _____

Position: _____

Distribution: ☐ Architect ☐ Contractor

ARCHITECT FURTHER ACTION / RECOMMENDATION (if needed):

- ☐ Incorporating into change document as directed by Owner. Change document _____ will be used.
- ☐ Recommend Owner's approval.
- ☐ Submitted to Owner for authorization for Architect's as Change in Service to revised Contract Documents to incorporate proposal, and issue change document to the contractor for submitting a complete cost proposal for Owner's consideration.
- ☐ Do not recommend (see comments below).
- ☐ Rejected:
  - ☐ Acceptance will require substantial revision of Contract Documents, building or systems.
  - ☐ Request does not indicate specific item, system or method which is being proposed.
  - ☐ Requested for manufacturer acceptance only.
  - ☐ Request form is not properly executed and signed.
  - ☐ Subcontractor or supplier requested directly.
  - ☐ Insufficient information submitted.
  - ☐ Does not comply color wise or pattern wise with base specified items.
  - ☐ Insufficient information submitted to evaluate.
  - ☐ Does not appear to comply with requirements of specifications for base specified product.
  - ☐ Other:
- ☐ Additional information needed - Returned to Contractor for providing following:
- ☐ Recommend Owner's approval.
- ☐ Do not recommend.

Comments: _____

Architect: _____

By: (print & sign) _____ Date: _____

Position: _____

Distribution: ☐ Owner ☐ Contractor ☐ file

OWNER FURTHER ACTION (if needed):

- ☐ Reject - Do not want to consider.
- ☐ Product substitution approved - Contractor may proceed with request as a submitted.
- ☐ Approved – Architect directed as Change in Services to issue change document to incorporate substitution into contract Documents, and adjust Contract Sum and/or Contract time.
  Architect authorized as Change in Services to revised Contract Documents to incorporate proposal, and issue change document to the contractor for submitting a complete cost proposal for Owner's consideration.
- ☐ Additional information needed - Returned for providing following:

Comments: _____

Owner: _____

By: (print & sign) _____ Date: _____

Position: _____

Distribution: ☐ Architect ☐ Contractor ☐ file

END OF FORMS

SECTION 01 26 13
REQUESTS FOR INFORMATION (RFI)

PART 1 - GENERAL

1.1 SUMMARY

A. Section specifies administrative and procedural requirements for handling and processing Requests for Information (RFI).

B. RFI is intended for requesting clarifications and interpretations of Contract Documents due to inconsistencies, errors or omissions in Contract Documents, and unanticipated existing conditions.

C. RFI is not intended for general communication, requesting substitutions, Contractor's proposed changes, resolution of nonconforming work, and coordination between contractors or for general questions not related to Contract Documents.

D. RFI process is a cooperative enterprise between Architect and Contractor to expedite RFI response and maintain progress of Work.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION

3.1 REQUESTS FOR INFORMATION

A. Review of Contract Documents and Field Conditions:
   1. Contract Documents are complementary. Before starting each portion of Work, Contractor shall carefully study and compare various Drawings, Specifications and other Contract Documents, coordination drawings, shop drawings, prior correspondence or documentation relative to that portion of Work, as well as information furnished by Owner.
   2. Contractor and Subcontractors shall evaluate and take field measurements of conditions related to that portion of Work and shall observe any conditions at site affecting it.
   3. These obligations are for purpose of facilitating coordination and construction by Contractor and are not for purpose of discovering errors, omissions, or inconsistencies in Contract Documents.
   4. Contractor and subcontractors acknowledge that all documents pertaining to Work has been examined, have examined character of site and any existing conditions, and are satisfied with nature of Work, and other matters which can affect Work.
   5. In event of inconsistency between portions of Contract Documents or within Contract Documents; provide better quality or greater quantity of Work, and comply with more stringent requirement, either or both in accordance with Architect's interpretation.
   6. Report errors, inconsistencies or omissions discovered in Contract Documents promptly to Architect as a properly prepared and timely RFI.
   7. Contractor and Subcontractors are not required to ascertain Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, and rules and regulations, unless they bear upon construction means, methods, techniques or safety and health precautions, but the Contractor shall promptly report to Architect any nonconformity discovered by or made known to Contractor as a RFI.
   8. On condition that Contractor or Subcontractor fail to give such notice, and knowingly proceeds with Work affected by errors or omissions in Contract Documents, Contractor shall correct any such errors, inconsistencies, or omissions at no additional cost.
   9. Prior to bid, Contractor shall review existing facilities related to this contract and shall be familiar with utility requirements and construction.
      a. New facility documents may be available through Owner or Architect for review.

b. Perform preliminary investigations as required to ascertain extent of Work.
c. Conditions which would be apparent by such investigation will not be allowed as cause for claims for extra costs.

B. Contractor's and Subcontractor's Responsibilities:
1. Process request through Contractor when interpretation, clarification or explanation of portion of Construction Documents is needed by Contractor, Subcontractor, Vendor or Supplier.
a. Review request for completeness, quality, proper referencing to drawing or specification section and reason submitted.
b. In event request is not acceptable return to submitter with comments regarding reason for being returned.
c. Make every attempt to validate, resolve or respond to RFI by thoroughly researching and reviewing Contract Documents and field conditions.
d. Respond to RFI accordingly if review of RFI discloses a response or is related to coordination of construction or other issue not related to Contract Documents.
e. If request is unclear, rewrite and state in clear, concise, correct, complete and easily understood manner.
1) Include additional information if necessary, and submit to Architect for response.
2. Submit request for interpretation, clarification or explanation of Contract Documents to Architect through Contractor.
a. List specific Contract Documents researched when seeking information being requested.
b. Reference applicable Contract Drawings by sheet number, section, detail, room number, door number, etc., Specifications by section and paragraph number, and reference other relevant documents.
c. The field titled "Regarding" on attached RFI form must be clear for future reference in reports or correspondence.
d. Clearly state request and provide Contract Document references and any additional information needed so request can be fully understood, including sketches, photos or other reference material.
e. Fully assess issues, <u>suggest any reasonable solutions</u> and include various factors, including potential costs, schedule impacts, if any, and recommendations which will aid in determining a solution or response.
1) In event a reasonable solution cannot be suggested, a statement to that effect should be so stated.
f. Indicate reason request is being submitted.
g. Clearly indicate critical RFI's requiring a rapid response with an explanation as to why RFI is critical.
h. Indicate priority for responses when multiple RFI's are submitted within short period of time.
3. Distribute copies of responses to RFI's to all parties affected.
4. Response to RFI shall not be considered a notice to proceed with a change that may revise the Contract Sum or Contract Time, unless authorized by Owner in writing.
5. In event response to RFI is determined incomplete, resubmit with explanation for unacceptability of response and necessary additional information within five (5) days of receipt to RFI response.
6. On condition Contractor determines or believes additional cost or time is involved due to clarifications, interpretations or instructions issued by Architect in response to a RFI, resubmit RFI within five (5) days of receipt of response with reason and alternate solution or suggestion for performing work at no additional cost.
a. In event no other solution is possible or desirable, submit Claim in accordance with Contract Documents within twenty-one (21) days of receipt of response to RFI.

C. RFI Submittal Process:
1. Process and submit RFI's to Architect by Contractor utilizing web based application, Newforma Contract Management System.

a. A unique user name and password will be assigned to Contractor for access to system, project data and submittal of RFI's.
b. Employ systems RFI module to submit RFIs by Contractor.
c. Insert entire question or requested information in "Question" portion of system.
d. Electronic file of sketches, photos or other pertinent information may be uploaded with a RFI request in system to clarify request.
e. Submittal automatically receives current date stamp upon submittal of RFI in system.
f. To protect submitted data from being altered, "Question" portion of screen and submitted date cannot be changed once RFI has been submitted.
g. System will assign a unique RFI number in sequential order (1, 2, 3, 4, etc.).
h. In event previously submitted RFI request requires revision to provide additional information, initiate a new RFI.
1) New RFI shall be renumbered with previous submitted RFI succeeded by ".1 " to indicate revision one of RFI (i.e.: RFI No. 34.1 for revision 1 to RFI No. 34).

2. Architect will respond to RFI's utilizing Newforma Contract Management System.
a. Architect may upload electronic files with RFI response in system to help clarify response.
b. Upon response to RFI by Architect, the current date will be automatically entered into system.
c. To protect responding data from being altered, "Answer" portion of screen and submitted date cannot be changed once RFI has been addressed.
3. After receipt of RFI response, the system can be accessed for RFI response, attachments and printing.
4. Status of RFI's submitted and data regarding RFI's may be viewed or printed from system.
5. RFIs and a variety of different RFI summaries, and filtered reports may be generated, viewed, or printed from system.

D. Architect's Response to Request for Information (RFI):
1. Clarifications, interpretations and decisions of Architect in response to RFI will be consistent with intent of and reasonably inferable from Contract Documents, in writing, and may be provided in form of drawings and other attachments, or both.
2. When making such interpretations and decisions, Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.
3. Architect's decisions on matters related to aesthetic effects will be final if consistent with intent expressed in Contract Documents.
4. Architect will not undertake to settle differences between Contractor, Subcontractors, trades suppliers, fabricator or manufacturer, or act as arbiter as to which Subcontractor, trade, supplier or manufacturer is to furnish or install various items indicated or required.
5. Architect shall provide responses to RFI's with reasonable promptness, but will endeavor to respond within fourteen (14) days from date of receipt.
a. If multiple RFI's are submitted on same day or within a five (5) day period, review time may be extended by mutual agreement of parties.
b. Architect will provide a written response to RFI if Architect believes response only involves an interpretation, clarification, supplemental information or orders a minor change in Work not involving an adjustment in Contract Sum or extension of Contract Time, and is not inconsistent with intent of Contract Documents, and shall be binding.
c. If Architect believes response may result in a change to Contract Sum or Contract Time, response will indicate that a change document will be issued for the response, and appropriate change document will be issued indicating changes to Contract Documents.
d. Architect will provide any additional or supplemental drawings, specifications or other information as Architect may deem necessary to facilitate response.
6. Architect may return RFI without response for following reasons:
a. Is considered a "Contractor Proposed Change".
b. Response is consistent with the intent of the Contract Drawings.

c. Request is unclear or incomplete.
d. Is due to Contractor's lack of adequate coordination.
e. Is related to construction means, methods or techniques.
f. Response is required by another party.
g. Is considered a "Substitution Request."

E. If requested information is available from careful study and comparison of Contract Documents, field conditions, other Owner-provided information, coordination drawings, or prior Project correspondence or documentation, Architect may invoice Owner as a change in services for costs involved in Architect's review, analysis, responding and processing of such RFI.
   1. Contractor shall reimburse Owner for such costs.

F. Contractor and Subcontractors may anticipate receiving fifty (50) clarifications, interpretations, orders for Minor Changes in Work or responses to valid requests for interpretations or clarifications of Contract Documents.

END OF SECTION

SECTION 01 29 00
APPLICATIONS FOR PAYMENT AND SCHEDULE OF VALUES (GC)

PART 1 - GENERAL

1.1 SUBMITTALS

A. Project Information:
   1. Submittals, prior to first application for payment:
      a. Copy of Executed Contract.
      b. Copy of Performance and Payment Bonds.
      c. Schedule of Values.
      d. Copy of Owner's Notice to Proceed.

B. Contract Closeout Information:
   1. See Section 01 77 00.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF VALUES

A. Prior to first Application for Payment, submit to Architect a Schedule of Values allocated to various portions of Work, prepared in such form and supported by such data to substantiate its accuracy as Owner and Architect may require.

B. Subdivide into following allocated items:
   1. Bond.
   2. Insurance.
   3. General condition items including but not limited to:
      a. Mobilization.
      b. Temporary facilities.
      c. Temporary utilities.
      d. Submittals.
      e. Demobilization.
      f. Other similar general condition items.
   4. Phases or areas or both of building.
   5. Specification Sections.
   6. Individual components of Work, and major pieces of equipment.
   7. Labor amount and material or equipment amount, listed separately.
   8. Contract closeout items including but not limited to:
      a. Manuals.
      b. Spare parts.
      c. Maintenance material.
      d. System demonstrations.
      e. Record documents.
      f. Operation and maintenance data.
      g. Other similar contract closeout items.
   9. Individually approved changes.

C. Labor amount shall include all onsite installation costs including labor, applicable labor taxes, insurance, fringe benefits, erection equipment, tools, overhead and profit.

D. Material and equipment shall include all material and manufactured equipment costs including delivery costs, taxes, insurance, overhead and profit.

E. Schedule, unless objected to by Owner or Architect, shall be used as a basis for reviewing percent complete of line items on Contractor's Applications for Payments.

3.2 APPLICATION FOR PAYMENT

A. On or before 10th day of month, Contractor submit to Architect itemized Application for Payment for work completed during previous calendar month, in accordance with schedule of values.
   1. Submit on AIA Document G702 - Application and Certificate for Payment, and AIA Document G703 - Continuation Sheet, or similar format acceptable to Architect.
      a. Itemize in accordance with approved Schedule of Values, and as indicated in AIA documents.
      b. Bond and insurance costs may be requested for payment on first application.
      c. Equal monthly payments may be made for general conditions based upon number of months Contractor is scheduled to be on site.
      d. May include amounts for changes in work that have been authorized by Construction Change Directives, or by Change Proposal Requests approved by Owner.
      e. Furnish in triplicate.
      f. Signed by duly authorized agent of Contractor.
      g. Notarize Application for Payment.
   2. Furnish copies of requisitions from Subcontractors and suppliers to substantiate values.
   3. Shall not include request for payments for portions of Work for which Contractor does not intend to pay to a Subcontractor or supplier, unless such Work has been performed by others whom Contractor intends to pay.
   4. Provide additional supporting data substantiating Contractor's right to payment, as Owner or Architect may require.

B. Application for Payment serves as certification of status by Contractor of Project.

C. Contractor warrants that title to all Work covered by an Application for Payment will pass to Owner upon receipt of payment.

D. Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from Owner shall, to the best of Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to Work.

3.3 PAYMENT FOR STORED MATERIAL AND EQUIPMENT

A. Application for Payment may include materials and equipment ready, but not yet incorporated in Work, delivered, and suitably stored at site.

B. Application for Payment may include materials and equipment ready, but not yet incorporated in Work, delivered, and suitably stored at site, or off–site, if approved by Owner in advance and in writing.
   1. For purpose of above paragraph, "materials and equipment" eligible for payment, are defined as finished goods made specifically for subject job and requiring extensive time to be manufactured or obtained.
   2. Raw materials or work-in-process at manufacturer's plant are not eligible for payment, unless authorized by Owner.
   3. Off-site storage of items such as tubing, conduit, pipe, drywall, studs, cable, etc., and items which are readily available for purchase will not be considered eligible.

C. Payment will be made by Owner for off-site stored materials and equipment provided following is accomplished:
   1. Items must be listed separately as material or equipment cost on Application for Payment Schedule of Values.

2. Provide receipted Invoices or Bills of Sale as evidence that Contractor is unconditional owner of equipment or material, with Application for Payment.
3. Provide Stored Material and Equipment Affidavit with Application for Payment; use form included herein or acceptable to Architect.
4. Identify items in storage as property of Owner and furnish description of identification method.
5. Provide written and photographic inventory of items, including Contractor's certification that all quantities have been received, and are in good condition.
6. Owner must approve location of off-site storage, in advance and in writing.
7. Provide insurance coverage for items in storage and in transit.

D. Owner retains right to verify storage by physical inspection prior to partial payment, and at any time thereafter.

E. Payment does not relieve Contractor's responsibility for protecting, safeguarding, insurance, transporting, and proper installation of equipment or materials.

F. Warranty and guarantee period does not commence until Final Completion of work.

G. Payment will be treated same as "work-in-place," with evidence of delivery to job site or other location acceptable to Owner, except that payments will not include value of labor and mark-up.

H. Each subsequent Application for Payment will restate prior month's materials and equipment not incorporated in Work, and current month additions and deletions for materials and equipment incorporated into work. Inventory must be updated and included with each subsequent application to indicate current status.
   1. Use Stored Material and Equipment Inventory form included herein or similar format acceptable to Architect.

I. Upon making of partial payments by Owner, all materials and equipment covered thereby become sole property of Owner. Partial payments, however, do not constitute Owner's acceptance of material, equipment or work, nor be construed as waiver of any right or claim by Owner.

J. Contractor shall be deemed as having care, custody, and control of items.

3.4 RETAINAGE

A. Until Substantial Completion of entire project, 10% retainage will be withheld from value of Work completed and material stored.

B. (Not Used)

END OF SECTION

STORED MATERIAL AND EQUIPMENT AFFIDAVIT

PROJECT: Tom Green County – IT Cabling PROJECT NO: 10163575

Item Number	Quantity	Unit	Material or Equipment Description	Value

LOCATION STORED: _____

IDENTIFICATION METHOD: _____

AFFIDAVIT:

Items listed above have been purchased exclusively for use on above referenced Project and have been received in good condition, and items are identified as property for use only on above referenced Project. Owner may enter upon premises for verification, inspection, or for any other purpose considered necessary. It is expressly understood and agreed that this affidavit is furnished to the Owner for purpose of obtaining approval for payment for said items, and that storage thereof at location indicated and payment by Owner shall not relieve Contractor of full responsibility for the protection, safeguarding, insurance, transporting, and proper installation at Project referenced above, and will warrant and defend against claims and demands of all persons. Upon making of partial payment by Owner, said items covered thereby become sole property of Owner.

Attached are receipted invoice(s), bills of sale(s), and/or other documents as evidence that Contractor is unconditional owner of said items, and they are free from all encumbrance, security agreements, mortgages or liens.

FROM CONTRACTOR: _____

BY: _____ DATE: _____

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____ DAY OF _____, _____.

NOTARY PUBLIC: _____ MY COMMISSION EXPIRES:

Owner (APPROVES) (DISAPPROVES) location of off site storage, and Contractor's inclusion of cost for above items in an Application for Payment.

OWNER'S APPROVAL:

BY: _____ DATE: _____

Contractor shall include this affidavit and other required documents with Application for Payment and shall maintain an inventory of all stored materials for submittal with future applications.

END OF FORM

STORED MATERIAL AND EQUIPMENT INVENTORY

PROJECT: Tom Green County – IT Cabling FOR APPLICATION NO.:

PAGE: of

The following inventory represents our accounting of the current status of material and equipment in storage which we have received payment for:

Item No.	Material or Equipment Description	Quantity	Value	Appl. No.	Incorporated Date/Quantity	

FROM CONTRACTOR: _____

BY: _____ DATE: _____

This form is required to be updated and submitted with each application for payment.

END OF FORM

SECTION 01 31 19
PROJECT MEETINGS

PART 1 - GENERAL

1.1 GENERAL

A. Due to the current COVID-19 pandemic, physical attendance at meetings is subject to parameters specified in any governmental Orders applicable at the time. During the project if virtual meetings are to occur it will be the responsibility of the Successful Bidder to arrange for and schedule such meetings.

1.2 PREBID CONFERENCE

A. See ADDITIONAL INFORMATION in Owner's RFP instructions that proceed EXHIBIT A.

1.3 PREPROJECT CONFERENCE

A. The Architect will schedule and hold pre-project conference shortly after contract award.

B. Attendance Required:
   1. Owner:
      a. Project Representative.
      b. Director of IT.
   2. Architect.
   3. Contractor:
      a. Home office representative.
      b. Field/Installation Project Manager.
   4. Building contractor representative.

C. Contractor must be prepared to discuss the following items:
   1. List of subcontractors.
   2. Tentative Project schedule.
      a. Start and completion dates.
      b. Critical work sequence.
   3. Status of Contract, bonds, and insurance.
      a. Accepted alternates.
   4. Procedures.
   5. Designation of responsible personnel.
   6. Processing of field decisions and change orders.
   7. Submittal process.
   8. Procedures for maintaining record documents.
   9. Submission and processing of Applications for Payment and associated requirements.
   10. Coordination with building construction.

D. Contractor to conduct a meeting with subcontractors after preconstruction conference to discuss procedures.

1.4 CONTRACTOR MEETINGS

A. Conduct weekly progress, coordination and scheduling meetings with subcontractors.

1.5 PROGRESS MEETINGS

A. Contractor to schedule meetings on time, day and place to be determined.
   1. Generally, meetings will be held monthly or as required by progress of the Work and scheduled to coincide with Architect's regular scheduled site visits.
   2. Meetings to be held at job site or as arranged.
   3. Contractor administer meetings and record minutes.
   4. Distribute minutes to meeting attendees within 7 days of meeting.

B. Attendance Required:
   1. Owner's Representative(s).
   2. Architect's Representative(s).
   3. Contractor:
      a. Home office representative.
      b. Field/Installation Project Manager.
   4. Building Contractor Representative.

C. Agenda:
   1. Review, approve minutes of previous meeting.
   2. Review work progress since last meeting.
   3. Planned progress during next work period.
   4. Review project schedule
   5. Coordination with building construction.
   6. Identify concerns which impede planned progress.
   7. Note field observations, questions, and decisions.
   8. Review submittal schedules.
   9. Review RFIs.
   10. Review Owner/Contractor coordination items.
   11. Review status of changes.

1.6 PREINSTALLATION CONFERENCE

A. Contractor administer meeting and record minutes.
   1. Convene affected parties for coordination where required by Contract Documents.
   2. Conduct meetings prior to installation of the Work.
   3. Meetings to be held at job site or as arranged.
   4. Distribute minutes to meeting attendees within 7 days of meeting.

B. Attendance Required:
   1. Owner's Representative(s).
   2. Director of IT.
   3. Architect's Representative(s).
   4. Contractor:
      a. Field/Installation Project Manager.
      b. Fabricator or Supplier.
      c. Others whose work may affect or be affected by installation.
   6. Building Contractor Representative.

C. Agenda:
   1. Review or inspect existing conditions.
   2. Review submittals.
   3. Review building construction schedule, compare with installation schedule of this project's Work, and identify concerns.
   4. Review Owner/Contractor coordination items.
   5. Discuss mobilization, delivery and work sequencing.
   6. Use of premises:
      a. Office, work and storage areas
      b. Owner's requirements
         1) Safety and first-aid procedures
         2) Security procedures
      c. Hours available for installation
      d. Acceptable location, process and path for deliveries
   7. Note field observations, questions, and decisions.
   8. Procedures of maintaining record documents.
   9. Review proposed recycling/trash removal procedure and process for cleaning up at end of day.

END OF SECTION

SECTION 01 31 26
NEWFORMA CONTRACT MANAGEMENT SYSTEM REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Newforma Contract Management System (Newforma) will be utilized on this Project for collaboration and certain administrative functions.

1.2 CONTRACT MANAGEMENT COLLABORATION SYSTEM

A. Newforma Contract Management System is a web-based application furnished by Architect at no cost to Owner and Contractor.

B. Contractor will have access to projects and modules for which they have permissions.

C. Architect will manage and administer Newforma Contract Management System.

D. Enables project team to review status of documents and generates a variety of reports which can be filtered by different criteria.

E. Allows uploading, viewing and printing of multiple documents and attachments in most modules.

F. Certain documents will be distributed by Architect by means of Newforma.

G. Newforma Help Guide is available from application.

1.3 HARDWARE REQUIREMENTS

A. Computer with high-speed internet connection.

1.4 SOFTWARE REQUIREMENTS

A. Web Browser:
   1. Microsoft Internet Explorer v11 or newer.
      a. Silverlight plug-in required for files larger than 2 GB.
   2. Google Chrome and Mozilla Firefox
      a. Limited file sizes.
      b. Some known display abnormalities
      c. Unsupported by HDR

B. Adobe Acrobat or Bluebeam PDF to view reports and PDF documents generated by Newforma.

C. Additional applications: MS Word, MS Excel, imaging software to open DOC, XLS, TIFF and JPEG attachments.

D. Email application and service.

1.5 ACCESSING HDR NEWFORMA COLLABORATION SYSTEM

A. HDR will assign each required external user a temporary password to access Newforma Contract Management System.
   1. User will be directed to change temporary password.

B. Access Newforma from a web browser at https;//Newforma.hdrinc.com/userweb

C. External user logging in to Newforma Info Exchange:
   1. Newforma will prompt to login with Username and Password.
   2. Password is case sensitive.

PART 2 - (NOT USED)

PART 3 - EXECUTION

3.1 MODULES / FUNCTIONS

A. Verify with HDR's project Construction Contract Administrator which Newforma modules will be made available to Contractor and the document nomenclature which will be used.

B. Contractor will utilize following Newforma modules:
   1. Submittals:
      a. Samples and Project Information that requires professional seals and signatures shall not be submitted electronically.
      b. Other Submittals - Contractor to submit electronically:
         1) Submit as PDF documents.
         2) Recommended file creation: 200 DPI minimum, 400 DPI maximum Scan text in text mode. Scan images with text in text/photo mode.
         3) Include executed HDR Submittal Transmittal form with submittal.
         4) Name PDF file same as Submittal Number. i.e.: 063420-1A.pdf
         5) Do not submit file in Adobe PDF/A mode.
         6) Transmitting submittal files with Newforma Contract Management System:
            a) Select assigned project for submittal transmittal.
            b) Select Submittal tab to open Send Submittal screen
            c) Enter information in fields regarding submittal.
               (1) Sender ID: will be assigned by HDR
               (2) Subject: Include the Section Title
               (3) To: Designated project submittal processor
               (4) CC: Other designated personnel
            d) Select specification Section in the pull down menu.
            e) Add Remarks as needed to differentiate submittal from similar submittals.
            f) Attach PDF documents and other electronic files.
            g) No further action is required by the contractor until they received notice that the reviews are complete.
      c. When submittals have been reviewed and posted, they will appear in the Response or Closed column of the submittal log.
      d. Contractor will have access to Newforma to download electronic submittal image file for their further processing.
      e. See Section 01 33 00 - Submittal Processing for additional requirements.
   2. Request for Information (RFI):
      a. Contractor shall create new RFI's in Newforma for requesting information from Architect.
      b. Architect will access requested information and any attachments.
      c. Contractor will access Newforma to view response and any attachments.
      d. See Section 01 26 13 - Requests for Information for additional information.
   3. Contractor Proposal Requests (CPR):
      a. Architect will notify Contractor by email when document has been issued and posted to Newforma.
      b. Contractor will access Newforma to download electronic documents for further processing.
      c. See Section 01 26 00 – Contract Modification Procedures for additional information on processing changes.
   4. Supplemental Instructions (SI):
      a. Architect will notify Contractor by email when document have been issued and posted to Newforma.
      b. Contractor will access Newforma to download electronic documents for further processing.

c. See Section 01 26 00 – Contract Modification Procedures for additional information on processing changes.

5. Construction Change Directives (CCD):
   a. Architect shall notify Contractor by email when document has been issued and posted to Newforma.
   b. See Section 01 26 00 – Contract Modification Procedures for additional information on processing changes.
6. Change Order Proposal:
   a. Architect will notify Contractor by email when document has been issued and posted to Newforma.
   b. Contractor will access Newforma to download electronic documents for further processing.

END OF SECTION

SECTION 01 32 16
PROJECT SCHEDULES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Includes:
   1. Upon award of the Contract, Contractor shall prepare and submit a Contractor's project schedule for the Work for the Owner's and Architect's information.
      a. Submit per 1.2 below.
      b. Schedule shall not exceed time limits current under Contract Documents, shall be revised at appropriate intervals as required by conditions of the Work and Project, shall be related to entire Project to extent required by Contract Documents, and shall provide for expeditious and practicable execution of Work.
   2. Coordinate Subcontractors' (if applicable) schedules for entire Project:
      a. Secure time commitments for performing critical elements of Work from parties involved.
      b. Coordinate each element on the schedule with other project activities; include minor elements involved in sequence of Work.
      c. Show each activity in proper sequence.
      d. Indicate graphically the sequences necessary for completion of related portions of Work.
      e. Resolve conflicts among schedules of Subcontractors.
      f. Revise as required by conditions and progress of Work.
      g. Furnish copy of schedules for entire Project to each Subcontractor.
   3. Schedule of Work must be based on coordination with Owner and building contractor.
   4. Preliminary Project Schedule shall be based on project schedule included with this Bid package.
   5. Contractor shall perform Work in general accordance with most recent schedules submitted to Owner and Architect.

1.2 SUBMITTALS

A. Project Information:
   1. Preliminary Project Schedule:
      a. Submit to Owner and Architect prior to date set for Preconstruction Conference and prior to start of Work.
   2. Project Schedules:
      a. Provide to Owner and Architect within 30 days of start of Work.
   3. Updated Project Schedules:
      a. Provide to Owner and Architect every other month with pay application.
      b. Provide if completion date is revised or sequence of Work is revised.

1.3 MILESTONES

A. A Milestone schedule has been included with this Bid package as the basis of delivery of this Work. The schedule is based upon delivery dates of the building construction, installation of this Work, and subsequent Owner installation of IT services then occupancy.

B. A "Milestone" is defined as a scheduled event representing the start of end of a series of activities or an accomplishment or event in the course of the project. The date of the Milestone is a significant point in time, is relied upon by other parties for their coordination efforts, and is contractually binding on the Contractor.

C. If Milestone dates are delayed through no fault of the Contractor, subsequent milestones shall be adjusted upon application to the Owner for a time adjustment. Upon Owner approval of such

time adjustment, no increase in contract price shall be expected unless such delay can be proven to cause undue financial hardship to the Contractor that would not have occurred if such delay had not occurred.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION

3.1 FORM OF SCHEDULES

A. Horizontal Bar Chart:
   1. Indicate each bar with start and completion date of each item, its total percent to be completed for each month.
   2. Identify each bar column:
      a. By Work element and major component.
      b. By distinct graphic delineation.
   3. Horizontal time scale:
      a. Identify first week day of each week.
   4. Scale and spacing:
      a. Allow space for updating.
   5. As Work progresses, place contrasting mark in each bar to indicate actual progress and completion.

B. Sheet Size:
   1. Maximum 11 x 17 IN.
   2. Provide in electronic PDF format.

3.2 CONTENT OF SCHEDULES

A. Provide complete sequence of Work by activity.
   1. Pre-Installation:
      a. Shop drawings, product data and samples
      b. Dates reviewed copies will be required.
      c. Product procurement and delivery dates.
   2. Installation:
      a. Dates product information and delivery of Owner furnished, installed equipment and materials is needed.
      b. Show the complete sequence of installation by activity.

B. Dates for early and late beginning, and completion of each element of construction.

C. Provide Subcontractor schedules to define critical portions of prime schedule.

D. Identify Work of separate floors, or separate phases, or other logically grouped activities.

E. Show how requirements for phased completion and subsequent IT installation by Owner affect sequence of Work, if applicable.

F. Indicate important stages of project for each major portion of Work, including submittal review, testing, and installation.

G. Identify punch list preparation and completion durations, agencies inspections, and Owner occupancy dates.

H. Show projected percentage of completion for each item of Work as of last day of every month.

I. Identify restraints and constraints.

J. Identify critical path and critical portions of entire schedule. There shall be only one critical path and it shall be clearly identified.

3.3 UPDATING

A. Show changes occurring since previous submission of updated schedules.

B. Indicate progress of each activity, actual verses scheduled start and completion dates, and actual verses scheduled percent complete by month.

C. Include:
   1. Major changes in scope.
   2. Activities modified since previous updating.
   3. Review projections due to changes.
   4. Other identifiable changes.

D. Provide Narrative report Including:
   1. Discussion of problem areas including current and anticipated delay factors and their impact.
   2. Corrective action taken or proposed and its effect.
   3. Effect of change in schedule.
   4. Description of revisions.
      a. Effect on schedule due to changes to Contract.
      b. Revisions in duration of activities.
      c. Other changes that may affect schedule.

5. Narrative should not be lengthy. Intent is to provide a thorough observation and recommendation for the project team.

3.4 DISTRIBUTION

A. Distribute copies of revised schedules to:
   1. Owner.
   2. Architect.
   3. Contractors/Subcontractors.
   4. Other concerned parties.

B. Instruct recipients to report inability to comply and provide detailed requirements and schedule, with suggested remedies.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Shop Drawings, Product Data, Samples, Project Information submittals including Contract Closeout submittals.

B. Provisions of this Section take precedence over provisions in General Conditions of the Contract for Construction, if used, governing Shop Drawings, Product Data, Samples, Project Information and Contract Closeout Information submittals.

C. Submittals are not to be used as means for substitution requests.
   1. Submittals that include substitutions will be returned without review or action.

D. Contact Architect in event of non-availability of specified product due to strikes, lockouts, bankruptcy, production discontinuance, proven shortage, or similar occurrences.
   1. Notify Architect, in writing, with substantiating data as soon as non-availability becomes apparent.
   2. Notify in time to avoid delay in project.

E. Appropriateness and accuracy of calculations are responsibility of Contractor and Contractor's licensed professional when such calculations are required to be professionally sealed.

F. When professional or other certification of performance criteria of materials, systems or equipment is required by Contract Documents, Architect shall be entitled to rely upon accuracy and completeness of such calculations and certifications.

1.2 DEFINITIONS

A. General:
   1. Submittals are not Contract Documents.
   2. Purpose of submittals is to demonstrate way by which Contractor proposes to conform to information given and design concept expressed in Contract Documents for those portions of Work for which Contract Documents require submittals..

B. Shop Drawings Action Submittals:
   1. Drawings to scale, diagrams, schedules and other data specially prepared for Work by Contractor or a Subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of Work.

C. Product Data Action Submittals:
   1. Illustrations, standard schedules, performance charts, instructions, brochures, color charts, performance curves, diagrams, test data and other information furnished by Contractor to illustrate material, product, equipment or system for some portion of Work.

D. Samples Action Submittals:
   1. Physical examples which illustrate size, kind, pattern, texture, materials, equipment, systems or workmanship and establish standards by which Work will be judged.
   2. Samples also include job site Mock-ups and sample construction.

E. Project Information Submittals:
   1. Examples of Information Submittals, which do not require review or action by Architect, include but are not limited to;
      a. Progress Reports
      b. Contractor Coordination Drawings
      c. Bonds.

d. Construction Schedules.
e. Manufacturer's Installation or Adjustment Instructions.
f. Statements of Qualifications.
g. Certificates.
h. Field Service, Laboratory Test.
i. Start-Up Reports,
j. Design Calculations.
k. Material Safety Data Sheets.
l. Safety Programs and Reports.
m. Other Information Submittals identified in individual specification sections.

F. "Contract Closeout Information" Submittals:
1. Items pertaining to quality control and Owner information, which are required at Substantial or Final Completion, and do not require review or action by Architect.
2. Architect may review at its sole discretion, for general compliance with Contract Documents only.
3. Review will not constitute a detailed check of submitted design calculations.
4. Examples of Contract Closeout Information Submittals which do not require review or action by Architect include, but are not limited to, Pre-occupancy test reports.
a. Operation and Maintenance Data.
b. Warranties and Guarantees
c. Owner instruction reports.
d. Project Record documents.
e. Extra materials or tools.
f. Other Submittals identified in individual specification sections.

G. Manufacturers and products, base and optional: See Section 01 61 00.

1.3 SUBMITTALS

A. Project information:
1. Schedule of Submittals:
a. Provide in advance of transmittal of first submittal and prior to first application for payment.

1.4 SCHEDULE OF SUBMITTALS

A. Complete Schedule of Submittals shall include Shop Drawings, Product Data, Samples, Project Information, and Contract Closeout Information required by specification section Submittal paragraphs.
1. Submittals Schedule shall be mutually agreed upon, in writing, by Architect and Contractor.
2. Contractor or Subcontractors may require submittals for their coordination purposes even when submittals are not required by Contract Documents for Architect's review. Do not include or submit such submittals to Architect.
3. Schedule shall be in horizontal bar chart format divided by weeks.
4. Indicate proposed submittal dates for each submittal.
5. Schedule shall allow for adequate time to perform orderly and proper review of submittals, including time for consultants and Owner if required and resubmittals by Contractor if necessary, and to cause no delay in Work or in activities of Owner or other contractors.
a. Allow at least two weeks for Architect's review and processing of each submittal, excluding mailing if physical sample included.
6. Coordinate each submittal with fabrication purchasing, testing, delivery, other submittals and related activities that require sequential activity.
7. 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.
8. Architect reserves the right to withhold action on a submittal which, in the Architect's opinion, requires coordination with other submittals until related submittals are received, and will notify the Contractor, in writing, when he exercises this right.

9. Do not include or submit items not required to be submitted by Contract Documents.
10. Arrange submittals by product type or tag:
    a. Submit Shop Drawings, Product Data, and Project Information (except for Field Test Reports) items specified for a single item or tag at same time for a complete review.
        1) Shop Drawings: Individual submittal item. Subparagraphs represent description of items to include.
            a) Indicate additional submittals that will be generated as result of dividing required submittal by building, floor, area of a floor, or other subdivision.
        2) Product Data: Individual submittal item. Subparagraphs represent description of items to include as part of single submittal.
        3) Sample and Information submittals: Each subparagraph represents an individual submittal item.
11. Indicate submittals that will be provided to agencies having jurisdiction. Schedule sufficiently in advance of date required to allow agency reasonable time for review, and Contractor resubmission if necessary, and to cause no delay in Work or in activities of Owner or other contractors.
12. Indicate additional submittals that will be generated as result of dividing required submittal by building, floor, area of a floor, or other subdivision.
13. Submit all submittals required by a section at same time which are needed for a complete review, except Contract Closeout Information Submittals, and Shop Drawing submittals divided by building area.
14. Do not submit large quantities of submittals at one time.
15. Schedule Contract Closeout Information submittals during last quarter of project period and prior to Substantial Completion.
16. Partial payment requests may be withheld until satisfactory Schedule of Submittals has been received.

1.5 SHOP DRAWINGS

A. Shop Drawing Action Submittals are required as called for in each specification section Submittal paragraph.
    1. Do not use Contract Drawings as Shop Drawings.

B. Certain Shop Drawing plan sheets shall be produced in electronic format for the purpose of completing Coordination Drawings or updating Project Record Drawings as may be required in other Sections.
    1. If so required, Architect's electronic files will be provided in the native format in which they were produced.
        a. Architect makes no representation as to accuracy or completeness of electronic files.
        b. Complete the Architect's standard Electronic Media Release form before electronic files are provided to the Contractor by the Architect.
    2. Have skilled CAD technician produce following Shop Drawing plans in same CAD program and version utilized by Architects for design drawings.
        a. .Plans.

    3. Use layers compliant with National CAD Standard to facilitate Coordination Drawings and Project Record Documents, using the background as a reference to the coordination file.
    4. Contractor may choose to increase scale of plotted drawings to facilitate clarity of detail. Revised scale shall be indicated on plotted sheets.

C. Submit high quality, high contrast copy of Shop Drawings in Portable Document Format (PDF).
    1. Use Newforma Contract Management System (Newforma). See Section 01 31 26 for specific information.

1.6 PRODUCT DATA

A. Product Data Action Submittals are required as called for in each specification section Submittal paragraph.

B. Submit high quality, high contrast copy of Product Data in Portable Document Format (PDF).
   1. Use Newforma Contract Management System (Newforma). See Section 01 31 26 for specific information.
   2. Include index if multiple items under specification section are included in submittal.
   3. Mark each copy to show exact item, model, and options submitted for review.
   4. Show compliance with specified reference standards, performance characteristics, and capacities; wiring and networking diagrams; component parts; finishes; dimensions; and required clearances; notation of coordination requirements.
   5. Mark through items on manufacturer's standard sheets which are not being proposed. Submittals without indications and deletions will be returned without review.
   6. Include scale details, sizes, dimensions, performance characteristics, capacities, wiring diagrams, controls, mounting and installation details, and other pertinent data.

1.7 SAMPLES

A. Sample Action Submittals are required as called for in each applicable specification section Submittal paragraph.
   1. Identify samples with manufacturer’s name, item, use, type, Project designation, specification section or drawing, detail reference, color, range, texture, finish and other pertinent data.
   2. Send samples to address indicated, or Project site if required or requested.
   3. Samples shall have a label affixed or attached thereto of sufficient size to accommodate Contractor’s approval stamp.
   4. Submit one sample of each color or type indicated.
   5. Architect may retain one sample for comparison purposes.

B. When specific colors, textures, or patterns are not specified, submit samples from full range of manufacturer's standards for selection. When custom or standard finishes are specified, submit samples of specified colors, textures or patterns.

1.8 PROJECT INFORMATION AND CONTRACT CLOSEOUT INFORMATION

A. Project Information and Contract Closeout Information are submittals are required as delineated in each specification section submittal paragraph..

B. Submit high quality, high contrast copy of Product Data in Portable Document Format (PDF).
   1. Organize by specification section.
   2. Utilizing Newforma Contract Management System (Newforma). See Section 01 31 26 for specific information.

1.9 SUBMITTALS REQUIRING PROFESSIONAL SEALS AND SIGNATURES

A. Shall be submitted per following:
   1. Unless otherwise agreed to by Architect, submit to Architect for records one (1) original, or high quality high contrast copy of submittal suitable for reproduction, unless quantity is indicated elsewhere. Submit quantity indicated in specifications sections to Owner.
   2. Architect is not required to return submittal.
   3. Do not fold. Submit in envelope large enough for submitted items.

1.10 TRANSMITTAL

A. Contractor is responsible for making submissions.
   1. Electronic submittals shall be submitted utilizing web-based Newforma Contract Management System. See Section 01 31 26 for specific information.
   2. Samples and submittals which require hard copies, submit items to office of Architect:

HDR Architecture, Inc.
8750 N. Central Expressway, Suite 100
Dallas, TX 75231
Attention: Martin Aguirre

B. Transmit items with Submittal Transmittal form included at end of this section, or supplied by Architect, or similar format approved in advance by Architect.
   1. Contact Architect for copy made for Project.
   2. Indicate Project name, Architect's project number, specification section title, description of submitted items or systems, manufacturer and submittal type on transmittal form.
   3. Indicate submitted date, approval and sign in appropriate space on transmittal form.
   4. Submittal Transmittal form shall stay with submittal throughout its routing.
   5. Indicate submittal number in space provided on Submittal Transmittal form. Following submittal numbering system shall be used:
      a. Identify each submittal using applicable 6 digit specification section number from Contract Documents.
      b. After section number, indicate sequence number. First submittal of section series would be numbered "######-1 IN, next would be "######-2 IN, etc.
      c. If returned for re-submission, add a designation character. Second submission would be "######-1A", third would be "######-1B", etc.
   6. Indicate description of submitted items including drawing numbers, etc.
   7. Indicate "Submittal type" being submitted.

C. Submittals shall only include items from one specification section.
   1. Project Information Submittals and Contract Closeout Information Submittals shall be submitted separately from other submittals required by specification section.
   2. Submit all items specified in section at same time for complete review, except Contract Closeout Information Submittals.

D. Do not submit following:
   1. Submittals not required by specification section Submittal paragraph.
   2. Submittals required by other contractors or trades for their coordination that are not required by specification section Submittal paragraph.
   3. Submittal of products, systems or manufactures not specified.
   4. Submittal of substitution.
   5. Submittal of MSDS information.
   6. Large quantities of submittals at one time.

E. Do not mark copies with highlighters that black out information, or turn opaque when reproduced, or will not scan or reproduce legibly.

1.11 CONTRACTOR AND SUBCONTRACTOR ACTION

A. Submit submittals required by Contract Documents in accordance with submittal schedule approved by Architect or, in absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in Work or in the activities of Owner or of separate Contractors.

B. Direct specific attention in writing with submittal or on submittal, indicating deviations from requirements of Contract Documents.
   1. Contractor shall not be relieved of responsibility for any deviation from requirements of Contract Documents by Architect's approval of submittals unless,
      a. Contractor has specifically informed Architect in writing of such deviation at time of submission, and
      b. Architect has given written approval to specific deviation as a minor change in Work, or

c. a Change Order or Construction Change Directive has been issued authorizing the deviation.

2. Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.
3. Completed Work shall match appearance of approved samples and mock-ups.

C. Contractor represents and warrants that submittals shall be prepared by persons and entities possessing expertise and experience in the trade for which submittal is prepared, and if required by Architect or applicable law, by a licensed professional where so stipulated.

D. Contractor is responsible for confirmation and correlation of dimensions at Project site; for information that pertains solely to fabrication processes or to techniques of construction; and for coordination of work of trades.

E. Contractor and Subcontractor shall review submittal required by Contract Documents for compliance with Contract Documents, approve and submit to Architect.

F. Submittal to Architect indicates Contractor, Subcontractor represent they have:
1. Reviewed submittal for compliance with the Contract Documents and has approved submittal;
2. Determined and verified field measurements, and field construction criteria related thereto, or will do so;
3. Determined and verified quantities, materials, performance criteria, installation requirements, catalog numbers and similar data related thereto;
4. Determined substitutions have not been included;
5. Checked, determined, verified and coordinated information contained within such submittals with requirements of Work, Contract Documents and other submittals;

G. Resubmit items returned by Architect and marked "Revise and Resubmit" or "Not Approved" until approval is received.
1. Direct specific attention, in writing, or on resubmitted submittals to revisions other than those requested by Architect on previous submittals.
2. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.
3. Bubble or otherwise clearly identify all changes from previous submittal.
4. Tag each re-submittal with a designation that reuses the previous submittal number and a suffix designating the re-submittal sequence in accordance with the numbering system indicated in this section.

H. Contractor shall reproduce and distribute copies of submittals after Architect's review to:
1. Project site: Copy of "Approved" or "Approved as Noted" submittals for use by Contractor's field staff, Owner and Architect's representatives.
2. Subcontractor or vendor.
3. Other Contractors, Subcontractors or vendors as may be required for coordination purposes.
4. Owner: Copy of "Approved" or "Approved as Noted" submittals.
5. Authorities having jurisdiction: Copy of "Approved" or "Approved as Noted" submittals if required by Authority Having Jurisdiction (AHJ).
6. Inspector (if any): Copy of "Approved" or "Approved as Noted" submittals.
7. Testing and Inspection Agencies: Copy of "Approved" or "Approved as Noted" submittals required for them to perform inspections and testing.

I. Contractor shall not be relieved from responsibility for coordination with other submittals or for errors or omissions in submittals by Architect's approval thereof.

J. Material lists and quantity information included in submittals are sole responsibility of Contractor.

K. Where a submittal is required by Specifications, any related Work performed prior to Architect's review and approval of the pertinent submission will be sole expense and responsibility of Contractor.

1.12 ARCHITECT ACTION ON SUBMITTALS

A. Architect's action on submittals:
   1. "APPROVED": Submittal is in general conformance with the design concept of Project and in general compliance with information given in Contract Documents.
   2. "APPROVED AS NOTED": Submittal has minor issues. Noted corrections must be made in final installation. Architect has option to require re-submission for record.
   3. "REVISE AND RESUBMIT": Re-submission is required, due to nature or number of issues.
   4. "NOT APPROVED": Submittal does not meet contract requirements or is not required to be submitted.
   5. "NO ACTION REQUIRED BY ARCHITECT": Submittal not required, Project Information or Contract Closeout Information Submittal

B. Architect will review and approve or take other appropriate action upon Contractor's submittals, but only for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
   1. Such review and action is limited to only those submittals identified in Contract Documents.
   2. Architect's review of such submittals is not conducted for purpose of determining accuracy and completeness of other details and information such as dimensions, quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain responsibility of the Contractor.
   3. Architect's review or approval of a specific item shall not indicate approval of an assembly of which the item is a component.
   4. Architect's review or approval shall not constitute a review of safety or health precautions, or of any construction means, methods, techniques, sequences or procedures.
   5. Architect's review or approval on a resubmission shall not apply to revisions that Contractor has not directed specific attention to in writing on resubmitted submittals, other than those requested by Architect on previous submittal.

C. Architect's action will be taken with such reasonable promptness as to cause no delay in Work or in activities of Owner, Contractor or separate contractors, while allowing sufficient time in Architect's professional judgment to permit adequate review by Architect, Architect's consultants, and Owner, if needed.
   1. Architect's obligation to review or approve submittals and to return them with reasonable promptness is conditional upon prior review and approval of submittals by Contractor, and Contractor's transmittal of submittals in accordance with Contract Documents and approved Schedule of Submittals.

D. Items not submitted in accordance with provisions of this section may be returned, without review or action.
   1. Submittals which do not indicate Contractor has reviewed submittal for compliance with Contract Documents, and approved submittal.
   2. Submittals which are not required by Contract Documents.
   3. Submittal on items not approved for use by Contract Documents.
   4. Submittals which include information from more than one specification section.
   5. Project Information Submittals or Contract Closeout Information Submittals included with other submittals required by specification section Submittal paragraph.
   6. Submittals required by other contractors or trades for their coordination that are not required by specification section Submittal paragraph.
   7. Submittal of products, systems, or manufactures not specified.
   8. Submittal of substitution.
   9. Submittal of MSDS information.
   10. Information on only a portion of a submittal.
   11. If approved Submittal Transmittal form was not used.

E. If a submittal must be delayed for coordination with other submittals not yet submitted, Architect may, as an option, either return submittal with no action or notify Contractor of other submittals which must be received before submittal will be reviewed.

F. Additional copies of submittals not required or requested may not be returned.

G. Architect may review Project Information Submittals or Contract Closeout Information Submittals at its sole discretion, for general compliance with design concept expressed in Contract Documents.

H. Architect will return submittal utilizing Newforma Contract Management System (Newforma) indicating comments and action taken for Contractor's use and distribution.
   1. Architect will notify Contractor by email when submittals have been reviewed and posted to Newforma.
   2. Architect is not required to return Samples, Project Information and Contract Closeout Information submittals.
   3. Submittals may be returned by regular mail at Architect's discretion.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION – (NOT USED)

END OF SECTION

SECTION 01 42 19
REFERENCE STANDARDS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Materials specified by reference to number, symbol, or title of a specified standard such as a State standard, commercial standard, federal specifications, ASTM or trade-association standard, or other similar standard shall comply with requirements in the revision thereof and any amendments or supplements thereto in effect on date execution of Contract.

B. Standard referred to, except as modified herein, shall have full force and effect as though printed in these specification.
   1. These standards are not furnished to Contractor, since manufacturers and trades involved are assumed to be familiar with their requirements.

C. By submitting a Bid, Contractor is deemed to represent self as competent to accomplish Work of this Division in conformance with applicable Codes. In case of conflict between the Contract Documents and Code requirements, the Codes shall take precedence. Should such conflicts appear, cease Work on parts of Contract affected and immediately contact Architect in writing. It shall be Contractor's responsibility to correct, at no cost to Owner, work Contractor executes in violation of Code requirements.

1.2 REFERENCE STANDARDS

A. Perform Work in conformance with latest edition of applicable standards recognized by local Authority Having Jurisdiction (AHJ) at the time of Contract Award, including, but not limited to following:

ADA	Americans with Disabilities Act
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASTM	ASTM International
AWI	American Woodwork Institute
BIFMA	The Business and Institutional Furniture Manufacturer's Association
FGI	Facilities Guidelines Institute
IBC	International Building Code
IEEE	Institute of Electrical and Electronic Engineers
IPCEA	Insulated Power Cable Engineers Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
TAS	Texas Accessibility Standards
UL	Underwriter's Laboratories, Inc.
--	State and Municipal Codes in force in the Specific Project Area

B. Where locally adopted Codes or authorities having jurisdiction otherwise stipulate, follow the specific edition.

C. Conflicts between referenced Standards: Comply with one establishing more stringent requirements.

D. In event conflicts between referenced Standards and Contract Documents appear, comply with the standard or document establishing more stringent requirements.

END OF SECTION

SECTION 01 45 00
QUALITY ASSURANCE AND CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Provisions followed by an asterisk (*) include some or all provision as obtained from AIA Document A201- General Conditions of the Contract for Construction. While this document may or may not be the form of contract between successful Bidder and Owner, it is a document that provides industry-recognized terminology.

1.2 SECTION INCLUDES

A. Quality assurance and control.

B. Regulatory requirements.

C. Tolerances.

D. Mock-ups.

E. Manufacturer's field services.

1.3 QUALITY ASSURANCE AND CONTROL

A. Monitor quality assurance and control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified and experienced to produce required or specified quality.

F. Verify that field measurements are as indicated on approved shop drawings or as instructed by manufacturer of product.

G. When required, secure products in place with positive anchorage devices or products designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

H. Materials shall be compatible with one another and with other materials with which they may come in contact.

1.4 SUPERVISION AND CONSTRUCTION PROCEDURES

A. Contractor shall supervise and direct Work, using Contractor’s best skill and attention. *

B. Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of Work under the Contract, unless Contract Documents give other specific instructions concerning these matters. *

C. Whether or not Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall review, substantiate, and comply with current industry execution standards and manufacturer's current execution instructions and evaluate jobsite safety thereof and shall be fully and solely responsible for jobsite safety of such means, methods, techniques, sequences or procedures. *

1. If Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to Owner and Architect and shall not proceed with that portion of Work without further written instructions from Architect. *
2. If Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures. *

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

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

F. Contractor is solely responsible for coordination of scope of Work for its own forces, and of Subcontractors and suppliers, and to complete all Work, whether performed by the Contractor or a Subcontractor.

1.5 REGULATORY REQUIREMENTS

A. Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of Work. *

B. If Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction, including, but not limited to, any penalties, fines or other damages realized. *

C. When Contract Documents require Contractor, Subcontractor, Vendor or other supplier to provide selection or design of parts of Work, such selection or design shall meet requirements of Municipal, State or other governmental authorities having jurisdiction.

1.6 TOLERANCES

A. Monitor fabrication and installation tolerance control of Products to produce approved Work.
1. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances.
1. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.7 MANUFACTURER'S FIELD SERVICES AND REPORTS

A. When field services are specified, have material or product suppliers, or manufacturers, provide technically competent staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and supervise installation where specified, as applicable and to initiate instructions when necessary.

B. Report observations, and site decisions or instructions given to applicators or installers which are supplemental or contrary to manufacturer's written instructions.

C. Submit report in duplicate within 30 days of observation.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent work. Beginning new work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual Specification Sections.

D. Verify that rough-in utility services are available, of correct characteristics, and in correct locations.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

SECTION 01 61 00
COMMON PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Performance of product, material, or system is result of manufacturing, fabrication, installation procedures, use, and maintenance:
   1. Therefore, Architect endeavors to specify quality levels for products, materials, or systems that are advertised to conceptually meet performance goals and desired attributes for Project.
      a. For most conceptually equal systems and materials, the Architect may specify multiple manufactures.
      b. In some cases, based on quality and attribute goals for Project, number of manufacturers may be limited.

B. Product, material, or system substitutions:
   1. Prior to bid: See Section 00 26 00.
   2. After execution of the contract: See Section 01 25 13.

1.2 SPECIFYING METHODS AND PRODUCT OPTIONS

A. Method 1: Products are specified by naming two or more manufacturers. Substitutions are not permitted. Any one of manufacturers named may be used that meet specified requirements.

B. Method 2: Products are specified by naming one or more manufacturers. Substitutions are permitted. Any one of manufacturers named may be used that meet specified requirements. Submit a substitution request for any manufacturer not specifically named.

C. Method 3: Proprietary: No Substitutions. Products are specified by naming only one manufacturer.

D. Method 4: "Base" and "Optional".
   1. Base:
      a. Manufacturer listed as Base in Part 2 of specification section.
      b. Manufacturer listed as Base is particular manufacturer of a specific product used as basis of design.
         1) Products of the Base manufacturer are specific products, assemblies or systems used and identified with model numbers, dimensions or other identifying features.
   2. Optional:
      a. Manufacturer listed as Optional in Part 2 of specification section.
      b. More than one manufacturer may be listed as Optional.
      c. Proposals may be based on any of the manufacturers listed.
      d. Manufacturers listed as Optional are particular manufacturers of products similar to the specific product used as basis of design.
      e. Optional products are without model numbers, dimensions or other identifying features.
      f. Listing manufacturer as Optional indicates acceptance of that manufacturer as supplier of a product to extent product complies with specified descriptive requirements listed in technical specification, including salient qualities provided by Base manufacturer's product.
         1) Salient qualities include, but are not necessarily limited to following:
            a) Purpose and function.
            b) Material and finish.
            c) Strength, durability and other applicable physical properties.
            d) Compatibility and performance attributes for indicated application.
            e) Capacity and operating characteristics, where applicable.

f) Size and configuration to extent required for fit with adjoining and adjacent conditions and within spatial limitations.
g) Appearance, including exposed dimensions, profile, texture, pattern and color, where visible to personnel in finished space, or from exterior.

2) Optional Products that significantly differ in appearance or quality of Base product will not be accepted.

g. Contractor is responsible for costs to provide dimensional, operational, structural, utility, or other related adjustments to fit an Optional manufacturer's product into Work.

h. Submit Optional Manufacturer Product/System Comparison form with Bid for the Optional product.

1) See Section 01 33 00, Submittal Procedures, for protocol and form.

3. Refer to specification sections for additional requirements.

E. Method 5: Generic: Products are specified by reference standard, by performance, by description or by any combination of these three.
1. Products meeting or exceeding specification requirements may be used.
2. Contractor assumes responsibility for compatibility of products selected.

F. Method 6: Visual Matching: Where specifications and drawings require matching existing materials or a sample, the Architect's decision on whether a proposed product matches is final. Where no product matches or complies with other requirements, comply with specified substitution requests and submittal procedures.

1.3 DEFINITIONS

A. "Product" means material, machinery, components, equipment, fixtures and systems forming Work. The term does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. New Products: Items not previously incorporated into another project or facility, [except products consisting of recycled-content materials are allowed, unless explicitly stated otherwise]. Products salvaged or recycled from other projects are not considered new products.

END OF SECTION

SECTION 01 65 00
DELIVERY, HANDLING AND STORAGE OF MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 JOB CONDITIONS

A. Comply with applicable codes.

B. Accomplish work to avoid damage to property.

C. Provide fire protection.

PART 2 - EXECUTION

2.1 PRODUCT DELIVERY

A. Convey by manufacturer's normal means.

B. Ship in original labeled packaging to staging location.

C. Where applicable display UL labeling on packages.

D. Schedule and coordinate deliveries to avoid interference with Owner's operation and other contractors working on site .

E. Sequence deliveries to avoid unnecessary construction of temporary protection.

F. Schedule deliveries to avoid delaying Work and to minimize space and duration of storage on site.

G. Contractor responsible for acceptance at site.
   1. Inspect items for damage upon delivery, reorder as required.

H. There is no loading dock available at project site. Coordinate loading/unloading location with Owner.

2.2 PRODUCT HANDLING AND STORAGE

A. No on site storage will be available. Deliver product to site each day for that day's installation needs.

B. When off-site storage is utilized, move items to site at no added cost.

C. Use methods to avoid damage to item or structure.

D. Protect weather fragile items from weather damage.

E. Handle and store bulk aggregates to avoid contamination.

F. Store to allow air circulation.

G. Uncrate, assemble if required, and remove debris.

H. Replace or repair damaged items.

2.3 CLEANUP

A. Clean debris from site each day.

B. Remove excess materials from site.

C. Deliver to Owner excess materials scheduled to remain.

D. Restore on-site dumpster area, if brought in for project, to original condition or as directed by Architect or Owner.

END OF SECTION

SECTION 01 73 29
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish labor, materials, tools, equipment, and services for Cutting and Patching in accordance with provisions of Contract Documents.

B. Completely coordinate with the work of other trades.

1.2 DESCRIPTION

A. This section covers cut and patch work either in remodel, add-on or new construction as necessary for execution of the Work.

B. Install Work in such a manner and sequence as to preclude or minimize cutting and patching of new Work.

C. Execute cutting, fitting or patching of Work, required to:
   1. Make several parts fit properly.
   2. Uncover Work to provide for installation of ill-timed Work.
   3. Remove and replace defective Work.
   4. Remove and replace non-conforming Work.
   5. Remove samples of installed Work for testing.
   6. Install specified Work in existing construction.
   7. Provide rerouting penetrations of non-structural surfaces for installation of piping and electrical conduit.
   8. Patch and repair fireproofing damaged after installation of other Work or demolition activities.

D. Do not endanger any Work or Work of other Contractors, by cutting, excavating, or otherwise altering Work except with written consent of Contractor subject to review by Architect.

E. Do not cut into or cut away structural concrete, other concrete or other structural members nor dig under foundations or into structural walls or other parts, or in any case allow same to be done without full knowledge and written consent of Architect.

F. Repair or replace damaged work resulting from violation of these provisions.

G. Use only firms or individual trades qualified to perform Work required under this Section.

1.3 QUALITY ASSURANCE

A. Employ skilled persons experienced with material requiring cutting and patching.
   1. To the greatest extent practicable, employ original installer to perform cutting and patching for weather-exposed and moisture-resistant components, and sight-exposed surfaces.

B. Written Requests:
   1. Submit requests in advance of cutting or alteration which affects:
      a. Structural integrity of any component of Project.
      b. Integrity of weather-exposed or moisture-resistant component.
      c. Efficiency, maintenance, or safety of an operational component.
      d. Visual qualities of sight-exposed components.
      e. Work of Owner or separate contractor.
   2. Include in Request:
      a. Location and description of affected work.
      b. Necessity for cutting or alteration.
      c. Description of proposed work, and products to be used.

d. Alternatives to cutting and patching.
e. Effect on work of Owner or separate contractor.
f. Written permission of affected separate contractor.
g. Date and time work will be executed.

C. Proceed with cutting and patching at the earliest feasible time and complete without delay.

D. Operational Limitations:
1. Cut and patch operating elements or related components in a manner that results in maintaining their capacity to perform as intended.
2. Cut and patch operating elements or related components in a manner that does not result in increased maintenance or decreased operational life or safety.

E. Structural Work:
1. Cut and patch structural elements in a manner that maintains their load-carrying capacity or load-deflection ratio.
2. Follow applicable NFPA Standards when torch cutting is required.

F. Visual Requirements:
1. Cut and patch construction exposed on exterior or in occupied spaces in a manner to, in Architect's opinion, retain the building's aesthetic or visual qualities.
2. Cut and patch construction in a manner to avoid visual evidence of cutting and patching.
3. Remove and replace construction which was cut and patched in a visually unsatisfactory manner.

G. Warranties and Existing Warranties:
1. Replace, patch, and repair material and surfaces cut or damaged by methods and with materials and in such manner to maintain warranties.

1.4 JOB CONDITIONS

A. Before start of Work, obtain and pay for permits required by authorities having jurisdiction and notify utilities companies.

B. Obtain approval of Owner and authorities having jurisdiction for Work which affects existing means of egress.
1. Review with and obtain approval of authorities for temporary construction.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Protect existing construction during cutting and patching to prevent damage.

E. Provide protection from adverse weather conditions.

F. Avoid cutting existing utilities, pipe, conduit, or ductwork serving the building but scheduled to be removed or relocated until alternate provisions have been provided.

G. Carefully remove and store items to be salvaged in an area as directed by or easily accessible by Owner.

1.5 SUBMITTALS

A. Shop Drawings:
1. Provide dimensioned drawings showing position and size of sleeves and openings in relation to structural grid of building, equipment, and other assemblies.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Use materials identical to existing materials.

B. For exposed surfaces, use materials that visually match existing adjacent surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used.

C. Use materials whose installed performance will equal or surpass that of existing materials.

D. Where applicable, comply with specifications for type of Work to be performed.

PART 3 - EXECUTION

3.1 INSPECTION

A. Prior to bid, become knowledgeable of existing facilities, utility requirements and construction.
   1. Existing facility documents may be available through the Owner for review.

B. Perform preliminary investigations to determine extent of Work.
   1. Conditions evident by such investigation will not be allowed as claim for extra cost.

C. Inspect conditions for work, including elements subject to movement or damage during:
   1. Cutting and patching.

D. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.

E. Before proceeding, meet at site with parties involved in cutting and patching, including mechanical and electrical trades.
   1. Review areas of potential interference and conflict.
   2. Coordinate procedures and resolve potential conflicts before proceeding.

F. After uncovering existing conditions for Work, inspect conditions affecting installation of new products or Work.

3.2 PREPARATION PRIOR TO CUTTING

A. Provide shoring, bracing and support to maintain structural integrity.

B. Provide protection for other affected portions of Project.

C. Provide protection from elements when required.

D. Existing Utility Services and Mechanical/Electrical Systems:
   1. Bypass existing utility services and building systems to be removed, relocated, or abandoned, before cutting to prevent interruption to occupied areas.

E. Maintain excavations free of water.

3.3 CUTTING AND REMOVAL - GENERAL

A. Execute fitting and adjustment to provide finished installation to comply with specified tolerances and finishes.

B. Execute cutting with methods to avoid damage of existing or other Work and provide surfaces to receive installation of new Work.

C. Neatly cut and remove materials, and prepare openings to receive new work.

D. Remove masonry or concrete in small sections.

E. Provide shoring, bracing, and other supports to prevent movement, settlement, or collapse of remaining or adjacent wall areas, structure, or facilities.

F. Arrange shoring, bracing, and supports to prevent overloading of structure.

G. Exercise caution to prevent damage to existing remaining work or to adjacent facilities.

H. Execute Work using methods which will prevent interference with use of remaining and adjacent facilities by Owner.

I. Remove existing work indicated to be removed, or as necessary for installation of new Work.

J. Provide for cutting, fitting, repairing, patching and finishing of Work disturbed by installation of new Work.

K. Do not remove or damage fireproofing materials.
   1. Install hangers, inserts, supports, and anchors prior to installation of fireproofing.
   2. Repair or replace damaged fireproofing.

3.4 CUTTING

A. Cut existing construction to:
   1. Provide for installation of other components or performance of other construction activities, and subsequent fitting and patching to restore surfaces to their original condition.
   2. Fit products together, to integrate with other work.
   3. Uncover work to install ill-timed work.
   4. Remove and replace defective and non-conforming work.
   5. Provide openings for mechanical and electrical penetrations.

B. Cut existing construction using methods least likely to damage components to be retained or adjoining construction.
   1. Where possible, review proposed procedures with original installer or comply with original installer's recommendations.
   2. Use hand or small power tools designed for sawing or grinding, not hammering and chopping.
      a. Cut holes and slots to size required, with minimum disturbance of adjacent surfaces.
      b. Temporarily cover openings when not in use.
   3. Cut or drill existing finished surfaces from exposed or finished side into concealed surfaces.
   4. Cut concrete and masonry using a carborundum saw or diamond core drill.
   5. Bypass portions of existing utility services to remain, removed, relocated or abandoned, before cutting.
      a. Cut pipe or conduit partitions to be removed in walls.
      b. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after bypassing and cutting.

3.5 CUTTING IN CONCRETE CONSTRUCTION

A. Do not cut or core drill openings or holes in beams, joists, and columns without prior written approval of Architect.
   1. Comply with additional requirements and instructions of Architect.

B. In members other than beams, joists, and columns and unless shown on architectural or structural drawings, obtain prior written approval of Architect for openings larger than 10 IN in any dimension, or where dimension between 2 openings in less than 2 times maximum dimension of largest opening.

C. At floor slabs and walls to be core drilled or cut, locate and mark reinforcing in both faces by means of x-ray, ground penetrating radar, pach-ometer, or prof-ometer.
   1. Submit drawings showing location of rebar and proposed cuts or cores for review.

D. When written approval is obtained, comply with additional requirements and instructions of Architect.

3.6 CUTTING IN POST TENSIONED CONCRETE CONSTRUCTION

A. Do not cut into nor core drill openings or holes in beams or joists.

B. Do not cut into nor core drill openings or holes in slabs without prior written approval of Architect.
   1. When approval is obtained, comply with additional requirements and instructions of Architect.

C. Openings not greater than 6 IN in any dimension are permitted in flat slab portions of construction except that such openings shall not interfere with or disturb strands.
   1. Do not place closer than 12 IN to any column face, or closer than 24 IN to any post tensioning strand anchor.

D. Do not install any trenched duct electrical systems.

3.7 CUTTING IN PRECAST/PRESTRESSED CONCRETE CONSTRUCTION

A. Do not cut openings nor core drill vertically nor horizontally through stems of members.

B. Openings smaller than 6 IN diameter or 6 IN maximum dimension may be cut in flanges of units after obtaining prior written approval of Architect.
   1. When approval is obtained, comply with instructions of Architect.

3.8 MATCHING AND PATCHING

A. Where items are removed from existing walls, ceilings, floors or partitions to remain, repair wall, ceiling, floor or partition disturbed by removal.

B. Where walls, ceilings, floors or partitions are removed, repair abutting walls, ceilings or floors disturbed by removal.

C. Where existing construction is cut, removed or otherwise disturbed to permit installation of new Work, match and patch existing disturbed construction.

D. Install new products to provide completed Work in accordance with requirements of Contract Documents.

E. Use methods and materials similar in appearance, and equal in quality to areas or surfaces being repaired.

F. Patch Work to match existing work and adjacent surfaces.

G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.
   1. Refinish continuous surfaces to nearest intersections.
   2. Refinish assemblies entirely.

H. Remove and replace existing ceilings and finishes for installation of Work, if not shown to be removed on Architectural Drawings and Schedules.
   1. If existing ceiling cannot be satisfactorily reinstalled, replace with like materials and construction.

I. Provide firestopping at penetrations of fire-rated walls and smoke partitions, ceiling or floor construction.

J. Repair or replace non-coordinated or defective Work, or Work not conforming to Contract Documents.

END OF SECTION

SECTION 01 74 23
CLEANING

PART 1 - GENERAL

1.1 FIRE PROTECTION

A. Store volatile waste in listed disposal containers.

B. Maintain site and building so no condition provides a fire hazard.

C. Remove combustible debris from building at end of each shift and from site daily.

D. Sources of ignition and smoking are prohibited on site.

E. Do not burn on-site.

1.2 POLLUTION CONTROL

A. Conduct cleanup and disposal operations to comply with codes, rules, regulations, ordinances, and anti-pollution laws.

B. Do not burn or dispose of combustible debris, rubbish and waste material on site.

C. Do not discharge volatile, harmful, or dangerous materials into storm or sanitary drains or sewer systems.

D. Prevent accumulation of wastes that create hazardous conditions.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

A. Use materials recommended by manufacturers of surfaces to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

C. Use only those cleaning materials which will not create hazards to health or property and will not damage surfaces.

PART 3 - EXECUTION

3.1 GENERAL

A. Clean items installed under this Contract.
   1. Leave free of stains, dirt, dust, damage, or defects.
   2. Include washing, sweeping, polishing of wall surfaces, floors, windows, hardware, mirrors, lighting fixtures, equipment, etc.

3.2 DURING CONSTRUCTION

A. Provide on-site listed disposal containers for collection of waste materials, debris, and rubbish.
   1. Dispose of off-site once a week – or when full - at an approved solid waste disposal site.
   2. Cover container to prevent blowing by wind.

B. Keep work areas clean so as not to hinder health, safety or convenience of personnel in existing facility operations.

C. Interior cleaning:
   1. Clean and vacuum interior space prior to installation of products that will cover such surfaces.
   2. Schedule cleaning operations so contaminants do not fall on wet painted surfaces.

3. Clean and protect Work in progress, if applicable, and adjoining materials in place, during handling and installation.
4. Clean lunch/break area after each use. Only eat in designated areas.

3.3 FINAL CLEANING

A. At Substantial Completion, perform final cleaning of Work and existing areas wherever any areas are left less than clean by construction operations.
   1. Complete cleaning operations before requesting review for Substantial Completion.

B. Use experienced professional cleaners for final cleaning.

C. Repair and touch-up marred areas. Coordinate with building Contractor who may require original trade perform repair at this Contractor's expense to ensure end product matches seamlessly. Architect to make final decision on finish match.

D. Broom clean and remove stains from paved surfaces; rake clean other surfaces of grounds.

E. Remove grease, dust, dirt, stains, labels, fingerprints, mastic, adhesive, and foreign materials from interior and exterior surfaces, and fixtures, hardware, and equipment.

F. Polish glossy surfaces to a clear shine.

G. Remove temporary protection and facilities installed for protection of the Work during construction.

3.4 FIELD QUALITY CONTROL

A. Prior to Owner occupancy, Contractor and Owner shall conduct an inspection of interior and exterior surfaces and Work areas to verify Project is clean to Owner's satisfaction. Building Contractor will have cleaned building prior to installation of this Work. Any subsequent soiling of building will be evident.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES (GC)

PART 1 - GENERAL

1.1 PROVISIONS FOLLOWED BY AN ASTERISK (*) INCLUDE SOME OR ALL OF THE PROVISION AS OBTAINED FROM AIA DOCUMENT A201 - GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION.

1.2 SUBMITTALS

A. Contract Closeout Information:
   1. For substantial completion:
      a. Comprehensive list of all items to be completed or corrected.
      b. Contractor's Notice of Substantial Completion.
      c. Certificates of governing authorities.
      d. Submittals required by other Sections.
   2. For final completion:
      a. Contractor's Certificate of Completion.
      b. Evidence of payments and release or waiver of liens in triplicate.
         1) Contractor's Affidavit of Payments of Debts and Claims: AIA Document G706.
         2) Contractor's Affidavit of Release of Liens: AIA Document G706A.
         3) Contractor's release or waiver of liens.
         4) Separate releases or waivers of liens for subcontractors, suppliers, and others with lien rights against Owner, together with list of all such parties.
         5) If required by Owner, other data establishing payment or satisfaction of obligations arising out of Contract.
      c. Consent of Surety (if any) to Final Payment: AIA Document G707.
      d. Certificates evidencing that insurance to remain enforce.
      e. Final application for payment.
      f. Initialed list(s) of items to be completed or corrected verifying completion of each items.
      g. List of Subcontractors and equipment suppliers. Include:
         1) Name.
         2) Address.
         3) Telephone number.
         4) Representative.
      h. Letter of site conformance.
      i. Closeout submittals required by other Sections.

1.3 SUBSTANTIAL COMPLETION

A. Substantial Completion is the stage in the progress of Work when the Work or designated portion thereof is sufficiently complete in general accordance with Contract Documents so Owner can occupy or utilize Work for its intended use. *
   1. Work will not be considered for Substantial Completion until all systems and equipment are operational; all designated or required governing agency inspections and certifications have been made and posted, instruction of designated Owner's personnel in operation of systems and equipment has been completed and operation and maintenance data has been satisfactorily turned over to Owner. In general, the only remaining Work shall be minor in nature, such that Owner may occupy or utilize Work or designated portion there of, and completion or correction of Work by Contractor would not materially interfere with or hamper Owner's intended business use or operation.
   2. Contractor shall certify that all remaining Work will be completed within 30 consecutive calendar days following date of Substantial Completion, or as agreed to in writing, and failure to do so shall automatically reinstate provisions for damages due Owner as contained

elsewhere in Contract Document or as provided by law for such period of time as may be required by Contractor to fully complete Work whether Owner has occupied Work or not.

B. When Contractor considers that Work, or a portion thereof which Owner agrees to accept separately, is substantially complete, Contractor shall thoroughly inspect Work, and prepare and submit to Architect a comprehensive list of items to be corrected or completed, and Contractor's Notice of Substantial Completion (utilize form at end of this Section). *

C. Contractor certifies that:
   1. Work performed under this Contract has been thoroughly inspected and considered to be sufficiently complete, in accordance with Contract Documents, so Owner can occupy or utilize Work for its intended use.

D. Failure of Contractor to include an item on such list(s) does not alter responsibility of Contractor to complete all Work in accordance with Contract Documents. *

E. Contractor shall proceed promptly to complete and correct the items on list.

F. After receipt of Contractor's comprehensive list of items to be corrected or completed, and Contractor's Notice of Substantial Completion, Architect and Owner will, within reasonable period after notification, review list of items to be completed or corrected, or inspect Work, or designated portion thereof, to determine whether Work is Substantially Complete. *

G. If Architect's or Owner's review or inspection discloses any item, whether or not included on Contractor's list, which is not sufficiently complete in general accordance with Contract Documents so Owner can occupy or utilize Work or designated portion thereof for its intended use: *
   1. Contractor will be notified stating reasons.
   2. Contractor shall substantially complete or correct Work.
   3. Contractor shall thoroughly re-inspect Work.
   4. Contractor shall submit another Contractor's Notice of Substantial Completion, a revised list of items to be completed or corrected, and a request for another review.
   5. Architect and Owner will again review list of items to be completed or corrected and Work.

H. If Contractor prematurely submits a Contractor's Notice of Substantial Completion or requests Architect's review of Work, and Architect determines that Project or designated portion thereof is not Substantially Complete, Architect may invoice Owner as a change in services for such cost involved in evaluating and reviewing Work, and associated travel costs. Contractor shall reimburse Owner for such costs.

I. Architect will not perform more reviews of sub-projects or phases than number indicated in Contract Documents or Owner – Architect Agreement, unless otherwise mutually agreed to by Architect and Owner.

J. When Work or designated portion thereof is considered Substantially Complete, Architect will prepare a Certificate of Substantial Completion.
   1. The Certificate of Substantial Completion shall establish date of Substantial Completion, shall establish responsibilities of Owner and Contractor for security, maintenance, utilities, damage to Work and insurance, and shall fix time within which Contractor shall complete and correct Work.
   2. Warranties and guarantees required by Contract Documents shall commence on date of Substantial Completion of Work or designated portion thereof unless otherwise provided in Certificate of Substantial Completion.
   3. The Certificate of Substantial Completion shall be submitted to Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. *

K. Owner may occupy Project, or designated portion thereof, under provisions agreed to in Certificate of Substantial Completion, and if required, a certificate of occupancy has been issued by governing authorities.
   1. If Owner is going to occupy Project, or designated portion thereof, Contractor shall perform final cleaning immediately.

2. If Owner or Architect discovers any Work which is not complete and/or is not in conformance with Contract Documents, during or after occupying or utilizes Work, whether included on a list or not, Owner shall notify Contractor to complete or correct item(s) identified.

L. Contractor shall proceed expeditiously with adequate forces to complete or correct Work, and to complete all Project closeout requirements within designated time.

1.4 FINAL COMPLETION

A. After Contractor has completed all Work, and has thoroughly inspected Work to determine that it is sufficiently complete, it is in general accordance with Contract Documents, and Contract is fully performed, Contractor shall submit Contractor's Certificate of Completion to Architect, and the list(s) of items to be completed or corrected initialed to indicate Contractor has verified completion of each item. * Utilize form at end of this section. Contractor certifies that:
   1. Work has been thoroughly inspected by Contractor for compliance with Contract Documents.
   2. Work has been completed in accordance with Contract Documents.
   3. Equipment and systems have been tested and are operating satisfactorily.
   4. Contract closeout requirements have been completed satisfactorily and submitted.
   5. Contractor knows of no reason that insurance will not be renewable to cover period required by Contract Documents.
   6. Work is ready for final inspection and acceptance.

B. Contractor submit final closeout submittals required by this and other Sections.

C. Owner and Architect will make final walk through within a reasonable time after receipt of Contractor's Certificate of Completion and final Application for Payment. *
   1. If Contractor prematurely submits a Contractor's Notice of Final Completion or requests Architect's final review of Project, and Architect determines that Project is not satisfactorily complete, Architect may invoice Owner as a change in services for such cost involved in evaluating and reviewing Work, and associated travel costs. Contractor shall reimburse Owner for such costs.

D. Contractor shall remedy any remaining deficiencies or incomplete Work, at Contractor's expense.

E. When Owner and Architect finds Work acceptable under Contract Documents and Contract satisfactorily performed, Architect will promptly issue a final Certificate for Payment. *

F. Neither final payment nor any retained percentage shall become due until Contractor submits to Architect;
   1. an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with Work for which Owner or Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied (AIA Documents G706 and G706A),
   2. a certificate evidencing that insurance required by Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to Owner,
   3. a written statement that Contractor knows of no substantial reason that insurance will not be renewable to cover period required by Contract Documents,
   4. consent of surety, if any, to final payment (AIA Document G707),
   5. Contractor's and Subcontractor's final release or waiver of liens,
   6. if required by Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of Contract, to extent and in such form as may be designated by Owner, for Owner's review, and
   7. if a Subcontractor refuses to furnish a release or waiver required by Owner, Contractor may furnish a bond satisfactory to Owner to indemnify Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to Owner all

money that Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees. *

G. If Substantial Completion or Final Completion is delayed through no fault of Owner or Architect, Architect may invoice Owner as a change in services for such costs, and associated travel costs. Contractor shall reimburse the Owner for such costs.

END OF SECTION

CONTRACTOR'S NOTICE OF SUBSTANTIAL COMPLETION

PROJECT: Tom Green County IT Cabling

ARCH PROJ. NO.: 10163575 CONTRACT DATE:
CONTRACT FOR:

WORK OR DESIGNATED PORTION SHALL INCLUDE:

Work performed under this Contract has been thoroughly inspected and is considered to be sufficiently complete, in accordance with Contract Documents, so Owner can occupy or utilize Work or designated portion thereof for its intended use.

- ❑ Certificates of inspections indicating compliance with requirements of governing authorities, are attached hereto.
- ❑ Certificate of Occupancy have been obtained from governing authorities, are attached hereto.
- ❑ A comprehensive list of items to be completed or corrected, prepared by Contractor is attached, hereto. Failure to include any items on such list does not alter responsibility of Contractor to complete all Work in accordance with Contract Documents.

Contractor will complete or correct Work by:

CONTRACTOR:
BY: DATE:

OWNER (agrees) (does not agree) to accept portion designated above separately from rest of Project.

Owner intends to utilize, occupy or take use on:

OWNER:
BY: DATE:

The Work designated above, has been determined to be:

- ❑ Substantially Complete and a Certificate of Substantial Completion will be issued.
- ❑ Not substantially complete for following reasons:

ARCHITECT: HDR Architecture, Inc.
BY: DATE:

DISTRIBUTION: ❑ OWNER ❑ ARCHITECT ❑ CONTRACTOR

END OF CONTRACTOR'S NOTICE OF SUBSTANTIAL COMPLETION

CONTRACTOR'S CERTIFICATE OF COMPLETION

PROJECT: Tom Green County IT Cabling
ARCH. PROJECT NUMBER: 10163575
CONTRACT FOR: _____
CONTRACT DATE: _____

This is to certify that I am an authorized official of, and have been properly authorized by said firm or corporation to certify following:
I know of my own personal knowledge, and do hereby certify on behalf of Contractor,
that Work has been reviewed and thoroughly inspected for compliance with Contract Documents,
that Work has been completed, in accordance with Contract Documents and Contract is fully performed,
that all equipment and systems have been tested and are operating satisfactorily,
that all Contract closeout requirements have been completed satisfactorily and submitted,
know of no substantial reason that insurance will not be renewable to cover period required by Contract Documents, and Work is ready for final inspection and acceptance.

Attached are three (3) copies of following documents, which are required prior to final payment:

- ❑ Final Application for Payment.
- ❑ Contractor's Affidavit of Payments of Debts and Claims: AIA Document G706.
- ❑ Contractor's Affidavit of Release of Liens: AIA Document G706A.
- ❑ Contractor's Final Release or Waiver of Liens.
- ❑ Consent of Surety (if any) to Final Payment: AIA Document G707.
- ❑ Certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to Owner.
- ❑ The list(s) of if items which were to be completed and corrected, with each item initialed to indicate Contractor has verified completion or correction of each.
- ❑ List of subcontractors and equipment suppliers.
- ❑ Certified list of all sales and service taxes paid.
- ❑ Letter of site conformance by licensed surveyor.
- ❑ If required by Owner, other data establishing payment or satisfaction of obligations arising out of Contract.
- ❑ Bond satisfactory to Owner to indemnify Owner against liens from Subcontractors.
- ❑ Transmittal indicating Owner has received Project Record Documents.

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

CONTRACTOR: _____ BY: _____

TITLE: _____ DATE: _____

Subscribed and sworn to me this _____ day of _____ _____

NOTARY PUBLIC: _____

My commission expires: _____

DISTRIBUTION: ❑ OWNER ❑ ARCHITECT

END OF CONTRACTOR'S CERTIFICATE OF COMPLETION

SECTION 01 78 23
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUBMITTALS

A. Contract Closeout Information:
   1. Operation and Maintenance Data.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE MANUALS

A. Assemble data indicated and data required to completely describe operation and maintenance procedures.

B. Assemble information in form of a multiple file composite electronic PDF file for each manual type required.
   1. Index files by product tag, with each item clearly labeled.
   2. Identify each volume with Project name and contents.
   3. Identify each item in manner consistent with names and identification numbers used in Contract Documents, not with manufacturer's catalog numbers.
   4. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

C. Use electronic files prepared by manufacturer where available.
   1. Scan paper documents and configure scanned file for minimum readable file size.

D. Create a Table of Contents, list each item.

2.2 DATA REQUIRED FOR EQUIPMENT AND SYSTEMS

A. Sequence of Operation, if required in Work:
   1. List valves, switches, etc., used to start, stop and adjust systems.
   2. Provide flow diagrams, control sequences and valve directory.

B. Lubrication Instructions, if required of products in Work:
   1. Frequency of inspection and lubrication recommended.
   2. Type of grease.
   3. Amount of lubrication recommended.

C. Maintenance and Troubleshooting Data:
   1. Manufacturer furnished data.
   2. Project record wiring diagrams, when required by Work.
   3. Name and address of manufacturer.
   4. Name and address of local representatives who stock or distribute repair parts.

2.3 DATA REQUIRED FOR FINISH MATERIALS

A. Maintenance Data:
   1. Precautions necessary.
   2. Manufacturer's instructions and recommendations.
   3. Maintenance materials and tools required.
   4. Repair and/or replacement instructions.
   5. Name and address of manufacturer.
   6. Name and address of local supplier of materials.

PART 3 - EXECUTION

3.1 DELIVERY

A. Deliver electronic copies to Owner sixty (60) days prior to Owner instruction of systems and equipment, and substantial completion.

B. Use Operation and Maintenance Data Transmittal form at end of this Section.

C. Acquire Owner's acceptance of items listed on transmittal form.

D. Forward copy of transmittal form with Owner's acceptance to Architect.

END OF SECTION

OPERATION AND MAINTENANCE DATA TRANSMITTAL

Project: Tom Green County IT Cabling

To Owner: **Date:**

From Contractor:

Assemble data required to describe operation and maintenance procedures. Deliver as an indexed electronic PDF file. Include name, address, and phone number of closest supplier for each item.

Section	Description	Quantity

Owner's Verification and Acceptance

Accepted by: _____ **Date:** _____

Forward copy of this transmittal to the Architect.

DISTRIBUTION: ☐ OWNER ☐ CONTRACTOR ☐ ARCHITECT

END OF TRANSMITTAL

SECTION 01 78 36
WARRANTIES AND GUARANTEES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Warranties specified in Divisions 02 through 48 Sections shall be in addition to, and run concurrent with other warranties required by Contract Documents.
   1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to the Owner.
   2. 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 the Owner.

B. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of Contract Documents.

C. Manufacturer’s Warranties:
   1. Provide for products, equipment, systems and installations required by Divisions 02 through 48 Sections of Contract Documents for duration indicated.
   2. Where manufacturer’s standard warranties or guarantees or both expire before duration required by other Sections of Contract Documents, obtain and pay for extensions as part of Contract Price.

D. Special Warranties:
   1. Refer to Divisions 02 through 48 Sections for specific content requirements and particular requirements for submitting special warranties.
   2. Provide written Special Warranties for products, equipment, systems, installations, and joint responsibilities as noted and required by Divisions 02 through 48 Sections of Contract Documents for duration indicated.
   3. Prepare a written document that contains appropriate terms and identification, ready for execution.
      a. Modified and properly executed Manufacturer's standard form to include project specific information.
      b. Submit draft for approval before final execution.
         1) See Section 01 33 00.

E. Provide Warranties. Special Warranties and Guarantees prior to final payment.
   1. Provide in electronic data format.
      a. Coordinate format with Owner.

F. Warranties. Special Warranties and Guarantees required by Contract Documents shall commence on date of Substantial Completion of Work unless otherwise indicated in Certificate of Substantial Completion.

1.2 SUBMITTALS

A. Contract Closeout Information:
   1. Transmittal letter indicating Owner’s receipt of electronic data format containing product equipment and system warranties or guarantees or both required by other Sections of Contact Documents.

1.3 JOB CONDITIONS

A. If for any reason, Contractor cannot warrant or guarantee or both any portion of Work using products or methods indicated or required by other Sections of Contract Documents, notify

Architect in writing during bid period, and before contracts are awarded, indicating reasons and names of products and data on substitutions that can be warranted or guaranteed or both.

1. Should Contractor fail to notify Architect, Contractor will be considered as having agreed to warrant or guarantee the Work indicated.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION

3.1 PRODUCT, EQUIPMENT AND SYSTEM WARRANTIES AND GUARANTEES

A. Compile approved warranties and guarantees or both required by other Sections of Contract Documents.

1. Assemble information in form of a multiple file composite electronic PDF file utilizing book marks for quick access to each section.
2. Index by product tag, with each warranty, guarantee, or both clearly labeled.
   a. Identify each volume with project name and contents.
3. Identify each warranty or guarantee or both in manner consistent with names and identification numbers used in Contract Documents.
4. Provide transmittal letter containing:
   a. Date
   b. Project title
   c. Contractor's name and address
   d. Title and number of warranties, guarantees, or both
   e. Indication of Owner's receipt
5. Deliver to Owner prior to final payment with copy of transmittal letter indicating Owner's receipt.

END OF SECTION

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. All documents required by Contract Documents, including but not limited to:
   1. Contract Drawings.
   2. Project Manual and Specifications.
   3. Addenda.
   4. Shop Drawings.
   5. Product Data.
   6. Samples and Mock-ups.
   7. Project Information.
   8. Change documents.
   9. Request for Information responses, directives, clarifications, interpretations, etc.
   10. Field test records.
   11. Warranties.

B. Field Documents:
   1. Complete set of all documents required for installation.
   2. Used for installation of project.

C. Periodic Update Documents:
   1. Complete separate set of all documents required for installation, with exception of samples and mock-ups, used for posting and updating on weekly basis.
   2. Do not use for installation of project.

D. Project Record Documents:
   1. Complete set of all documents required for installation, with exception of samples and mock-ups, for updating at end of Project.

1.2 SUBMITTALS

A. Contract Closeout Information:
   1. Copy of transmittal letter to Owner.
      a. At completion of project, turn over Project Record Documents to Owner with letter of transmittal.
      b. Submit Record Documents in suitable electronic format.
      c. Provide Transmittal Letter containing:
         1) Date.
         2) Project title.
         3) Contractor’s name and address.
         4) Title and number of each Project Record Document.
         5) Certification that Project Record Documents submitted are complete, accurate and reflect actual construction of project.
         6) Owner’s signature indicating receipt and acceptance of Project Record Documents.
   2. Electronic copy of Record Drawing files to Architect.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION

3.1 POSTING PRIOR TO CONSTRUCTION

A. After Contract is executed, but prior to start of Work, obtain Contract Drawings and Project Manual/Specifications that will be used for Field Documents and Periodic Update Documents.

B. Obtain copies of all addenda and post to all above documents.

3.2 FIELD DOCUMENTS

A. Field Documents are intended for use in the installation of the project.

B. Maintain minimum of one copy at project site.

C. Label each document, “FIELD.”

D. Post documents with changes on a daily basis.

3.3 PERIODIC UPDATE DOCUMENTS

A. Periodic Update Documents are intended for use by Architect, Owner, Owner’s consultants, Authorities Having Jurisdiction, Special Inspections, and Testing Agencies.

B. Identify each document within file, “PERIODIC UPDATE.”

C. Update documents on weekly basis:
   1. Contract drawings:
      a. Amend to record actual installation including but not limited to:
         1) Addenda.
         2) Change orders or field orders.
         3) Clarifications, interpretations, directives.
         4) Location of internal utilities and appurtenances concealed.
         5) Field changes of dimension and/or detail.
         6) Revisions incorporated into the contract by Change Order, Field Order, Clarifications, Interpretations or Directives.
   2. Project Manual/Specifications:
      a. Amend affected sections to record changes including but not limited to:
         1) Addenda.
         2) Change orders or field orders.
         3) Clarifications, interpretations, directives.
         4) Include added sections to Project Manual/Specifications.
         5) Indicate manufacturer, makes, and models used for actual installation of project.
   3. Concealed work:
      a. Do not conceal work until concealed information is recorded on Periodic Update Documents.
      b. Work concealed prior to recording must be uncovered.
      c. Upon recording on Periodic Update Documents, restore work at Contractor’s expense.

3.4 PRODUCTION OF PROJECT RECORD DOCUMENTS

A. Record Drawings:
   1. Use one set of printed Contract Documents as base Record Documents or an electronic method in field to record installation changes as they occur.
   2. Mark Contract Drawings completely and accurately.
   3. Employ personnel proficient at recording electronic graphic information in production of marked-up drawings to transfer all changes, corrections, entries, and other items from the Periodic Update Documents to Record Documents.
      a. Refer instances of uncertainty to Architect for resolution.
   4. Record Digital Data Files:

a. Prepare full set of corrected digital data files of Contract Drawings immediately before inspection for Certificate of Substantial Completion:
    1) Provide in annotated PDF electronic file with comment function enabled.
b. Incorporate changes and additional information previously entered on Periodic Update Drawings.
c. Delete, redraw, and add details and notations where applicable.
d. Name each PDF file to match Contract Drawing identification, i.e. "A-103G.pdf".
e. Label each document “PROJECT RECORD PRODUCED BY CONTRACTOR” and date in prominent place.

5. Provide Owner and Architect original Record Drawings, and digital data files in linked PDF electronic format.
    a. Include:
        1) Addenda.
        2) Change order or field order.
        3) Clarifications, interpretations, directives.
        4) Bind added sections into Project Manual/Specifications.

B. Record Computer Aided Drafting (CAD) System Drawings:
1. Provide Record Drawings in electronic CAD format for systems indicated in Submittal Procedures, Section 01 33 00.
    a. Employ skilled CAD technicians to update CAD files with information from Periodic Update Documents.
    b. Comply with current version of National CAD Standards.
    c. Provide in same size and scale as original Contract Drawings.
    d. Organize CAD information into separate electronic files that correspond to each sheet of Contract Drawings.
        1) Name and number CAD drawing with corresponding information on Contract Drawing.
        2) Name each CAD drawing file with drawing identification.
    e. Label each document “PROJECT RECORD PRODUCED BY CONTRACTOR” and date in prominent location.
    f. Redraw, delete or add details and notations where applicable.
    g. Produce new CAD drawings in lieu of updating original CAD drawing file where not suitable to indicate actual installation.
        1) Produce new CAD drawings when a contract change document was issued, as a result of acceptance of alternate, substitution, or other modification.
    h. Architect will furnish Contractor with revised CAD drawing file of architectural plan backgrounds if significantly revised by Architect during construction phase.
        1) CAD floor plan backgrounds will indicate wall layout, column lines and room names and numbers.
        2) Architect makes no representation as to accuracy or completeness of CAD files.
2. Submit preliminary CAD files to Architect for review prior to submitting final CAD files.
3. Submit final updated CAD files.
    a. Include all system drawing files, whether or not changes and additional information from Periodic Update Documents.
4. Submit data files to Owner and Architect of final Record Drawings in PDF format electronically created from CAD files.
    a. Do not scan.
    b. Include all system drawing files, whether or not changes and additional information was included in Periodic Update Documents.

C. Other Record Documents:
1. Transfer recorded changes from original to replacement copy.
2. Label each document “PROJECT RECORD PRODUCED BY CONTRACTOR” and date in prominent location.

END OF SECTION

SECTION 01 78 43
SPARE PARTS, TOOLS AND MAINTENANCE MATERIALS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Contract Closeout Information:
   1. Submit spare parts, tools and materials directly to Owner.
   2. Submittal to Architect is not required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Spare Parts and Tools:
   1. Package in clearly identified boxes.
   2. Indicate manufacturer's name, part name and stock number.
   3. Indicate piece of equipment part or tool is for.
   4. Indicate name, address and phone number of closest supplier.

B. Maintenance Materials:
   1. Package in clearly identified boxes.
   2. Indicate trade name and stock number.
   3. Indicate which item material is to be used with.
   4. Indicate name, address and phone number of closest supplier.

C. Extra Materials:
   1. Package in clearly identified containers, or install where indicated.
   2. Indicate trade name, stock number, size, color, etc.
   3. Indicate where product is to be used.
   4. Indicate name, address and phone number of closest supplier.

PART 3 - EXECUTION

3.1 DELIVERY

A. Deliver to Owner prior to substantial completion unless Owner requests earlier delivery.

B. Deliver to location directed by Owner.

C. Complete Maintenance Material Transmittal form at end of this Section.
   1. Acquire Owner's acceptance of items listed on transmittal.
   2. Transmittal to indicate Owner's acceptance.
   3. Forward copy of transmittal forms with Owner's acceptance to Architect.

END OF SECTION

SPARE PARTS, TOOLS AND MAINTENANCE MATERIAL TRANSMITTAL

Project: Tom Green County – IT Cabling

To Owner: Date:

From Contractor:

Package extra material, maintenance materials, spare parts, and tools in clearly identified boxes; indicate manufacturer's name, trade name, part name, stock number, size, color, etc. Indicate which item maintenance material is to be used with, piece of equipment part or tool is for, or where extra material is to be used. Indicate name, address, and phone of closest supplier.

TAG	DESCRIPTION	QUANTITY

Owner's Verification and Acceptance

Accepted by: _____ Date: _____

Forward copy of this transmittal to the Architect.

DISTRIBUTION: ☐ OWNER ☐ CONTRACTOR ☐ ARCHITECT

END OF TRANSMITTAL

SECTION 01 81 21
INDOOR AIR QUALITY MANAGEMENT PLAN

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements governing protection of indoor air quality (IAQ), absorbent materials, and mechanical system from contamination during construction and building flush-out.

1.2 QUALITY ASSURANCE

A. SMACNA Guidelines for Occupied Buildings Under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3).

1.3 DESCRIPTION - GENERAL

A. IAQ Management Plan: Minimize contaminants generated during construction. Methods to include, but not limited to:
   1. Practices which minimize the amount of dust generated.
   2. Reduction of solvent fumes and volatile organic compound (VOC) emissions.
   3. Maintaining good housekeeping practices including sweeping and periodic dust and debris removal.
   4. Maintain dry conditions to protect stored on-site and installed absorptive materials from moisture damage.
   5. No visible haze in air.

B. Prevent migration of moisture from exterior to building interior and prevent release of moisture from building materials that could result in formation of mold, delamination of adhesive applied materials or other damages caused by water.

1.4 PRECONSTRUCTION CONFERENCE

A. After award of Contract and prior to the commencement of the Work, schedule and conduct meeting with Owner and Architect to discuss the proposed IAQ Management Plan and to develop agreement relative to details of IAQ Management Plan procedures.

1.5 SUBMITTALS

A. Project Information:
   1. Construction IAQ Management Plan.
   2. Compliance Photographs:
      a. Provide a monthly minimum of six (6) photographs at three distinct phases of completion demonstrating compliance with standard or examples of remediation efforts to bring into compliance.
      b. Date and time stamp photographs and identify approach taken for each.
      c. Detailed photo log of implemented IAQ practices.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 CONSTRUCTION IAQ MANAGEMENT

A. Construction IAQ Management Plan:

1. Meet or exceed SMACNA Guidelines for Occupied Buildings under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3), and include following measures:
    a. HVAC Protection.
    b. Source Control.
    c. Pathway Interruption.
    d. Housekeeping.
    e. Scheduling.
2. Provide solid physical barriers to isolate areas of construction.
    a. Securely attach and seal at floor and structure above.
3. Schedule adequate time for product installation.
4. Maintain negative pressure in construction area.
5. Do not recirculate air prior to occupancy.
6. Seal return air ducts and use direct exhaust to outside.
7. Factory age sheet goods.
8. Comply with manufacturer's instructions for appropriate drying times.
9. Protect installed absorbent materials with recycled or recyclable materials.

B. HVAC Protection:
1. Protect air handling and distribution equipment, and air supply and return ducting during construction.
2. Adequately cover and protect exposed air inlets and outlets, openings, grilles, ducts, plenums, as required to prevent water, moisture, and other contaminant intrusion.
3. Apply protection immediately after installation of equipment and ducting.
4. Protect duct runs at end of each day's Work.
5. During dust producing activities, such as drywall installation and finishing, turn ventilation system off, and protect HVAC supply and return openings from dust infiltration.
    a. Provide temporary ventilation.
6. Provide temporary filtration media for permanently installed air handlers if used during construction,
    a. Provide minimum efficiency reporting value (MERV) of 8 at each return air grille, per ASHRAE Standard 52.2 – 2007, with errata.
    b. Replace filtration media immediately prior to occupancy.
7. Vacuum all ducts prior to installing registers, grills, and diffusers.

C. Source Control:
1. Protect stored on-site or installed absorptive or porous materials from exposure to moisture.
2. Ensure a separate area that is dry and protected from moisture and weather elements is designated to store and protect absorptive materials.
3. Do not use wet, damaged porous materials in the building. Materials with evidence of moisture damage, including stains, are not acceptable, including both stored and installed materials. Immediately remove them from the site and properly dispose.
4. Preconditioning:
    a. Prior to site delivery off-gas odorous products, or products with significant volatile organic compound (VOC) emissions, in dry, well ventilated space for 14 calendar days.
    b. Condition products, without containers and packaging, to maximize off-gassing of VOCs.
    c. Condition products in a ventilated warehouse or other building. Provide a temperature range of 60 DEGF minimum to 90 DEGF maximum continuously during ventilation period.
    d. Do not ventilate within limits of Work unless otherwise accepted by Architect.
    e. Comply with substitution requirements for consideration of other locations.
5. Take special care to prevent accumulation of moisture on installed materials and within packaging during delivery, storage, and handling to prevent development of molds and mildew, including materials with moisture stains.
6. Replace moldy materials with new, undamaged materials.
7. Provide ventilation, air circulation and air changes to dissipate excess humidity when present.

8. Prohibit the use of tobacco products inside the building and within 50 FT of building during any off-site storage and construction periods.

D. Pathway Interruption:
   1. Isolate work areas from other spaces by sealed doorways or windows or through the use of temporary barriers.
   2. Install exhaust ventilation equipment to maintain negative pressure differential between work area and adjacent areas of building.
   3. Exhaust ventilation units to outside of building.
   4. Walk-off mats are used at entryways to work areas to reduce the transfer of dirt and pollutants.

E. Housekeeping:
   1. Provide temporary ventilation during construction to minimize accumulation of dust fumes, vapors, or gases in the building.
   2. Continuously ventilate during and after installation of materials that emit VOCs until emissions dissipate:
      a. Period after installation shall be sufficient to dissipate odors and elevated levels of VOCs. Where no specific period is specified, ventilate for minimum of 72 HRS.
      b. Ventilate areas directly to outside.
      c. If continuous ventilation is not possible via building's HVAC system, ventilate via openings and temporary fans at no less than 3 air changes per hour.
   3. Suppress dust with wetting agents or sweeping compounds.
   4. Remove dust using a wet method.
   5. Increase cleaning frequency when dust build-up is noted.
   6. Remove spills or excess applications of solvent-containing products as soon as possible.
   7. Remove accumulated water and keep work areas as dry as possible.
   8. Keep and store volatile liquid containers closed when container is inside of building and not in use.
   9. Saws and other tools shall use dust guards or collectors to capture generated dust/ debris.

F. Scheduling:
   1. Where odorous or high VOC-emitting products are applied on site, apply before installation of porous and fibrous materials. Where not possible, protect porous materials with polyethylene vapor retarders.
   2. Insure wet applied interior finish materials, such as paints, adhesives, sealants, coatings, finishes, and spray-applied materials, such as structural fireproofing, are fully cured prior to installation of finish materials.
   3. Provide adequate ventilation of packaged dry products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues.
   4. Complete installation of VOC-emitting products applied on site no less than 14 days prior to Substantial Completion.

3.2 MOISTURE CONTROL

A. Moisture/Water/Mold Prevention:
   1. Protect stored on-site or installed absorptive or porous materials from exposure to moisture.
   2. Do not introduce water or moisture intrusion into building or structure.
   3. Where mold growth is observed as a result of the Work of this contract, the effected materials shall be removed and disposed of by qualified handlers.
   4. Correct water leaks or infiltration within 24 HRS of notification.

B. Store fuels, solvents, and other sources of VOCs separately from absorbent material.

C. Dispose materials off site susceptible to microbial growth and replace with new, undamaged materials.

3.3 ENVIRONMENTAL QUALITY MANAGEMENT

A. Environmental Quality Management Plan:
   1. Noise and Nuisance Plan.
      a. Develop a plan based on British Standard 5228-2009 to reduce noise emissions and vibrations from construction equipment and other non-road engines.
      b. Use construction equipment with low noise emissions or the lowest decibel level available that meets performance requirements in the British Standard.
      c. Construction crews must wear ear protection wherever sound levels exceed 85 dB for extended periods. Provide training and protective gear for workers.
      d. Limit effects of vibration on nearby historic or sensitive buildings.

END OF SECTION

SECTION 01 89 30
CONSTRUCTION ACTIVITY ACOUSTICS REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish labor, materials, tools, equipment, and services for Construction Activity Acoustics Requirements, as indicated, in accordance with provisions of Contract Documents.

B. Completely coordinate with work of other trades.

1.2 QUALITY ASSURANCE

A. Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to following:
   1. BSI British Standards
      a. BS 5228 Code of Practice for Noise Control On Construction and Open Sites, most current version.

1.3 DESCRIPTION

A. Construction Activity Acoustics Plan: Plan shall include:
   1. Contractors approach to minimizing site noise in compliance with British Standard BS 5228.
   2. Identification of equipment anticipated to be used on the project.
   3. Manufacturer's data indicating A-weighted sound pressure level values at 10 meters.
   4. Contractors plan for correcting non-compliant equipment
   5. Data indicting retrofitting equipment with mufflers or other noise control devices where equipment is not in compliance with required dB levels.
   6. Use of ear protective devices where required.
   7. Anticipated operating hours.
   8. Installation of temporary noise barriers where required.

1.4 SUBMITTALS:

A. Project Information:
   1. Construction Activity Acoustics Plan scaled to work effort that will produce noise.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Minimize noise of site operations.

B. On those parts of site where high levels of noise are anticipated and likely to be a hazard to individuals working on the site, prominent warning notices should be displayed.

C. Construction crews must wear ear protection in areas where sounds levels exceed 85 dBA for extended period of times.

D. Pneumatic impact tools and equipment used at the construction site shall have intake and exhaust mufflers recommended by the manufacturers thereof, to meet relevant noise limitations.

E. Provide impact noise producing equipment, i.e. jackhammers, with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise.

F. Provide upgraded mufflers, acoustical lining or acoustical paneling for other noisy equipment, including internal combustion engines.

G. Use alternative procedures of construction and select a combination of techniques that generate the least overall noise and vibration. Such alternative procedures could include the following:
   1. Use electric welders powered by remote generators.
   2. Use construction equipment manufactured or modified to reduce noise and vibration emissions, such as:
      a. Electric instead of diesel-powered equipment.
      b. Hydraulic tools instead of pneumatic tools.
      c. Electric saws instead of air or gasoline driven saws.
   3. Turn off idling equipment when not in use for periods longer than 5 minutes.
   4. Operate equipment so as to minimize banging, clattering, buzzing, and other annoying types of noises.
   5. To the extent feasible, configure the construction site in a manner that keeps noisier equipment and activities as far as possible from noise sensitive locations.
   6. Select truck routes for material delivery and spoils disposal so that noise from trucks will have a minimal impact on noise sensitive receptors.
      a. Proposed truck haul routes are to be submitted to the County at least 5 days in advance for approval.
      b. Conduct truck loading, unloading, and hauling operations so noise and vibration are kept to a minimum.
      c. Do not operate haul trucks on streets within 250 FT of court buildings during work hours, without a variance.
   7. In no case shall mitigation measures alter the project's responsibility for compliance with applicable Federal, state, and local safety ordinances and regulations, as well as project specific construction specifications.
   8. Vehicle Idling:
      a. Comply with vehicle idling requirements of Authority having Jurisdiction.
      b. Limit vehicle idling time to a maximum of 5 minutes except where idling is required for the equipment to perform its task.
      c. Limit construction equipment idling time to a maximum of 5 minutes except where idling is required for the equipment to perform its task.
      d. Locate stationary equipment as far as practicable from nearby noise sensitive areas.
      e. Use electric powered motors where feasible.

3.2 MEASUREMENT REQUIREMENTS

A. Where required to substantiate compliance, monitor noise produced from construction operations in accordance with BS 5228.

3.3 NOISE MANAGEMENT –EQUIPMENT REQUIREMENTS

A. Perform renovation operations to minimize noise.
   1. Comply with the requirements of British Standard 5228.

Sound Level Data for Demolition			
Earthmoving	**dBA at 10 m**	**Materials Handling**	**dBA at 10 m**
Hydraulic Hammer		Pneumatic Hammer	83
Generators		Gas powered circular saw	75
Compressors		Tractor with towing trailer	79
		Diesel Generator	65
		Saws	75
		Vibrators	75

3.4 CONSTRUCTION EQUIPMENT NOISE REPORTING FORM

Construction Equipment Noise Reporting Form						
Equipment	Make and Model	ID	HP	Sound Pressure Level at 10m, dBA without mitigation	Noise Mitigation Measures	Sound Pressure Level at 10 m, dBA with mitigation

END OF SECTION

DIVISION 27

COMMUNICATIONS

SECTION 27 05 00
BASIC MATERIALS & METHODS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Requirements of Drawings, General and Supplementary Conditions, Divisions 00 and 01 apply to this section.

1.2 SUMMARY

A. Furnish all labor, materials, tools, equipment, and services for Basic Materials and Methods for Communications Systems, as indicated, in accordance with provisions of Contract Documents to provide a full and operating communications system as described within Division 27 documents.

B. Completely coordinate with work of other trades.

C. Provide all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation, whether or not specifically indicated in the Contract Documents.

D. Report percentage of work completed on a monthly basis.

E. Provide all floor penetrations, floor sleeves, wall penetrations, pathways, etc. not shown on the telecommunications plans but needed for the routing of cabling provided herein.

F. Provide firestopping as required for all penetrations where Division 27 cables pass through a fire rated barrier to restore the barrier to its original rating.

G. Provide labor for testing horizontal cabling and all connections.

H. Provide Telecommunications grounding and bonding as required.

I. The same manufacturer's product shall be utilized throughout the entire project for all copper and fiber optic cabling.

J. Substitutions: No substituted products shall be installed except with written approval by Owner.

K. Drawings use and interpretation:
   1. Drawings are diagrammatic and indicate general arrangement of systems and equipment, except when specifically dimensioned or detailed.
   2. For exact locations of building elements, refer to dimensioned architectural/structural drawings.
   3. Field measurements take precedence over dimensioned drawings.
   4. Intention is to show size, capacity, approximate location, direction and general relationship of one work phase to another, but not exact detail or arrangement.

L. Installation of all communications systems and equipment is subject to clarification as indicated in reviewed shop drawings and field coordination drawings.

M. Dimensions indicated are limiting dimensions.

N. Do not use equipment exceeding dimensions indicated or equipment or arrangements that reduce required clearances or exceed specified maximum dimensions.

O. Description of systems:
   1. Provide materials to provide fully functioning systems in compliance with performance requirements specified.
   2. Provide modifications required by reviewed shop drawings and field coordinated drawings.

P. The work of this division shall consist of, but shall not be limited to, the providing of the following systems:
   1. Communications Systems – Raceway/Cable Tray: Section 27 05 28.
   2. Communications Systems - Structured Cabling: Section 27 10 00.

1.3 REFERENCES AND COMPLIANCES TO THE LATEST EDITIONS, AS RELATED

A. Design, manufacture, test, and install telecommunications cabling networks per manufacture's requirements and in accordance with NFPA-70 (National Electrical Code), state codes, local codes, requirements of authorities having jurisdiction and particularly the following standards:
   1. ANSI/TIA-568-C.0 - Generic Telecommunications Cabling for Customer Premises
   2. ANSI/TIA-568-C.1 - Commercial Building Telecommunications Cabling Standard
   3. ANSI/TIA-568-C.2 - Balanced Twisted-Pair Telecommunications Cabling and Components Standards
   4. ANSI/TIA-568-C.3 - Optical Fiber Cabling Components Standard
   5. ANSI-J-STD-607-A - Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
   6. ANSI/TIA/EIA-606(A) The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
   7. ANSI/TIA/EIA-526-14A -- Measurement of Optical Power Loss of Installed Multimode Fiber Cable Plant
   8. AMP NETCONNECT Design Installer Agreement (ND&I) (current)
   9. BICSI® Telecommunications Distributions Methods Manual, latest edition.
   10. ISO/IEC 11801 Generic Cabling for Customer Premises.
   11. National Electrical Code (NEC).
   12. IEEE C2-2002 National Electrical Safety Code (NESC®) current edition.
   13. FCC Part 68 Code of Federal Regulations, Title 47, Telecommunications.
   14. UL 1459 Underwriters Laboratories Standard for Safety—Telephone Equipment.
   15. UL 1863 Underwriters Laboratories Standard for Safety—Communication Circuit Accessories.
   16. National Fire Protection Agency (NFPA).
   17. American National Standards Institute (ANSI).
   18. Telecommunications Industry Association (TIA).
   19. Electronic Industries Alliance (EIA).
   20. National Electrical Safety Code (NESC).

1.4 SYSTEM DESCRIPTION AND PROJECT CONDITIONS

A. Provide a fully functional communications infrastructure, which includes:
   1. Build-out of all telecommunications areas, building distribution, floor distribution and data/telecommunication outlets meeting the requirements of ANSI/TIA+/EIA.
   2. Adherence to the design guidelines for installation of cabling in pathways and spaces as defined by ANSI/TIA/EIA 569
   3. All material, labor, tool, apparatus and equipment to furnish completely working telecommunication cabling system.
   4. Horizontal cables, cross connects, patch cords and data/telecommunication outlets.
   5. Complete grounding of all systems components and cabinets to the telecommunications main grounding busbar in compliance with ANSI/TIA/EIA 607.
   6. Cable identification tags and system labeling shall match Tom Green County IT cabling standards.
   7. Coordination of the entire installation with all other divisions.

B. In circumstances where Specifications and Drawings conflict, the Drawings shall govern quantity and the Specifications shall govern quality.

1.5 SUBMITTALS (SEE SECTION 01 33 00)

A. General:

1. Submit for review by the Architect/Engineer, complete engineered documentation for each system for evaluation of the proposed system with respect to project design requirements. Submittals for each system shall consist of engineered shop drawings and manufacturer's descriptive product data sheets for each system component to indicate conformance with the contract documents.
2. Provide complete submittal package (shop drawings/product data) per individual specification section. Information contained within each submittal package shall only pertain to the referenced specification section.
3. Provide submittal information as indicated within each Division 27 section and as indicated herein.
4. When application engineering and each submittal package have been prepared, a meeting shall be set up with the Architect/Engineer and Owner for preliminary shop drawing review. The project superintendent for the work of this division shall explain the entire system operation, equipment and other items as called for within the contract documents. Information to be reviewed shall be submitted one week in advance of proposed meeting date for review and preliminarily reviewed at this meeting. This meeting will be held in the Owner's jobsite office.
5. All submittal documents shall be submitted in electronic “pdf” format. Drawings shall be produced on 30” x 42” format and product data shall be produced on 8.5” x 11” format.

B. Submittal Description - Shop drawings:
   1. Content:
      a. Cover Letter: Accompany each shop drawing submittal with a cover letter stating that the shop drawings have been thoroughly reviewed by the Contractor and are in full compliance with the requirements of the Contract Documents. Have the person who prepared the submittal sign (and stamped, if applicable) the cover letter and include a drawing index. Failure to comply with this requirement shall constitute grounds for rejection of submittal.
      b. Drawing Information: Shop drawing submittals shall consist of floor plans, enlarged room plans, wall and rack elevations, installation details, and other aspects of the system that differ from the Contract Documents or the design intent. Use the same scales as the Drawings (e.g., 1/8" = 1'-0" for floor plans; 1/4" = 1'-0" for enlarged room plans).
      c. Resubmittals: Accompany resubmittals with a cover letter that lists the revisions made to each drawing in response to Submittal Review Comments. Failure to include this cover letter will constitute rejection of the resubmittal package without review.
   2. As indicated in each Division 27 section and as indicated herein.
   3. Submit for review the following submittal components (as applicable) for each system for evaluation of the proposed system with respect to project design requirements:
      a. Provide complete floor plans. Each plan shall show proposed device locations.
         1) Show actual device nomenclature as illustrated on riser and single line diagrams.
         2) Show pullboxes, equipment enclosures and terminal cabinets.
         3) Show conduits and fill (optional if lateral conduits are shown with size and fill on the riser).
      b. Provide complete enlarged scale equipment room plans. Each plan shall show proposed “head-end” equipment type and locations.
         1) Plan layout showing all system requirements within room with device notations.
         2) Elevations of each wall within equipment room depicting equipment locations, notations and dimensioning.
         3) Equipment rack/cabinet elevations, scaled, notating each component located within the rack/cabinet and cross-referenced to product data.
      c. Riser diagram:
         1) Illustrate conduit relationships between devices shown on the floor plans.
         2) (Lateral conduits are optional if shown on the plans).
         3) Show actual device nomenclature as illustrated on the plans and breaker number where the power will be sourced.

d. Drawing comparison:
    1) Copy of drawing annotated where proposed system layout differs from designed system. Any differences to be explained.

4. Each individual submittal item for materials and equipment shall be marked to show specification section and paragraph number which pertains to the item. Manufacturer's description sheets shall have an arrow stamp pointing to each item on the sheet that is intended for review. Each operational feature of the systems included shall be addressed in narrative form and relate to specific system requirements described in the plans and specifications. All drawing submittals shall be submitted on same size sheets, identified by system, and sequentially numbered throughout the entire set.

C. Submittal Description - Product Data:
1. Content:
    a. Cover Letter: Include a cover letter stating that the submittal is in full compliance with the requirements of the Contract Documents. Sign (and stamped, if applicable) cover letter and list items and data submitted.
    b. Product Information: Include manufacturer's technical data, product literature, "catalog cuts", data sheets, specifications, and block wiring diagrams (if necessary) to clearly describe the product's characteristics, physical and dimensional information, electrical performance data, materials used in fabrication, material color & finish, and other relevant information such as test data, typical usage examples, independent test agency information, and storage requirements. Clearly indicate by arrows or brackets precisely what is being submitted on and those optional accessories, which are included and those which are excluded. At a minimum, include products listed in Division 27. Include relevant products that will be installed, which are not listed in the specifications.
    c. Resubmittals: Provide a cover letter with the resubmittal that lists the action taken and revisions made to each product submittal in response to Submittal Review Comments. No review shall take place for any resubmittal packages that is not accompanied by this cover letter. Failure to include this cover letter will constitute rejection of the resubmittal package.
2. Product list for Division 27 equipment per specified system.
3. As indicated in each Division 27 section and as indicated herein.
4. Description of system operation indicating overall system operation and purpose and capabilities of each component within system.
5. Where multiple options are shown on a single data sheet, highlight product options that will be provided and strikethrough options that are not applicable or otherwise specifically identify all options/features to be included in the project.
6. Cross reference data sheets to components shown on shop drawings.
7. Specification comparison:
    a. Copy of specification annotated where proposed product differs from specified product. Any differences to be explained.
8. Each data sheet shall have a footer each page with the following information:
    a. Submitting Contractor's Logo
    b. Specification Section
    c. Specification Reference
    d. Manufacturer Name
    e. Manufacturer Part Number
    f. Brief Description
    g. Page 1 of xx
    h. EXAMPLE FOOTER:
9.

CONTRACTOR LOGO HERE	Specification Section:	28 31 00
	Specification Reference:	2.1G
	Manufacture:	Ease
	Part Number:	Evac
	Description:	Evacuation speaker software
		Page **1** of **2**

D. Project information:
   1. As indicated in each Division 27 section.

E. Contract closeout information:
   1. As indicated in each Division 27 section.

F. Record drawings: Conform to the requirements of Division 01 and as follows:
   1. Keep a complete set of all electronic systems drawings in job site office for showing actual installation of electronic systems and equipment. Drawings shall show location and routing of conduit and cable.
   2. Use this set of drawings for no other purpose.
   3. Where any material, equipment, or system components are installed differently from that shown, indicate differences clearly and neatly using ink or indelible pencil.
   4. At project completion, submit record set of drawings to Construction Manager/General Contractor for review and distribution to the Owner.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Five continuous years, minimum, design and manufacture of the materials and equipment specified herein.
   2. Manufacturer(s) of products and equipment specified herein shall demonstrate that they have a quality assurance program in place to assure that the specifications are met. Include in the program, at a minimum, provisions for:
      a. Incoming inspection of raw materials
      b. In-process inspection and final inspection of the cable product
      c. Calibration procedures of test equipment to be used in the qualifications of the product.
      d. Recall procedures in the event that out of calibration equipment is identified.
   3. Conform to government standards on quality assurance for applications within these specifications.

B. Installer Qualifications:
   1. The intent of these specifications is to insure the systems described in this division are provided and installed by a technically experienced installer and, further, that the work is fully coordinated between the various systems by a single installer who is technically qualified as described herein.
   2. Company specializing in installation of structured data/telecom cabling systems networks for a minimum of five years. Experience shall include the following:
      a. List at least 10 facilities of equal size, complexity and technical requirements utilizing the equipment submitted.
      b. For each facility, list:
         1) Name and location of facility
         2) Date of occupancy by Owner
         3) Owner's representative to contact and telephone number
         4) Construction Manager or General Contractor
         5) Architect
      c. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.
      d. The successful cabling contractor must meet the following requirement:
         1) Must have a BICSI® certified RCDD review the drawings and meet with the A/E and Tom Green County IT representatives to discuss the project and to ensure that a structured cabling system is installed that provides a comprehensive telecommunications infrastructure.
   3. Where the installer is a branch office or other division of a larger organization, the qualifications of the branch office or other division shall meet the requirements of the Contract Documents. The installer incorporated under the same name, shall have

successfully completed a minimum of three similar communications construction projects, both in scope and system types.

4. The work of this division shall be managed and supervised by a full-time site project superintendent who shall have the following qualifications:
   a. Experience in the applications engineering, installation, and supervision of similar construction projects both in scope and system type for a minimum of 5 years.
   b. Full time employee of the installer.
   c. Have a working knowledge of all systems installed under this division.
   d. Project superintendent shall be on site full time through duration of construction.
5. Equipment and materials of the type for which there are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.
6. A complete technical specification for the submitted equipment, noting differences and adherence to this Section. Subcontractors shall assume all rights and obligations toward the contractor that the contractor assumes toward the owner and engineer/designer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery:
   1. Do not deliver products to the site until protected storage space is available.
   2. Coordinate materials delivery with installation schedule to minimize storage time at jobsite.
   3. Deliver materials in manufacturer's original, unopened, undamaged packaging and containers with identification labels (name of the manufacturer, product name and number, type, grade, UL classification, etc.) intact.
   4. Immediately replace equipment damaged during shipping at no cost to the Owner, so as not to impact the construction schedule.

B. Storage and Protection:
   1. Store materials in clean, dry, ventilated space free from temperature and humidity conditions (as recommended by manufacturer) and protected from exposure to harmful weather conditions.
   2. Comply with manufacturer's storage requirements for each product. Comply with recommended procedures, precautions or remedies as described in the Material Safety Data Sheets (MSDS) as applicable.
   3. Maintain factory wrapping or provide a heavy canvas/plastic cover to protect units from dirt, water, construction debris, and traffic.
   4. Storage outdoors covered by rainproof material is not acceptable.
   5. Provide heat where required to prevent condensation or temperature related damage.

C. Handling:
   1. Handle materials and equipment in accordance with manufacturer's written instructions. Handle with care to prevent damage, breakage, denting, and scoring.
   2. Do not install damaged materials and equipment. Replace damaged equipment at no cost to the Owner.

1.8 WARRANTY

A. Warrant products and labor provided will, under normal use and service, be free from defects and faulty workmanship for period of 2 years from the date of acceptance. During the warranty period the entire system shall be kept in operating condition at no additional material or labor costs to the Owner.

B. Render service within one week of system failure notification. Note deviations or improvements to this service at the time of bid and obtain written acceptance from the Owner, or Owner’s Representative.

C. Contractor shall agree to repair or replace defective components/materials and correct defective work when given notice by Owner during the warranty period.

D. Damage caused to completed work done by others shall be replaced or repaired by the contractor.

E. Effect replacement or substitutions of equipment within 1 week upon receipt of warranty request from Owner during normal working hours.

F. Manufacturers of the major system components shall maintain a replacement parts department and provide testing equipment when needed. Provide complete replacement parts within one business day during the warranty period.

1.9 OPERATION AND MAINTENANCE DATA

A. Contract closeout information:
   1. As indicated in each Division 27 section.

B. Record drawings:
   1. Keep a complete set of all electronic systems drawings in job site office for showing actual installation of electronic systems and equipment. Drawings shall show exact location of devices, equipment and routing of conduit and cable.
   2. Use this set of drawings for no other purpose.
   3. Where any material, equipment, or system components are installed differently from that shown, indicate differences clearly and neatly using ink or indelible pencil during construction.
   4. At project completion, update shop drawings with a notated revision to reflect all As-Built changes and submit final record set of drawings to A/E for approval.
   5. Upon A/E approval, provide (2) hard copies and (2) PDF on USB digital copies to A/E for distribution to the Owner.

C. At the time of final inspection, provide four sets of complete data on communication equipment used in this project. This data shall be in bound form and shall include all shop drawings required for this project.

D. Operation and Maintenance Manuals:
   1. Table of Contents in the form of the Bill of Materials provided as defined by each Division 27 section.
   2. Data sheets for each device as indicated in each Division 27 section and as indicated herein.
   3. Where multiple options are shown on a single data sheet, highlight product options that will be provided and strikethrough options that are not applicable or otherwise specifically identify all options/features to be included in the project.
   4. Stamp each data sheet with its associated specification section reference.
   5. Following each data sheet provide its corresponding Operation and Maintenance technical manual.
   6. Description of system operation indicating overall system operation and purpose and capabilities of each component within system.
   7. Cross reference data sheets to components shown on system/riser diagrams.
   8. Provide (2) colored, tabbed, hard copies in 3-ring binders, and (2) PDF on USB colored, digitally tabbed, digital copies.

E. All Operation and Maintenance Data shall include "record drawing" system interconnection diagrams with major components identified and number and type of interconnecting conductors. Submit two copies and one sepia of each record drawing.
   1. Floor plan drawings shall be provided showing location of equipment and routing of conduit and cable.

F. Maintenance and operating instructions on all systems.

G. Certification from system manufacturers that systems are installed in accordance with manufacturer's recommendations and are functioning correctly at the time of final inspection.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Acceptable manufacturers:
   1. Individual items:
      a. Base: As noted in each Division 27 section.
      b. Optional: As noted in each Division 27 section.
   2. Other manufacturers desiring approval comply with General Conditions.

B. Use only prime quality, new materials, apparatus and equipment.

C. Use UL labeled electrical materials where listing has been established for materials or devices in question.

D. Structural steel for supports: ASTM-A36/A36M.
   1. Galvanize members installed in areas of high humidity or condensation.
   2. Furnish other members with shop coat of rust inhibiting primer.
   3. Shop fabricate for field assembly using bolts.
   4. Minimize field welding.
   5. Retouch primer and galvanizing after field welding.

2.2 EXTRA MATERIALS

A. Furnish spare parts required in each Division 27 section.

B. All spare parts shall be new and in original packaging from manufacturer.

C. Insure parts are package to protect from damage and to allow for easy storage.

D. Provide inventory of all spare parts.

2.3 WEATHER PROOF EQUIPMENT

A. Use weatherproof (WP) enclosures for all exterior devices and equipment.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use only thorough, highly skilled, and experienced workers.

B. When changes in location of any work are required, obtain approval of Architect/Engineer prior to making change.
   1. Make changes at no extra cost to Owner.

C. Provide access panels in any area where equipment is located which requires accessibility for service and/or maintenance

D. Do not change indicated sizes or configuration without written approval of Architect/Engineer.

E. Provide copper communications cables, etc., for the work of this division.

F. Deliver materials and equipment to project and store in original containers or cartons, properly protected from elements.

G. Store items subject to moisture or temperature damage in dry, temperature controlled spaces.

H. Execute all work described in this specification and shown on drawings and all work dependent upon, and necessary to, complete finish of the work so described or shown, in a workmanlike manner using materials best adapted to purposes where such work or material is not specifically mentioned.

3.2 CUTTING AND PATCHING

A. Provide cutting, fitting, repairing, patching and finishing of installed work.
   1. Include installed work of other sections where it is necessary to disturb such work to permit installation of electronic systems work.
   2. Repair or replace existing or new work disturbed.

B. Avoid cutting, where possible, by setting sleeves or frames, and by requesting openings in advance.

C. Before cutting, obtain approval of Architect/Engineer.
   1. Use only approved methods.
   2. Cut all holes neatly and as small as possible to admit work.
   3. Do not weaken walls or floors; locate holes in concrete to miss structural sections.

D. Locate openings and sleeves to permit neat installation of conduits and equipment.

E. Do not remove or damage fireproofing materials.
   1. Install hangers, inserts, supports, and anchors prior to installation of fireproofing.
   2. Repair or replace fireproofing removed or damaged, at no extra cost.

3.3 COORDINATION

A. General:
   1. Coordinate the work associated within these project documents for coordination with existing conditions.
   2. Verify all field conditions.
   3. Positioning Members: Provide additional support or positioning members as required for the proper installation and operation of equipment, materials and devices provided as part of this work as approved by the Architect or Owner without additional expense.
   4. Interface Devices: Provide all items necessary to complete this work in conformance with the Contract Documents or the satisfaction of the Owner without any additional expense.

3.4 INSTALLATION OF EQUIPMENT

A. Install all equipment in accord with manufacturer's recommendations.

B. Provide all necessary anchoring devices and supports.
   1. Use structural supports suitable for equipment.
   2. Check loadings and dimensions of equipment with shop drawings.
   3. Do not cut, or weld to, building structural members.

C. Verify that equipment will fit support layouts indicated.
   1. Where substitute equipment is used, revise indicated supports to fit at no additional cost.

D. Arrange for necessary openings to allow entry of equipment.
   1. Where equipment cannot be installed as structure is being erected, provide and arrange for building-in of boxes, sleeves or other devices to allow later installation.

E. Install equipment to permit easy access for normal maintenance.
   1. Maintain easy access to switches, pull boxes, panels, receptacles, etc.
   2. Relocate items which interfere with access.

3.5 WIRING

A. All cable and wire:
   1. Standard type available from more than one cable manufacturer.
   2. Manufacturer and installer are responsible for system performance.

B. All cabling, wiring, conduits/raceways and equipment housings: In strict accordance with recommendations of equipment manufacturer; finish and color of all face plates as directed by Architect/Engineer.

C. Furnish and install all wiring and cable for communications systems, and perform all connections and equipment terminations.
   1. Check each cabling system run thoroughly for opens, shorts, faults, and other discontinuities.
   2. Test each system receptacle for continuity, ground condition, and voltage level prior to allowing plug-in of system equipment.
   3. All conductors from outgoing terminal blocks in control consoles, panels and/or systems equipment cabinets to devices controlled to be continuous.
      a. No splicing of conductors allowed.
   4. Field device terminations to be per manufacturer's requirements.
      a. Conductor to conductor connections to be fully insulated crimp on male/female tab type or pin and sleeve type.
      b. No conical spring connectors to be used.

D. Boxes: Provide a 6 inch loop for all wire and cable routed through pull boxes or distribution panels. Cable loops and bends shall not be at a radius smaller than that recommended by the manufacturer. Enlarge pull boxes as necessary to accommodate this requirement.

3.6 FIELD QUALITY CONTROL

A. Perform indicated tests to demonstrate workmanship, operation, and performance.
   1. Conduct tests in presence of Architect/Engineer, Owner and, if required inspectors of agencies having jurisdiction.
   2. Arrange date of tests in advance with Architect/Engineer, manufacturer and installer.
   3. Give minimum of 1 week notice to all inspectors.
   4. Furnish or arrange for use of electrical energy, steam, water, diesel fuel, or gas required for tests.

B. Repair or replace equipment and systems found inoperative or defective and retest.
   1. If equipment or system fails retest, replace it with products conforming to Contract Documents.
   2. Continue remedial measures and retests until satisfactory results are obtained.

C. Test equipment and systems as indicated for each item, unless otherwise recommended by manufacturer.

3.7 ADJUST AND CLEAN

A. Inspect all equipment and put in good working order.

B. Clean all exposed and concealed items.

C. All equipment shall be clean and dust free.

3.8 DEVICE MOUNTING SCHEDULE

A. Dimensions are to center of device unless otherwise indicated..

3.9 LABELING

A. Labeling:
   1. All labeling shall be in accordance with Tom Green County IT Standards. Coordinate all system labeling with Tom Green County IT Group.

END OF SECTION

SECTION 27 05 28
COMMUNICATIONS SYSTEMS - RACEWAY/CABLE TRAY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Requirements of Drawings, General and Supplementary Conditions, Divisions 00 and 01 apply to this section.

1.2 SUMMARY

A. Related Sections:
   1. Basic Materials & Methods for Communications Systems: Section 27 05 00.
   2. Communications Systems – Structured Cabling: Section 27 10 00.

1.3 SUBMITTALS (SEE SECTION 27 05 00)

A. Product data:
   1. Horizontal cable distribution systems to include cut sheets of all required components.
   2. Load test reports.

B. Project drawings:
   1. Floor plan layouts of proposed cable pathways from devices to existing area IT rooms.
   2. Component installation details.

1.4 WARRANTY (SEE SECTION 27 05 00)

1.5 OPERATING AND MAINTENANCE DATA (SEE SECTION 27 05 00)

1.6 QUALITY ASSURANCE (SEE SECTION 27 05 00)

A. System standards:
   1. NFPA-70 – National Electrical Code (NEC).
   2. TIA/EIA-568-B – Commercial Building Telecommunications Cabling Standard
   3. TIA/EIA-569-A – Commercial Building Standard for Telecom Pathways and Spaces
   4. TIA/EIA-606 – Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
   5. TIA/EIA-607 – Commercial Building Grounding/Bonding Requirements
   6. IEC 61537 – Cable Tray Systems and Cable Ladder Systems for Cable Management
   7. NEMA VE 1-Latest Edition – Metal Cable Tray Systems
   8. NEMA VE 2-Latest Edition – Cable Tray Installation Guidelines

PART 2 - PRODUCTS

2.1 GENERAL

A. The following communications raceway systems shall be utilized within the facility for the purpose of distribution of system cabling for systems described within Section 1.2.
   1. Cable Support System: All cable not installed within existing conduit/raceway or a designated cable tray system shall be installed within a dedicated cable support system for the entire run of each cable to include, but not limited to, service loops. Open top cable supports shall be utilized as a pathway for all communications cabling. The “J Hook” type cable supports shall be manufactured from a non-conductive material suitable for use in air-handling spaces. The cable support must maintain complete horizontal and vertical 1” bend radius and must manage up to 50 - 4 pair UTP cables (minimum) per hook. The system

must allow for the ability to add 20% future cable routing capacity. J-Hook cable supports shall not be overloaded based on manufacturer recommendations. Installing contractor shall provide installation weight calculations to ensure cable weights do not exceed rating of J-Hook supports.

2. Cable Tray Distribution System: All new cabling not provided with existing pathway from existing outlet location back to area IT room shall be routed from existing outlet location to cable tray distribution system via cable support system. Cable tray shall be a minimum of 4 IN deep, 12 IN wide and have a minimum of 12 IN working clearance around the top and sides of the cable tray. Cable tray shall be provided as identified on contract drawings.
3. Conduit: All telecommunications cabling routed above any hard ceiling from each existing area telephone/data outlets to area cable tray/local communications room shall be installed within conduit suitable for the installed location and sized for the cabling to be installed per NEC requirements.

MATERIALS

A. Conduit:
   1. EMT conduit sized per NEC for cables installed in locations requiring conduit pathways.
   2. Conduit Fittings: As required for conduit runs. Use factory sweep bends for 90 degree bends.

B. Cable Support System:
   1. Acceptable manufacturers:
      a. Base:
         1) Panduit “J Mod” System.
         2) Erico “CableCat” System.
         3) Cooper B-Line Systems Inc.Husky Products.
      b. Other manufacturers desiring approval comply with Division 01.
   2. The cable support system shall be attached directly to the building steel at a serviceable height. In the event the building steel is not within 5 feet of the finished ceiling, the contractor shall provide a dedicated threaded rod extending to within 5 feet of the finished ceiling and mount the J-Hook to the threaded rod by utilizing approved manufacturers assemblies.
   3. J-Hook cable assemblies shall be installed at a maximum distance of 4 feet on center for the entire cable run. Cable support assemblies shall be sized to insure weight of installed cabling does not exceed J-Hook manufacturers weight limits.
   4. All cable installed shall be attached to the J-Hook assembly by means of plenum rated Velcro cable tie. Plenum rated Velcro cable ties shall also be installed between each J-Hook assembly to keep cables neatly bundled throughout entire length of run.
   5. Absolutely no communications cabling, not installed in conduit/cable tray, shall be allowed to be attached directly to the buildings steel or supported in any other method than that stated above.
   6. Communications subcontractor shall coordinate with all other trades on the project to insure that the pathway of the cable support system does not interfere with the installation of other trades and to prevent the installed product of other trades from putting strain on the installed communications cabling. All cable support systems shall be installed to insure access to cable support system for future cable installation.

C. Horizontal Distribution System (Cable Tray) – Floor Areas:
   1. Acceptable manufacturers:
      a. Base:
         1) Globe.
         2) Cope, TJ/Aickinstrut.
         3) Unistrut.
         4) Husky Products.
         5) B-Line Systems Inc.
         6) P W Industries.

7) Chalfant Cable Trays.
8) Mono-Systems.
9) Wiremold.

b. Other manufacturers desiring approval comply with Division 01.

2. Fabrication: Ladder type consisting of two longitudinal members (side rails) with transverse members (rungs) welded to side rails.
   a. A standard 12 FT long straight section shall be capable of carrying 75 lbs/FT. (NEMA Class 12B). Longer and shorter sections of tray shall have same gauge and construction as 12 FT lengths of tray.
   b. Rungs shall have minimum cable-bearing surface of 7/8 inch with radius edges. No portion of the rungs shall protrude below the bottom plane of side rails. Each rung must be capable of supporting maximum cable load, with a safety factor of 1.5 and a 200 pound concentrated load when tested in accordance with NEMA VE-1, section 5.4.
   c. Rungs shall be spaced 6 IN on center.
   d. Aluminum:
      1) Straight section and fitting side rails and rungs shall be extruded from Aluminum Association Alloy 6063. All fabricated parts shall be made from Aluminum Association Alloy 5052.
      2) Resistance of fixed splice connections between adjacent sections of tray shall not exceed .00033 ohms. Splice plate construction shall be such that a splice may be located anywhere within the support span without diminishing rated loading capacity of cable tray. Splice plates shall be bolted type as follows:
         a) Splice plates shall be made of 6063-T6 aluminum, using four square neck carriage bolts and serrated flange locknuts. Hardware shall be zinc plated in accordance with ASTM B633, SC1. If aluminum cable tray is to be used outdoors then hardware shall be Type 316 stainless.
   e. Tray shall have 4 inch minimum usable load depth, or as noted on the drawing.
   f. Tray width: 12 IN minimum or as noted on the drawing.
   g. Allow no sharp edges protruding inward or outward from tray to damage cables or injure workmen.
   h. Provide with full width top opening, complete with all required cable drop-outs, fitting, supports, and vertical covers for a continuous system.
   i. Conform to requirements of NEMA Standard.
   j. Install and ground in accordance with NEC.
   k. Bond all trays with common cabling that are not directly connected together with a minimum number 6 AWG green insulated conductor.
   l. Bond trays directly to cabling source feed equipment or rack with minimum number 8 AWG green insulated conductor.
   m. Where public address cabling and similar speaker level audio system cabling is installed in cable tray provide barriers to separate from other cables.

PART 3 - EXECUTION

3.1 INSTALLATION – GENERAL

A. If pathways are installed above an inaccessible ceiling at distances greater than 15 feet provide access panels:
   1. Locate access panels directly under pathway or within 12 IN of the pathway area at 10 FT on center.
   2. If access panels are more than 1 FT from the edge of pathway locate so that entire length of pathway is within 3 FT of an access panel.
   3. Provide access panel within 1 FT of any 45 degree or greater bend in the pathway.

B. Cable Tray:
   1. Provide approved supports for cable tray supports attached to walls.

2. Accessories shall be furnished as required to protect, support and install cable tray system and shall consist of but are not limited to; section splice plates, expansion plates, blind-end plates, specially designed ladder dropouts, barriers, etc.
3. Support all cable tray systems from building structure or walls with approved hangers.
   a. Do not support from piping, ducts or support systems for piping or ducts.
   b. Do not install to prevent ready removal of equipment, piping, ducts or ceiling tiles.
   c. Do not support from ceiling or ceiling support systems.
4. Support cable trays within 1 FT of any change of direction of 45 degrees or greater.

C. Cable Support System:
1. If a J- Hook type system is used to support cable bundles, all horizontal cables shall be supported at a maximum of 48 IN (1.2 meter) intervals. At no point shall the cables rest on light fixtures, acoustic ceiling grids, panels, conduits, sprinkler pipe, water pipe and/or HVAC system ducting.
2. Horizontal distribution cables shall be bundled in groups of no more than 50 cables when being supported by J-Hook system. Cable bundle quantities in excess of 50 cables may cause deformation of the bottom cables within the bundle and degrade cable performance.
3. Cable shall be installed above fire-sprinkler systems and shall not be attached to the system or any ancillary equipment or hardware. The cable system and support hardware shall be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.
4. Cables shall not be attached to ceiling grid or lighting fixture wires. Where support for horizontal cable is required, install appropriate carriers to support the cabling.

D. Provide listed fire/smoke stop assembly/system where pathway systems penetrate fire/smoke rated walls.

3.2 TESTING

A. Test pathway systems to ensure electrical continuity of bonding and grounding connections.

B. Manufacturer shall provide test reports witnessed by an independent testing laboratory of "worst case" loading conditions outlined in this specification and performed in accordance with latest revision of NEMA VE-1.

END OF SECTION

SECTION 27 10 00
COMMUNICATIONS SYSTEMS - STRUCTURED CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Requirements of Drawings, General and Supplementary Conditions, Divisions 00 and 01 apply to this section.

1.2 SUMMARY

A. Furnish all labor, materials, tools, installation, and test equipment required to provide a complete and operational Structured Cabling System.

B. Contractor shall be responsible for demo, removal and disposal of all existing data and telephone cabling as a requirement of the project scope of work.

C. References:
1. EIA/ECA-310-E - Racks, Panels, and Associated Equipment, 2005.
2. National Fire Protection Association (NFPA – 70), National Electrical Code (NEC), 2014.
3. ANSI/TIA-568-D – Generic Telecommunications Cabling for Customer Premises, 2015.
4. ANSI/TIA-569-D Telecommunications Pathways and Spaces, 2015.
5. ANSI/TIA-606-B Administration Standard for Telecommunications Infrastructure, 2012.
6. ANSI/TIA-607-B – Generic Telecommunications Bonding and grounding (Earthing) for Customer Premises, 2011.
7. ANSI/TIA-758-B - Customer-Owned Outside Plant Telecommunications Infrastructure Standard, 2012.
8. UL 444 – Communications Cables, 2008.
9. UL 1666 - Standard for Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts, 2007.
10. UL 1778 Uninterruptible Power Systems.

D. Related Sections:
1. Basic Materials & Methods for Communications Systems: Section 27 05 00.
2. Communications Systems – Raceway/Cable Tray: Section 27 05 28.

1.3 SUBMITTALS (SEE SECTION 27 05 00)

A. Shop drawings:
1. Complete wiring diagrams of components.
2. No submittal review will be conducted until receipt of certification.

1.4 WARRANTY (SEE SECTION 27 05 00)

1.5 OPERATING AND MAINTENANCE DATA (SEE SECTION 27 05 00)

1.6 QUALITY ASSURANCE (SEE SECTION 27 05 00)

1.7 EXTRA MATERIALS (SEE SECTION 27 05 00)

A. Deliver spare parts in protective wrapping and packaging for proper storage.

PART 2 - PRODUCTS

2.1 GENERAL

A. All communications components installed on this project will be UL or third party certified.

B. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations, submit proof of such compliance.

C. The label or listing by the specified organization will be acceptable evidence of compliance.

D. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by Tom Green County IT group. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

E. Provide a complete system of telecommunications cabling and pathway components using star topology.

F. Provide support structures and pathways, complete with outlets, cables, connecting hardware and telecommunications cabinets/racks.

G. Cabling and interconnecting hardware and components for telecommunications systems shall be UL listed or third party independent testing laboratory certified, and shall comply with NFPA 70 and conform to the requirements specified herein.

H. Provide connecting hardware and termination equipment in the MDF/IDF Equipment Rooms to facilitate installation as shown on design drawings for terminating and interconnecting permanent cabling.

I. Provide telecommunications interconnecting hardware color coding in accordance with ANSI/TIA/EIA-606-A.

J. Facility shall be provided with color-coded components per floor. Color-coding requirements shall include all cabling and cable inserts at both faceplate and patch panel locations. Color coding shall be as follows:
   a. Lower Level – White
   b. First Floor – Blue
   c. Second Floor - Orange
   d. Third Floor - Green

2.2 TELECOMMUNICATIONS CABLING

A. Cabling shall be UL listed for the application and shall comply with ANSI/TIA-568-D, and NFPA 70.

B. Provide a labeling system for cabling as required by ANSI/TIA-606-B and UL 969.

C. Ship cable on reels or in boxes bearing manufacture date for UTP in accordance with ICEA S-102-700 and optical fiber cables in accordance with ICEA S-83-596 for all cable used on this project.

D. Cabling manufactured more than 12 months prior to date of installation shall not be used.

2.3 HORIZONTAL CABLING

A. Provide Category 6 Unshielded Twisted Pair (UTP) horizontal copper cable in accordance with NFPA 70, ANSI/TIA-568-D, UL 444, UL 1666, NEMA WC 66, 100 ohm.

B. Provide four each individually twisted pair, solid annealed copper conductors with a UL Listed CMP UL 1666 flame retardant jacket.

C. Minimal compliant CAT-6 (UTP) cable shall not be used.

D. All project related Cat. 6 horizontal cabling shall be provided with a "color-coded" jacket as identified per facility cable color scheme.

E. Cable shall be imprinted with manufacturers name or identifier, flammability rating, gauge of conductor, transmission performance rating (category designation) at regular intervals not to exceed 1 m.

F. Provide all communications cabling rated (CMP) rated cabling in accordance with NFPA 70.

2.4 CAT-6 COPPER PATCH PANELS

A. Provide ports for the number of horizontal cables terminated on the panel plus 25 percent spare.

B. Cat-6 UTP Copper Patch Panel
   1. Provide Category 6 UTP "angled" patch panels in 24 and 48 port configurations for copper communications cable termination.
   2. Patch panels shall consist of eight-position RJ-45 modular jacks in six-port modules on front and 110-style insulation displacement connectors on the rear.
   3. The jack pin/pair configuration shall be T568B per ANSI/TIA-568-D.
   4. The modular jacks shall conform to the requirements of ANSI/TIA-568-D and shall be rated for use with the installed cable plant.
   5. Provide a minimum spare capacity of 25 percent in the installed patch panels.
   6. All copper patch panels shall include (1) rear cable management bar for per every 24 ports.
   7. Patch panels shall include silk screened port numbers and paper label holders.
   8. Patch panels shall be tested and verified by Intertek (ETL) to meet all ANSI/TIA component and permanent link requirements.
   9. All patch panels shall be RoHS compliant.

2.5 COPPER CATEGORY 6 UTP CONNECTORS

A. Copper Category 6 UTP Connectors shall comply with FCC Part 68, and ANSI/TIA-568-D.

B. UTP outlet/connectors shall be UL 1863 listed, non-keyed, 8-pin modular, constructed of high impact rated thermoplastic housing with spring wire contacts which are high quality copper-based alloy, plated with 50 micro-inches of gold over 100 micro-inches of nickel.

C. Copper connectors shall be third party verified and shall meet or exceed the requirements for channel and component-level performance described in ANSI/TIA-568-D Category 6 UTP requirements.

D. The modular connector shall be individual snap-in style and outlet/connectors shall be terminated using a Type 110 gas-tight insulation displacement connectors (IDC) to help prevent corrosion applicable of terminating 26-22 AWG solid conductors.

E. Connectors shall be color-coded for both T568A and T568B wiring.

F. The connector shall provide a ledge directly adjacent to the 110-style termination against which the wires can be terminated and cut in one action by the installation craftsperson.

G. Each outlet/connector at Tom Green County Courthouse Building shall be wired T568B.

H. UTP outlet/connectors shall comply with ANSI/TIA-568-D for 200 mating cycles.

2.6 FACEPLATES

A. Telecommunications cover plates shall comply with UL 514C, FCC Part 68, ANSI/TIA-568-D; flush design constructed of high impact fire-retardant plastic rated UL 94V-0, and be UL Listed.

B. The cover plate thermoplastic material.

C. The cover plate housing shall be a one-piece, single-gang flush mount style that fits standard NEMA openings.

D. It shall provide 4 ports.

E. Cover plates shall include station ID designation windows for each wall plate. Coordinate all faceplate labeling with Tom Green County IT Group.

2.7 COPPER PATCH CORDS

A. Provide one ETL verified category 6 UTP copper cable assembly for each copper wired port in all MDF/IDF rooms for this project.

B. Copper assemblies shall be factory constructed of 4-pair 24 AWG stranded copper with RJ-45 plugs and be component rated to cat-6 standards with over molded boot to provide tab protection.

C. Copper assemblies shall be manufactured by the same manufacturer as termination hardware.

D. Field terminated patch cords shall not be allowed.

E. Copper assemblies shall only be provided for DR connections.

F. Work area assemblies shall be GFGI.

G. Copper cable assemblies shall be provided in the in the following lengths:
   1. 1 Meter - 25 percent of total copper cable assemblies supplied.
   2. 2 Meter - 50 percent of total copper cable assemblies supplied.
   3. 3 Meter - 25 percent of total copper cable assemblies supplied.

2.8 FIBER OPTIC ASSEMBLIES

A. Contractor shall supply factory assembled pre-connectorized cable assembly with LC type to interface with the patch panel bulkhead feed-through receptacle.

B. Each fiber optic cable assembly shall be comprised of a duplex LC fiber connector terminated a duplex single mode zip cord cable.

C. One duplex fiber optic cable assembly shall be supplied for each pair of fiber optic strands installed as part of this project.

D. Return loss for single mode connectors shall be a minimum of minus 55dB.

E. Connector/cable interface on single-mode cable assemblies shall be able to withstand a tensile force of 25 pounds without detrimental effects on the connector loss characteristics.

F. Each connectorized cable assembly shall have a loss of less than or equal to 0.3 dB.

G. Fiber optic cable assemblies shall be provided in the following lengths:
   1. 1 Meter - 25 percent of total fiber optic assemblies supplied.
   2. 2 Meter - 50 percent of total fiber optic assemblies supplied.
   3. 3 Meter - 25 percent of total fiber optic assemblies supplied.

2.9 FIRESTOPPING MATERIAL

A. Cables passing through fire-rated floors or walls shall pass through fire-rated wiring devices similar to STI EZ-Path cabling sleeves.

B. The device (per code requirements) shall include both internal and external firestopping.

C. Cables penetrating through fire-rated floors or walls shall utilize fire-rated pathway devices similar to Hilti Speed Sleeves.

2.10 LABELING MATERIALS

A. All communications components installed as part of this project shall be labeled in accordance with ANSI/TIA/EIA-606-A.

B. All labels shall meet the visibility and durability requirements of ANSI/TIA/EIA-606-A and be pre-printed or laser printed.

C. Hand written labels are not acceptable.

D. Labels shall have white printing area and black print.

E. Labels shall be made with industrial adhesives that resist dirt and oil and have a split backing for easy removal.

F. Labels shall be constructed of materials pursuant to labeling application as follows:
   1. Flexible Nylon: shall be used for curved surfaces (wire and cable) and rough surfaces for indoor applications flexible nylon memory resistant material shall be used.
   2. Permanent Polyester Labels: Shall be used for flat surfaces permanent polyester.
   3. Vinyl: Shall be used for outdoor applications.
   4. Non-adhesive Polypropylene: May be used for ID window labels and magnifier label holders.

G. Coordinate all labeling requirements (components/cabling) for the communications systems on this project with Tom Green County IT Group.

PART 3 - EXECUTION

3.1 INSTALLATION (SEE SECTION 27 05 00)

A. Install telecommunications cabling and pathway systems, including the horizontal and backbone cable, pathway systems, telecommunications outlet/connector assemblies, and associated hardware in accordance with ANSI/TIA-568-D, ANSI/TIA-569-D, NFPA 70, and UL standards as applicable.

B. Provide cabling in a star topology network.

C. Install telecommunications cabling with copper media in accordance with the following criteria to avoid potential electromagnetic interference between power and telecommunications equipment.

D. The interference ceiling shall not exceed 3.0 volts per meter measured over the usable bandwidth of the telecommunications cabling.

E. Cabling shall be run with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.

3.2 HORIZONTAL CABLING

A. Install Category 6 UTP and optical fiber telecommunications cabling system as detailed in ANSI/TIA-568-D.

B. Install horizontal cabling as indicated on drawings between the building MDF/IDF’s and the telecommunications outlet assemblies at workstations.

C. Screw terminals shall not be used except where specifically indicated on plans.

D. Use an approved insulation displacement connection (IDC) tool kit for copper cable terminations.

E. Do not untwist Category 6 UTP cables more than one half inch from the point of termination to maintain cable geometry.

F. Provide service loop on each end of the cable, 10ft in the telecommunications room, and 12in in the work area outlet.

G. Do not exceed manufacturers' cable pull tensions for copper and optical fiber cables.

H. Provide a device to monitor cable pull tensions.

I. Do not exceed 25lbs pull tension for four pair copper cables.

J. Do not chafe or damage outer jacket materials.

K. Use only lubricants approved by cable manufacturer.

L. Do not over cinch cables, or crush cables with staples.

M. For horizontal 4 pair UTP cable, bend radii shall not be less than four times the cable diameter.

N. All cables shall be terminated; no cable shall contain unterminated elements.

O. Horizontal cables shall not be spliced.

P. Label all systems in accordance with ANSI/TIA/EIA-606-A and paragraph LABELING in this section.

3.3 COPPER PATCH PANELS

A. Patch panels shall be mounted in equipment cabinets and racks with sufficient ports to accommodate the installed cable plant plus 25 percent spares.

B. Copper cable entering a patch panel shall be secured to the panel as recommended by the manufacturer by means of strain relief bars to prevent movement of the cable.

3.4 LABELING

A. Provide labeling for all communications system components in accordance with ANSI/TIA/EIA-606-A.

B. Handwritten labeling is unacceptable.

C. Stenciled lettering for voice and data circuits shall be provided using thermal ink transfer process.

D. Pathways
   1. Label pathways using the recommended identifiers shown in Annex B of the ANSI/TIA/EIA-606-A Administration.
   2. Pathways shall be marked at each endpoint and at all intermediate pull or junction boxes.
   3. In the case of partitioned pathways (i.e. innerduct) each partition shall have a unique identifier.
   4. Pathway label shall be adhesive type labels.

E. Horizontal Cable
   1. Cables shall be labeled using color labels on both ends with identifiers in accordance with ANSI/TIA/EIA-606-A.
   2. Horizontal cables shall be marked at each end, on the sheath indicating DR, patch panel and panel port to which cable is wired.

F. Patch Panels
   1. All patch panel connections shall be labeled using color coded labels with identifiers in accordance with ANSI/TIA/EIA-606-A.
   2. Patch panels shall be labeled with an identifier and all individual ports shall be labeled with an identifier.
   3. Patch panels ports may be labeled with adhesive type labels or non-adhesive type labels may be used in the panel clear label strip.

G. Faceplates
   1. All work area outlet faceplate labels shall indicate the horizontal link identifier for each cable that it houses.
   2. For faceplates that use clear plastic cover strips a non-adhesive tag may be used.

H. Firestopping
   1. Each firestopping location shall be labeled at each location where firestopping is installed, on each side of the penetrated fire barrier, within 300 mm (12 in.) of the firestopping material.

I. Coordinate all labeling requirements (components/cabling) for the communications systems on this project with Tom Green County IT Group.

3.5 TESTING

A. General
   1. Perform telecommunications cabling inspection, verification, and performance tests in accordance with ANSI/TIA-568-D.
   2. Perform optical fiber field inspection tests via attenuation measurements on factory reels and provide results along with manufacturer certification for factory reel tests.
   3. Remove failed cable reels from project site upon attenuation test failure.

B. Inspection
   1. Visually inspect CAT 6 UTP and optical fiber jacket materials for UL or third party certification markings.
   2. Inspect cabling terminations in telecommunications rooms and at workstations to confirm color code for T568B pin assignments, and inspect cabling connections to confirm compliance with ANSI/TIA-568-D, ANSI/TIA-568-D.
   3. Visually confirm Category 6 UTP marking of outlets, cover plates, outlet/connectors, and patch panels.

C. Performance Tests
   1. Cat-6 UTP
      a. Perform Category 6 link tests in accordance with ANSI/TIA-568-D.
      b. Tests shall include wire map, length, insertion loss, NEXT, PSNEXT, ELFEXT, PSELFEXT, return loss, propagation delay, and delay skew.

END OF SECTION

TELECOMMUNICATIONS WIRED INFRASTRUCTURE

PATHWAYS AND CABLE

TYPICAL OUTLET SYMBOL NOTES

"-" -MOUNTED 4" ABOVE COUNTER, CASEWORK, BACKSLASH OR 48" IF NOTHING BELOW. COORDINATE WITH ARCHITECTURAL DETAILS AND CASEWORK CONTRACTOR.

"-xx" -INDICATES MOUNTING HEIGHT ABOVE FINISHED FLOOR.

NOTES

1. OUTLETS LOCATED AT COUNTERS SHALL BE LOCATED 18" AFF IN KNEE SPACE IF PROVIDED OR 4" ABOVE COUNTER OR BACK SPLASH AS APPLICABLE IF NO KNEE SPACE IS PROVIDED U.O.N.
2. # = SUBSCRIPT TO INDICATE NEW CABLE COUNTS ASSOCIATED WITH EXISTING DEVICE LOCATIONS. REFER TO DESIGNATIONS LISTED BELOW OR PROJECT DETAILS FOR OUTLET FACEPLATE CONFIGURATION(S).
3. ALL CAT-6 CABLING SHALL HAVE COLOR CODED JACKET BASED ON FLOOR LEVEL INSTALLATION.
   COLOR CODE AS FOLLOWS:
   - LOWER LEVEL - WHITE
   - FIRST FLOOR - BLUE
   - SECOND FLOOR - ORANGE
   - THIRD FLOOR - GREEN
4. ROUTE NEW TELECOM CABLING FROM EXISTING DEVICE LOCATIONS TO AREA IDF ROOM VIA EXISTING SYSTEM PATHWAYS AND/OR HORIZONTAL DISTRIBUTION SYSTEM CABLE TRAY.
5. ALL DOUBLE GANG BACK BOXES SHALL HAVE A DOUBLE GANG FACEPLATE.

VOICE/DATA OUTLET - ROUTE (#) CAT-6 CABLES TO DESIGNATED AREA IT ROOM.

EXISTING WIRELESS ACCESS POINT - ROUTE (2) CAT-6 CABLE TO DESIGNATED AREA IT ROOM. EXISTING OUTLET BOX MOUNTED ABOVE FINISHED CEILING.

NEW WIRELESS ACCESS POINT - ROUTE (2) CAT-6 CABLE TO DESIGNATED AREA IT ROOM. OUTLET BOX MOUNTED ABOVE FINISHED CEILING.

N

VOICE/DATA FLOOR OUTLET - ROUTE (#) CAT-6 CABLES TO DESIGNATED AREA IT ROOM. FLOOR OUTLET SHALL BE LEGRAND MODEL # 8ATC2P SERIES.

ABBREVIATIONS

A, AMP	AMPERES
AF	AMP FUSE OR AMP FRAME
AFC	AVAILABLE FAULT CURRENT (SYMMETRICAL)
AFF	ABOVE FINISHED FLOOR
AIC	AMPERE INTERRUPTING CAPACITY
AM	AMMETER
AS	AMP SWITCH OR AMMETER SWITCH
ASYM	ASYMMETRICAL
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BOF	BOTTOM OF FIXTURE
B.S.C	BARE STRANDED COPPER CONDUCTOR
C	CONDUIT
CAP	CAPACITY OR CAPACITOR
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT, CCT	CIRCUIT
CL	CURRENT LIMITING
C.O.	CONDUIT ONLY
CONN	CONNECT OR CONNECTION
CU	COPPER
DA	DURESS ALARM
DB	DOOR BELL
DISC	DISCONNECT
DPST	DOUBLE POLE SINGLE THROW
EC	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATION OR ELEVATOR
EMERG, EM	EMERGENCY
EPO	EMERGENCY POWER OFF
EMT	ELECTRICAL METAL TUBING
EG	ENGINE GENERATOR
FDR	FEEDER
FIXT	FIXTURE
FLA	FULL LOAD AMPERES
FLUOR	FLUORESCENT
GRC,GCR	GALVANIZED RIGID CONDUIT
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI,GF	GROUND FAULT INTERRUPTER
GRD,GND,G	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
IG	ISOLATED GROUND
INCAND	INCANDESCENT
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY
KS	KEY SWITCH
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	MANHOLE, METAL HALIDE OR MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NF	NON FUSIBLE
NL	NIGHT LIGHT
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OCP	OVER CURRENT PROTECTION
OFOI	OWNER FURNISHED / OWNER INSTALLED
OL	OVERLOADS
P	POLE
PB	PULLBOX
PH OR Ø	PHASE
PNL	PANEL
POC	POINT OF CONNECTION
PR	PAIR
PVC	POLYVINYL CHLORIDE
PWR	POWER
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RX	REQUEST TO EXIT
SOL	SOLENOID
SPTD	SINGLE POLE DOUBLE THROW
SPKR	SPEAKER
SPST	SINGLE POLE SINGLE THROW
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
TEL	TELEPHONE
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TRANSF	TRANSFORMER
TTB	TELEPHONE TERMINAL BACKBOARD
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERES
VD	VOLTAGE DROP
VM	VOLT METER
VS	VOLT METER SWITCH
W	WATTS OR WIRE
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFORM	TRANSFORMER
XP	EXPLOSION PROOF

GENERAL NOTES

1. FIRE SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS & SLABS. SEAL FIRE RATING SHALL BE EQUAL TO OR GREATER THAN THE FIRE RATING OF THE WALL OR SLAB THROUGH WHICH THE CONDUIT PASSES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS PRIOR TO BIDDING AND INSTALLATION.

GENERAL LOW VOLTAGE NOTES

1. DRAWINGS FOR THIS WORK ARE DIAGRAMMATIC ONLY, INTENDED TO CONVEY THE EXTENT, GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS CONDUIT FITTINGS, ACCESS PANELS, CABINET SIZES, SLEEVES, PULL BOXES, BACKBOXES, AND JUNCTION BOXES MAY NOT BE SHOWN. INCLUDE ALL ITEMS WHERE REQUIRED BY CODE, OTHER SECTIONS, AND FOR PROPER INSTALLATION OF THE WORK.
2. DO NOT SCALE ANY DRAWINGS. DIMENSIONS TAKEN FROM CENTERLINE OF DEVICE OR GANG BOX SHALL BE FOLLOWED.
3. INCLUDE SUCH ITEMS AS REQUIRED FOR A COMPLETELY OPERATIONAL AND FUNCTIONAL SYSTEM, WHETHER OR NOT SPECIFICALLY INDICATED.
4. INSTALL CABLING IN ACCORDANCE WITH THE N.E.C., N.F.P.A. AND DIVISIONS 27 OF THE SPECIFICATIONS.
5. ALL REQUIRED NEW PATHWAYS AND NEW CABLE DISTRIBUTION SYSTEMS SHALL BE FURNISHED AND INSTALLED BY DIVISION 27 CONTRACTOR.
6. FIRE SEAL AND LABEL ALL PENETRATIONS OF FIRE RATED ASSEMBLIES TO MAINTAIN FIRE RATING AND U.L. RATING.
7. EACH SYSTEMS GROUNDING BUSBAR SHALL BE INSULATED FROM ITS
8. AT NO TIME SHALL A CONDUIT RUN EXCEED (2) 90° BENDS WITHOUT THE INSERTION OF A PULL BOX.
9. ALL CONDUIT RUNS EXCEEDING 15' SHALL BE EQUIPPED WITH A PULL-STRING WITH MINIMUM TEST RATING OF 200LB.
10. NO ONE CONDUIT SEGMENT SHALL BE MORE THAN 100' WITHOUT THE INSERTION OF A PULL BOX.
11. ALL FLOOR AND WALL CONDUIT PENETRATIONS SHALL BE SLEEVED AND SEALED WITH AN INTUMESCENT FIRE RESISTIVE SYSTEM IN ACCORDANCE WITH N.E.C. PROVIDE 2 HOUR FIRE RATING UNLESS OTHERWISE NOTED.
12. ALL INTERIOR CONDUIT SHALL BE A MINIMUM OF 3/4" UNLESS OTHERWISE NOTED. CONDUIT SIZES INDICATED SHALL BE THE MINIMUM SIZES UTILIZED.
13. ALL CONDUIT/RACEWAY SYSTEMS SHALL BE CONCEALED UNLESS OTHERWISE NOTED ON THE DRAWINGS.

NOTE:
SYMBOLS SHOWN ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A CHECK LIST OF DEVICES REQUIRED BY THE CONTRACT

HDR Architecture Dallas
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Tom Green County Renovation & Systems Upgrades

112 W. Beauregard
San Angelo, Texas 76903

Project Manager	John Niesen
Project Designer	John Niesen
Project Architect	Martin Aguirre
Structural Engineer	David Williams
Mechanical Engineer	Matthew Palazzetti
Plumbing Engineer	Matthew Palazzetti
Electrical Engineer	Jey Kim
Fire Protection Engineer	Robert Richter
Interior Designer	Jamie Marcyniak
Low Voltage Designer	Jim Gabel
Drawn By	Carissa DaSilva

MARK	DATE	DESCRIPTION

Project Number	10163575
Original Issue	11/16/2021

BICSI REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
Jeyeong Kim
BICSI ID # 162725
EXPIRES 12-31-22
11/16/2021

Sheet Name

LOW VOLTAGE GENERAL NOTES AND SYMBOLS

Scale

1/8" = 1'-0"

Sheet Number

E-002

Project Status

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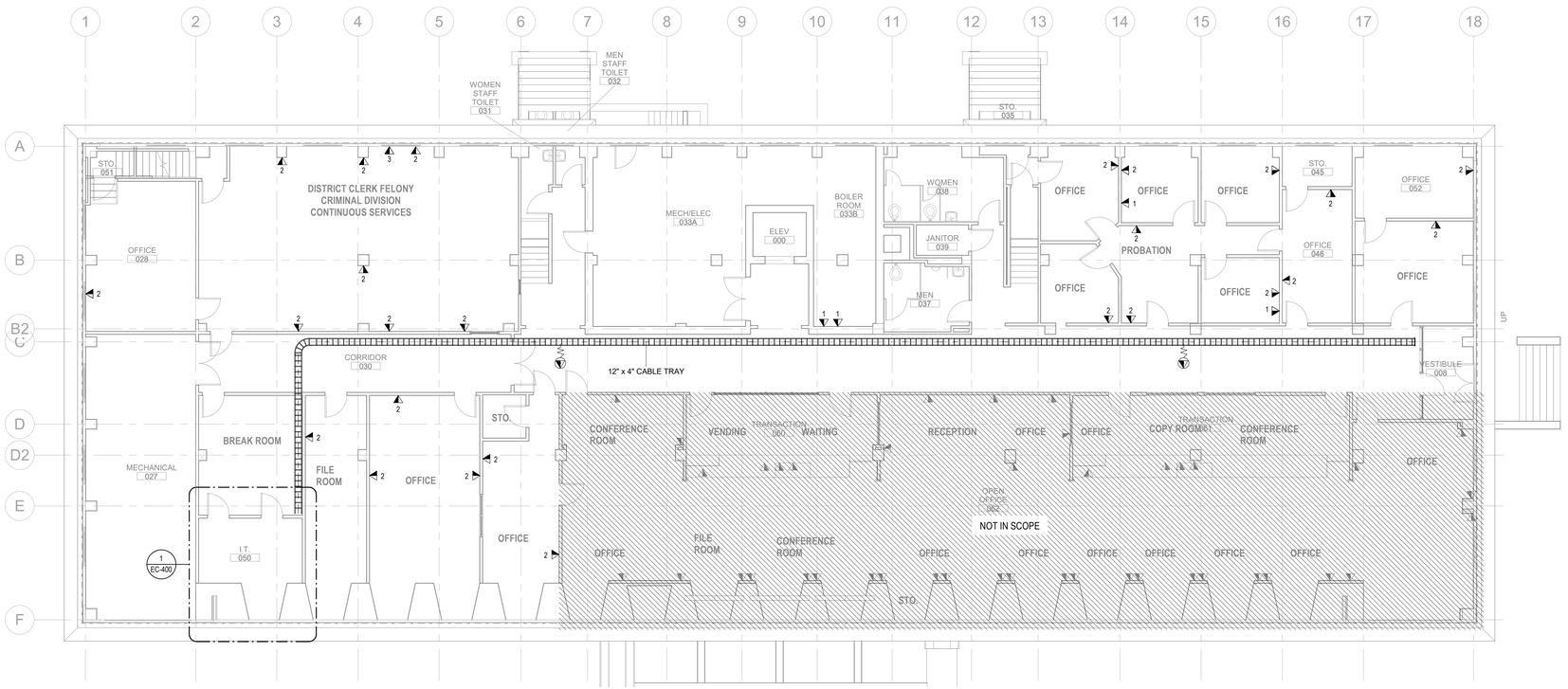
GENERAL NOTES

A. EXISTING FACILITY FLOORPLAN LAYOUTS FOR LOCATIONS OF NEW/EXISTING TELCOMMUNICATIONS DEVICES TO BE INSTALLED/REPLACED AND PROVIDED WITH NEW CAT. 6 CABLING FROM EACH DEVICE LOCATION TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
B. NEW CABLING SHALL TERMINATE ON NEW PATCH PANELS INSTALLED WITHIN EXISTING TELECOMMUNICATIONS RACKS LOCATED WITHIN CURRENT FLOOR AREA IT ROOM IDENTIFIED.
C. CONTRACTOR SHALL REVIEW CURRENT EXISTING PATHWAYS TO COORDINATE NEW CABLE INSTALLATION REQUIREMENTS. NEW CABLING CAN UTILIZE EXISTING PATHWAYS OR BE ROUTED FROM EXISTING DEVICE LOCATIONS TO NEW AREA HORIZONTAL CABLE TRAY DISTRIBUTION SYSTEM FOR ROUTING CABLING TO CURRENT FLOOR AREA IT ROOM.
D. ALL NEW WALL MOUNTED TELECOMMUNICATIONS DEVICES SHALL BE PROVIDED WITH REQUIRED INFRASTRUCTURE (BACKBOX & INFRASTRUCTURE) FOR ROUTING NEW CABLING TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
E. REFER TO THE EC-500 SERIES DRAWINGS, INSTALLATION DETAILS FOR ADDITIONAL INFORMATION.
F. REFER TO THE EC-600 SERIES DRAWINGS, SYSTEM DIAGRAMS FOR ADDITIONAL INFORMATION.



1 COMMUNICATIONS - LOWER LEVEL PLAN
1/8" = 1'-0"

N
PLAN NORTH

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8750 N. Central Expressway
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Tom Green County Renovation & Systems Upgrades

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Sheet Name
COMMUNICATIONS - LOWER LEVEL

Scale
1/8" = 1'-0"

Sheet Number
EC-100

Project Status
100% CONSTRUCTION DOCUMENTS

11/16/2021 10:57:04 AM
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GENERAL NOTES

A. A. EXISTING FACILITY FLOORPLAN LAYOUTS FOR LOCATIONS OF NEW/EXISTING TELCOMMUNICATIONS DEVICES TO BE INSTALLED/REPLACED AND PROVIDED WITH NEW CAT. 6 CABLING FROM EACH DEVICE LOCATION TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
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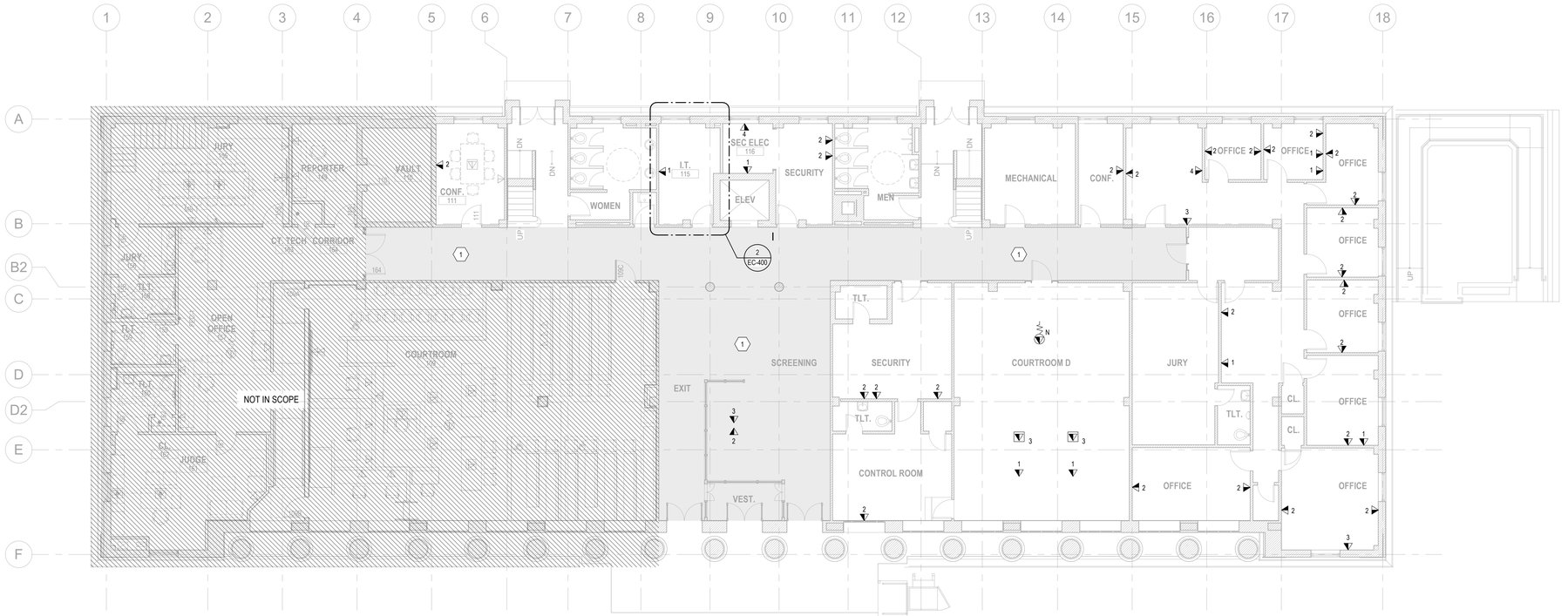
E. COORDINATE LOCATIONS OF ALL NEW FLOORBOXES WITHIN EXISTING COURTROOMS WITH TOM GREEN COUNTY IT GROUP PRIOR TO THE START OF INSTALLATION.
F. REFER TO THE EC-500 SERIES DRAWINGS, INSTALLATION DETAILS FOR ADDITIONAL INFORMATION.
G. REFER TO THE EC-600 SERIES DRAWINGS, SYSTEM DIAGRAMS FOR ADDITIONAL INFORMATION.

KEYED NOTES:

1. HISTORIC CEILING AREA. ROUTING OF RACEWAY AND/OR CABLING ABOVE OR THRU IS AREA IS PROHIBITED. CABLING CAN BE ROUTED THRU THE FLOOR ABOVE OR BELOW TO PROVIDE REQUIRED CABLING ROUTING TO THE CURRENT AREA IT ROOM IDENTIFIED.



1 COMMUNICATIONS - FIRST FLOOR PLAN
1/8" = 1'-0"

PLAN NORTH

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8750 N. Central Expressway
Suite 100
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Tom Green County Renovation & Systems Upgrades

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Project Number	10163575
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Jeyeong Kim
BICSI ID # 162725
EXPIRES 12-31-22
11/16/2021

Sheet Name
COMMUNICATIONS - FIRST FLOOR

Scale
1/8" = 1'-0"

Sheet Number
EC-101

Project Status
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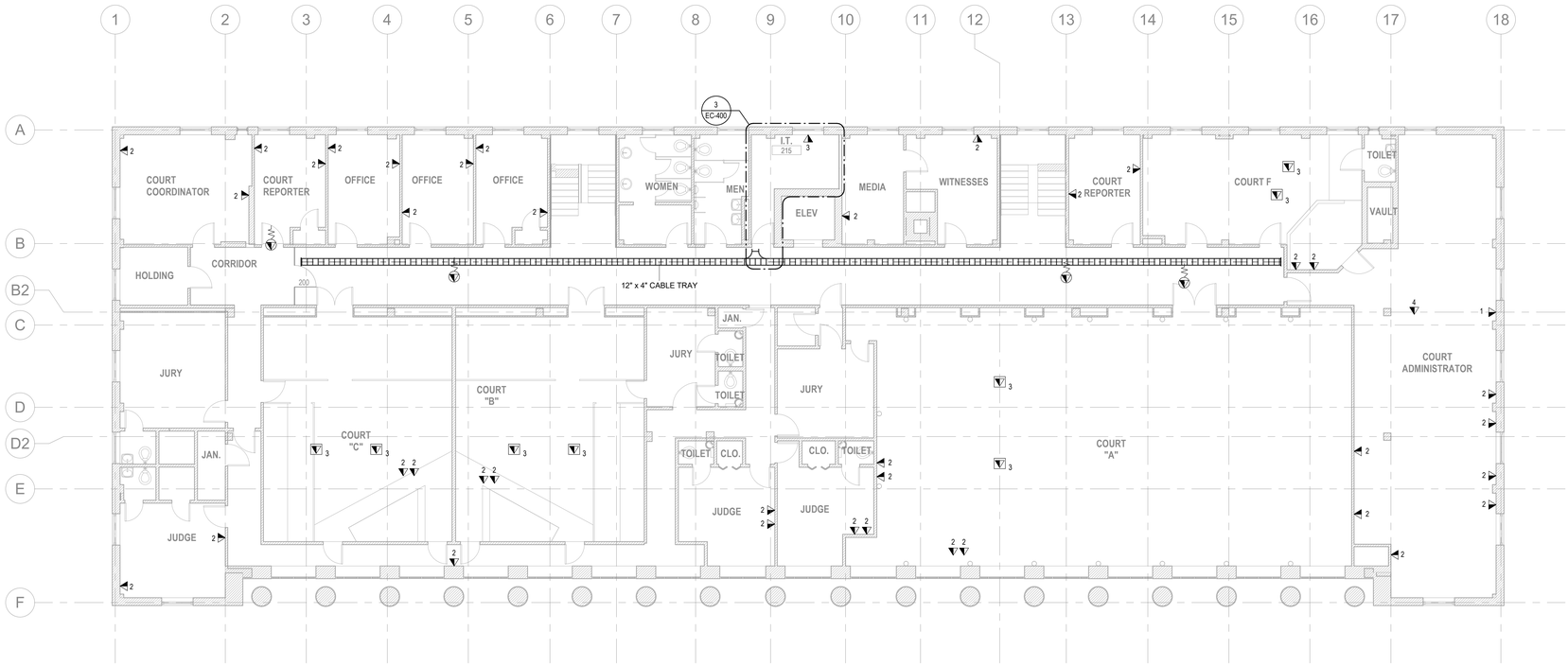

1 COMMUNICATIONS - SECOND FLOOR PLAN
1/8" = 1'-0"

N
PLAN NORTH

HDR Architecture Dallas
8750 N. Central Expressway
Suite 100
Dallas, TX 75231

Tom Green County Renovation & Systems Upgrades

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MARK	DATE	DESCRIPTION

Project Number	10163575
Original Issue	11/16/2021

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Jeyeong Kim
BICSI ID # 162725
EXPIRES 12-31-22
11/16/2021

Sheet Name
COMMUNICATIONS - SECOND FLOOR

Scale
1/8" = 1'-0"

Sheet Number
EC-102

Project Status
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GENERAL NOTES

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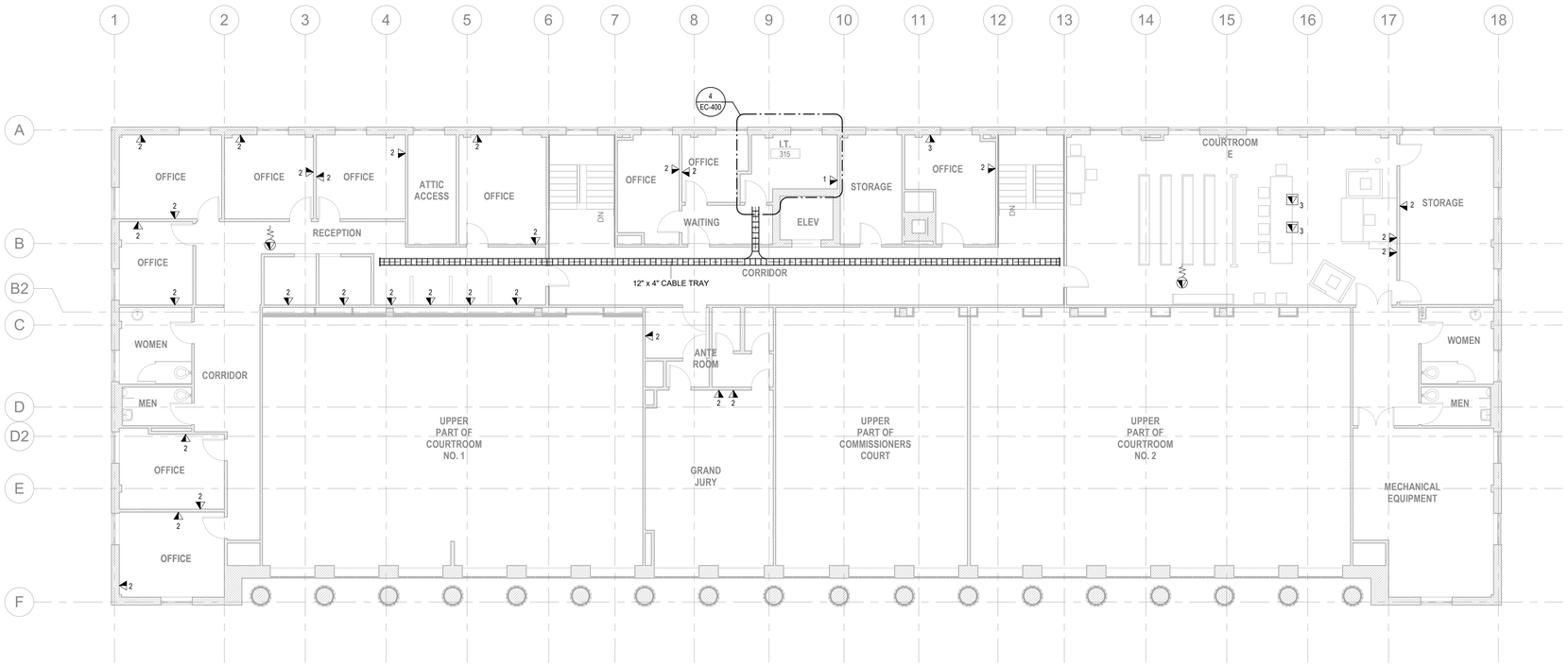

1 COMMUNICATIONS - THIRD FLOOR PLAN
1/8" = 1'-0"

PLAN NORTH

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Suite 100
Dallas, TX 75231

Tom Green County Renovation & Systems Upgrades

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Drawn By	Carissa DaSilva

MARK	DATE	DESCRIPTION

Project Number	10163575
Original Issue	11/16/2021

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Jeyeong Kim
BICSI ID # 162725
EXPIRES 12-31-22
11/16/2021

Sheet Name
COMMUNICATIONS - THIRD FLOOR

Scale
1/8" = 1'-0"

Sheet Number
EC-103

Project Status
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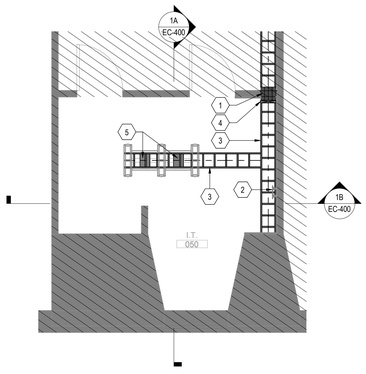
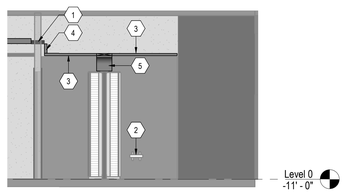
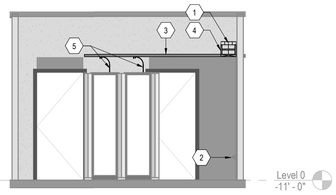


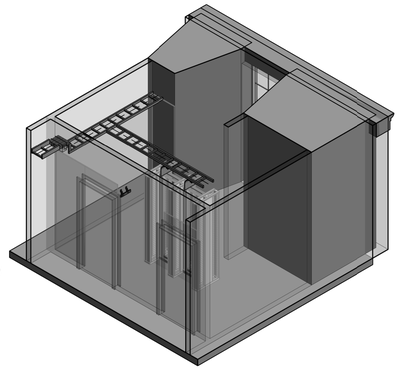
1 COMMUNICATIONS - LOWER LEVEL PLAN - IT ROOM
1/4" = 1'-0"



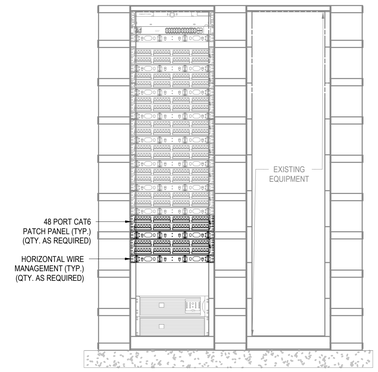
1A ELEVATION
1/4" = 1'-0"



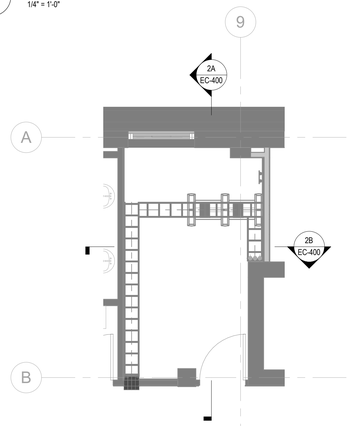
1B ELEVATION
1/4" = 1'-0"



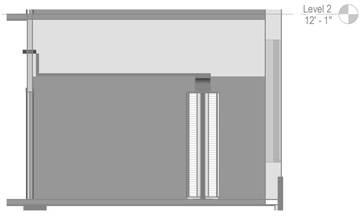
1C AXONOMETRIC



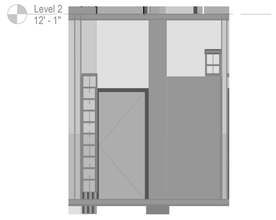
1D CABINET
NTS



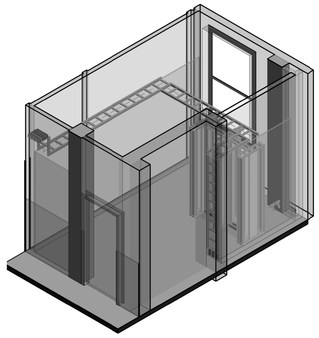
2 COMMUNICATIONS -FIRST FLOOR -IT ROOM
1/4" = 1'-0"



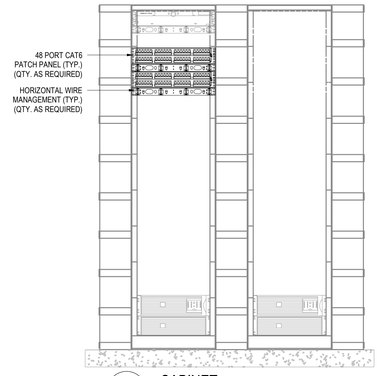
2A ELEVATION
1/4" = 1'-0"



2B ELEVATION
1/4" = 1'-0"

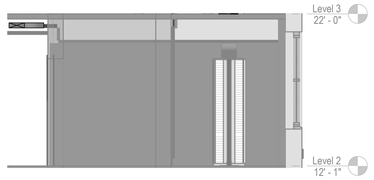


2C AXONOMETRIC

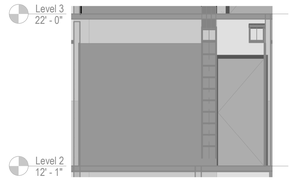


2D CABINET
NTS

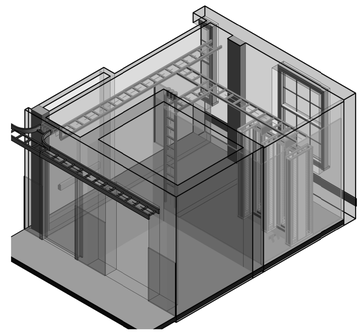
3 COMMUNICATIONS - SECOND FLOOR - IT ROOM
1/4" = 1'-0"



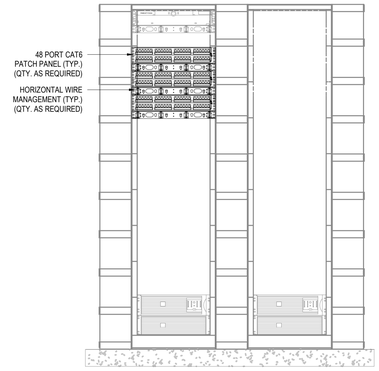
3A ELEVATION
1/4" = 1'-0"



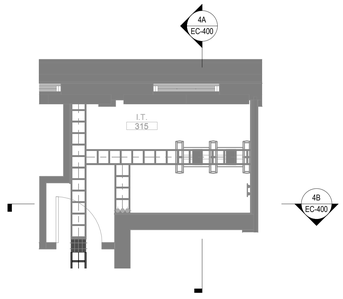
3B ELEVATION
1/4" = 1'-0"



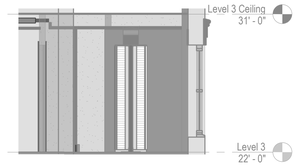
3C AXONOMETRIC



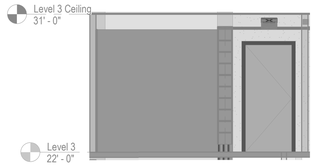
3D CABINET
NTS



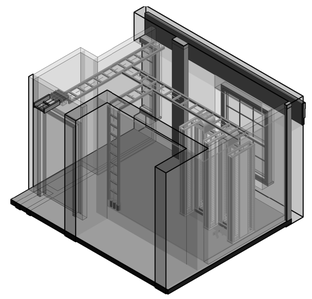
4 COMMUNICATIONS - THIRD FLOOR - IT ROOM
1/4" = 1'-0"



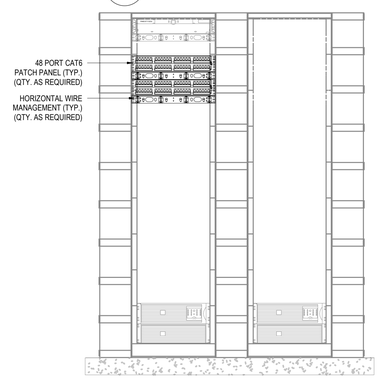
4A ELEVATION
1/4" = 1'-0"



4B ELEVATION
1/4" = 1'-0"



4C AXONOMETRIC



4D CABINET
NTS

GENERAL NOTES:

A. EXACT QUANTITIES OF EQUIPMENT SHALL BE PROVIDED AS REQUIRED TO MATCH OUTLET / JACK QUANTITES SHOWN ON PLANS.
B. ALL COMPONENTS, DEVICES OR EQUIPMENT SHOWN IN "HALFTONE" IS EXISTING EQUIPMENT CURRENTLY IN PLACE WITHIN AREA IT ROOMS AND SHALL BE UTILIZED AS PART OF THE PROJECT FOR REQUIRED DEVICE / COMPONENT INSTALLATION AS NEEDED FOR THIS PROJECT SCOPE OF WORK.

KEYED NOTES:

1. EZ-PATH FIRESTOP (PROVIDED BY DIV 27).
2. SYSTEMS GROUNDING BAR (EXISTING TELECOMMUNICATIONS).
3. 12" X 2" HORIZONTAL LADDER RACK.
4. 12" X 2" VERTICAL LADDER RACK.
5. CABLE RUNWAY RADIUS DROP.

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Tom Green County Renovation & Systems Upgrades

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Electrical Engineer	Jay Kim
Fire Protection Engineer	Robert Richter
Interior Designer	Jamie Marcyniak
Low Voltage Designer	Jim Gabel
Drawn By	Carissa DaSilva

MARK	DATE	DESCRIPTION

Project Number	10163575
Original Issue	11/16/2021

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
Bicsi
Jayeong Kim
BICSI ID # 162725
EXPIRES 12-31-22
11/16/2021

Sheet Name

COMMUNICATIONS - ENLARGED PLANS

Scale
As indicated

Sheet Number

EC-400

Project Status
100% CONSTRUCTION DOCUMENTS

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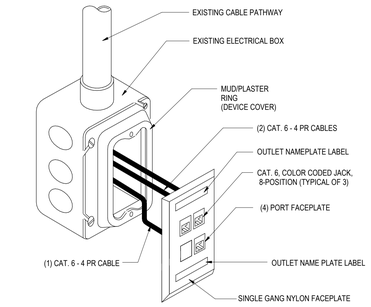
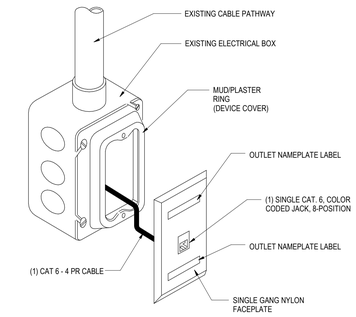


CABLE COLOR CODE PER FLOOR:
LOWER LEVEL - WHITE
FIRST FLOOR - BLUE
SECOND FLOOR - ORANGE
THIRD FLOOR - GREEN

1 WALL OUTLET - STANDARD TELE / DATA OUTLET

NTS

NOTE:
PROVIDE (3) CAT. 6, 8 CONDUCTOR CABLES TO EACH NEW / EXISTING TELECOMMUNICATIONS OUTLET FROM CURRENT FLOOR AREA IT ROOM VIA EXISTING CABLE PATHWAY OR FROM EXISTING DEVICE LOCATION THRU NEW AREA HORIZONTAL CABLE TRAY DISTRIBUTION SYSTEM.

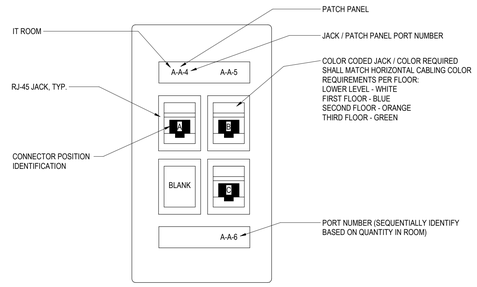


CABLE COLOR CODE PER FLOOR:
LOWER LEVEL - WHITE
FIRST FLOOR - BLUE
SECOND FLOOR - ORANGE
THIRD FLOOR - GREEN

2 WALL OUTLET - STANDARD WALL OUTLET

NTS

NOTE:
PROVIDE (1) CAT. 6, 8 CONDUCTOR CABLE TO EACH NEW / EXISTING TELECOMMUNICATIONS OUTLET FROM CURRENT FLOOR AREA IT ROOM VIA EXISTING CABLE PATHWAY OR FROM EXISTING DEVICE LOCATION THRU NEW AREA HORIZONTAL CABLE TRAY DISTRIBUTION SYSTEM.



3 TELECOMMUNICATIONS OUTLET LABLING

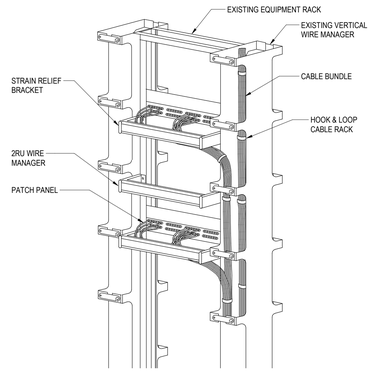
NTS

TOM GREEN COUNTY IT LABELING STANDARD:
IT ROOM DESIGNATIONS:
- "A" CLOSET - EXISTING IT ROOM #050.
- "B" CLOSET - EXISTING IT ROOM #115.
- "C" CLOSET - EXISTING IT ROOM #215.
- "D" CLOSET - EXISTING IT ROOM #315.

TELECOMMUNICATIONS JACKS SHALL BE LABELED TO INDICATE "IT ROOM - PATCH PANEL - JACK/PATCH PANEL PORT" NUMBER.

PATCH PANEL PORTS: ALL PATCH PANEL PORTS SHALL HAVE CORRESPONDING LABELS TO MATCH THE WALL OUTLET JACKS TO WHICH THEY ARE CONNECTED. PATCH PANELS SHALL BE LABELED IN ALPHABETICAL ORDER FROM TOP TO BOTTOM / PORTS LABELED LEFT TO RIGHT FOR EACH PATCH PANEL.

CABLING: EACH CAT. 6 CABLE SHALL BE LABELED 12 INCHES FROM EACH TERMINATED END WITH "IT ROOM - PATCH PANEL - JACK/PATCH PANEL PORT" NUMBER.



NOTES:

1. PROVIDE CABLE WRAPS ON MINIMUM 12" CENTERS IN VERTICAL WIRE MANAGERS. CABLES SHALL BE BUNDLED INTO LOGICAL GROUPS.
2. CABLES SHALL BE SECURED TO STRAIN RELIEF BRACKET.
3. ATTACH CABLE LABEL BETWEEN STRAIN RELIEF BRACKET AND PATCH PANEL SO THAT LABEL CAN BE READ AND CORRELATED TO PATCH PANEL PORT WITHOUT UNBUNDLING ADJACENT CABLES.
4. CONTRACTOR SHALL ROUTE ALL CABLE BUNDLES TO AVOID SHARP BENDS, AND PINCH POINTS AND ALLOW LATCH OPERATION ON VERTICAL WIRE MANAGER.
5. PROVIDE PROPER QUANTITY OF PATCH PANELS.
6. STRAIN RELIEF BRACKET SHALL BE A MINIMUM OF 6" BEHIND PATCH PANEL.

4 CABLE STRAIN RELIEF

NTS

GENERAL NOTES:

A. REFER TO FACILITY FLOORPLAN LAYOUTS FOR LOCATIONS OF NEW/EXISTING TELECOMMUNICATIONS DEVICES TO BE INSTALLED/REPLACED AND PROVIDED WITH NEW TELECOMMUNICATIONS FACEPLATES. REFER TO INSTALLATION DETAILS SHOWN FOR DEVICE CONFIGURATIONS AND PORT COLOR CONFIGURATIONS IDENTIFIED.

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Low Voltage Designer	Jim Gabel
Drawn By	Carissa DaSilva

MARK	DATE	DESCRIPTION
1	06/04/2021	ADDENDUM NO.1

Project Number	10163575
Original Issue	11/16/2021

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
Bicsi
Jeyeong Kim
BICSI ID # 162725
EXPIRES 12-31-22
11/16/2021

Sheet Name

COMMUNICATIONS DETAILS

Scale
As indicated

Sheet Number

EC-500

Project Status
100% CONSTRUCTION DOCUMENTS

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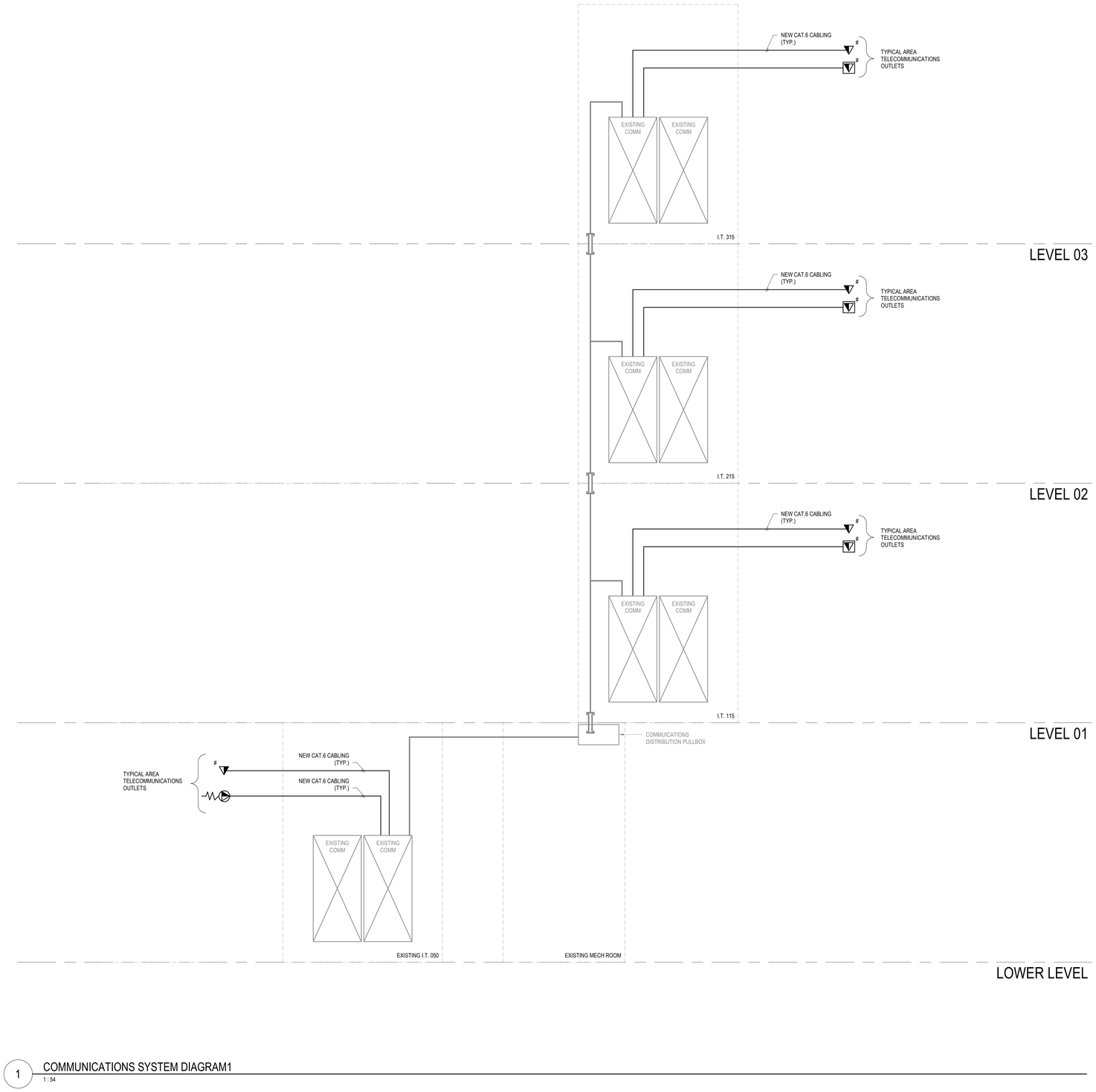
GENERAL NOTES:

A. REFER TO FACILITY FLOORPLAN LAYOUTS FOR LOCATIONS OF NEW/EXISTING TELECOMMUNICATIONS DEVICES TO BE INSTALLED/REPLACED AND PROVIDED WITH NEW CAT. 6 CABLING FROM EACH DEVICE LOCATION TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
B. NEW CABLING SHALL TERMINATE ON NEW PATCH PANELS INSTALLED WITHIN EXISTING TELECOMMUNICATIONS RACKS LOCATED WITHIN CURRENT FLOOR AREA IT ROOM IDENTIFIED.
C. CONTRACTOR SHALL REVIEW CURRENT EXISTING PATHWAYS TO COORDINATE NEW CABLE INSTALLATION REQUIREMENTS. NEW CABLING CAN UTILIZE EXISTING PATHWAYS OR BE ROUTED FROM EXISTING DEVICE LOCATIONS TO NEW AREA HORIZONTAL CABLE TRAY DISTRIBUTION SYSTEM FOR ROUTING CABLING TO CURRENT FLOOR AREA IT ROOM.



1 COMMUNICATIONS SYSTEM DIAGRAM1
1 : 54

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REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
BICSI
Jeyeong Kim
BICSI ID # 162725
EXPIRES 12-31-22
11/16/2021

Sheet Name
COMMUNICATIONS SYSTEM DIAGRAM

Scale
As indicated

Sheet Number
EC-600

Project Status
100% CONSTRUCTION DOCUMENTS

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INDEX

REVISIONS TO PROJECT MANUAL (SPECIFICATIONS)

NONE

REVISIONS TO COMMUNIATIONS DRAWINGS

Sheet EC-101 COMMUNICATIONS – FIRST FLOOR

1. ADD new telecommunications outlet to future A/V equipment cabinet location.
2. ADD new system floorboxes to Courtroom D.

Sheet EC-102 COMMUNICATIONS – SECOND FLOOR

1. ADD new telecommunications outlet to future A/V equipment cabinet locations.
2. ADD new system floorboxes to Courtrooms A, B, C & F.

Sheet EC-103 COMMUNICATIONS – THIRD FLOOR

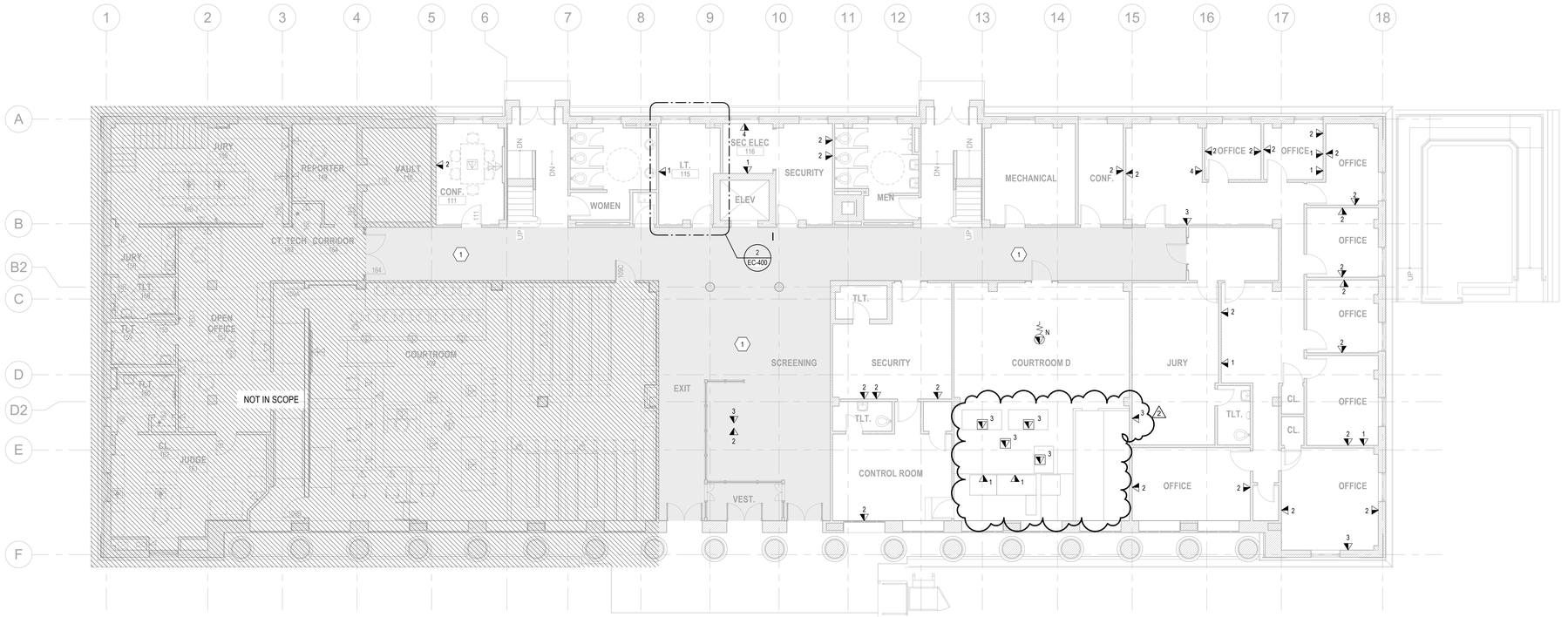
1. ADD new telecommunications outlet to future A/V equipment cabinet location.
2. ADD new system floorboxes to Courtroom E.

GENERAL NOTES

A. A. EXISTING FACILITY FLOORPLAN LAYOUTS FOR LOCATIONS OF NEW/EXISTING TELCOMMUNICATIONS DEVICES TO BE INSTALLED/REPLACED AND PROVIDED WITH NEW CAT. 6 CABLING FROM EACH DEVICE LOCATION TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
B. NEW CABLING SHALL TERMINATE ON NEW PATCH PANELS INSTALLED WITHIN EXISTING TELECOMMUNICATIONS RACKS LOCATED WITHIN CURRENT FLOOR AREA IT ROOM IDENTIFIED
C. CONTRACTOR SHALL REVIEW CURRENT EXISTING PATHWAYS TO COORDINATE NEW CABLE INSTALLATION REQUIREMENTS. NEW CABLING CAN UTILIZE EXISTING PATHWAYS OR NEW CONTRACTOR DEFINED PATHWAYS FROM EXISTING DEVICE LOCATIONS TO CURRENT FLOOR AREA IT ROOM.
D. ALL NEW WALL MOUNTED TELECOMMUNICATIONS DEVICES SHALL BE PROVIDED WITH REQUIRED INFRASTRUCTURE (BACKBOX & INFRASTRUCTURE) FOR ROUTING NEW CABLING TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
E. COORDINATE LOCATIONS OF ALL NEW FLOORBOXES WITHIN EXISTING COURTROOMS WITH TOM GREEN COUNTY IT GROUP PRIOR TO THE START OF INSTALLATION.
F. REFER TO THE EC-500 SERIES DRAWINGS, INSTALLATION DETAILS FOR ADDITIONAL INFORMATION.
G. REFER TO THE EC-600 SERIES DRAWINGS, SYSTEM DIAGRAMS FOR ADDITIONAL INFORMATION.

KEYED NOTES:

1. HISTORIC CEILING AREA. ROUTING OF RACEWAY AND/OR CABLING ABOVE OR THRU IS AREA IS PROHIBITED. CABLING CAN BE ROUTED THRU THE FLOOR ABOVE OR BELOW TO PROVIDE REQUIRED CABLING ROUTING TO THE CURRENT AREA IT ROOM IDENTIFIED.



1 COMMUNICATIONS - FIRST FLOOR PLAN
1/8" = 1'-0"

PLAN NORTH

HDR Architecture Dallas
8750 N. Central Expressway
Suite 100
Dallas, TX 75231

Tom Green County Renovation & Systems Upgrades

112 W. Beauregard
San Angelo, Texas 76903

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Drawn By	Carissa DaSilva

MARK	DATE	DESCRIPTION
2	02/16/2022	POST BID ADDENDUM #1

Project Number	10163575
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Sheet Name
COMMUNICATIONS - FIRST FLOOR

Scale
1/8" = 1'-0"

Sheet Number
EC-101

Project Status
100% CONSTRUCTION DOCUMENTS

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GENERAL NOTES

A. EXISTING FACILITY FLOORPLAN LAYOUTS FOR LOCATIONS OF NEW/EXISTING TELCOMMUNICATIONS DEVICES TO BE INSTALLED/REPLACED AND PROVIDED WITH NEW CAT. 6 CABLING FROM EACH DEVICE LOCATION TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
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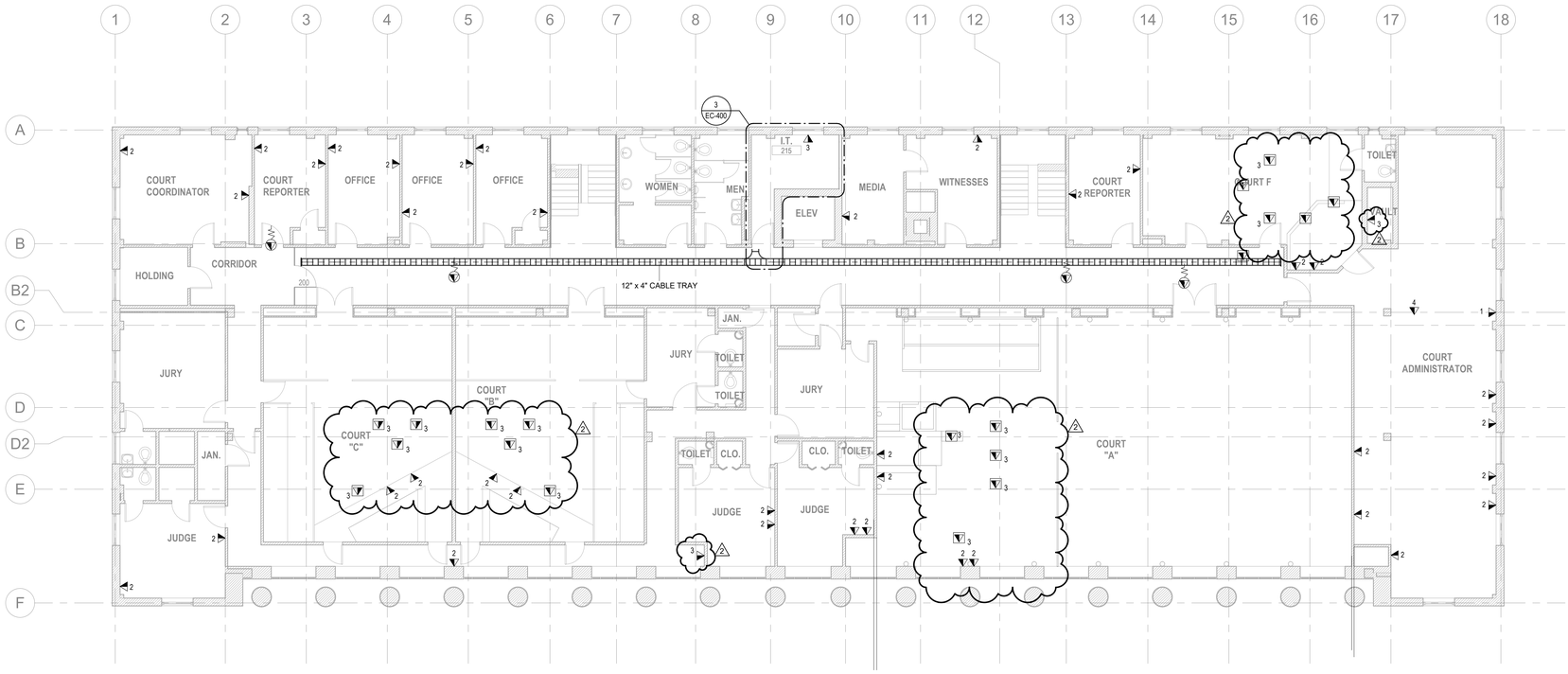
D. ALL NEW WALL MOUNTED TELECOMMUNICATIONS DEVICES SHALL BE PROVIDED WITH REQUIRED INFRASTRUCTURE (BACKBOX & INFRASTRUCTURE)FOR ROUTING NEW CABLING TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
E. COORDINATE LOCATIONS OF ALL NEW FLOORBOXES WITHIN EXISTING COURTROOMS WITH TOM GREEN COUNTY IT GROUP PRIOR TO THE START OF INSTALLATION.
F. REFER TO THE EC-500 SERIES DRAWINGS, INSTALLATION DETAILS FOR ADDITIONAL INFORMATION.
G. REFER TO THE EC-600 SERIES DRAWINGS, SYSTEM DIAGRAMS FOR ADDITIONAL INFORMATION.



1 COMMUNICATIONS - SECOND FLOOR PLAN
1/8" = 1'-0"

N
PLAN NORTH

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2	02/16/2022	POST BID ADDENDUM #1

Project Number	10163575
Original Issue	11/16/2021

Sheet Name
COMMUNICATIONS - SECOND FLOOR

Scale
1/8" = 1'-0"

Sheet Number
EC-102

Project Status
100% CONSTRUCTION DOCUMENTS

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GENERAL NOTES

A. EXISTING FACILITY FLOORPLAN LAYOUTS FOR LOCATIONS OF NEW/EXISTING TELCOMMUNICATIONS DEVICES TO BE INSTALLED/REPLACED AND PROVIDED WITH NEW CAT. 6 CABLING FROM EACH DEVICE LOCATION TO CURRENT FLOOR AREA IT ROOM IDENTIFIED.
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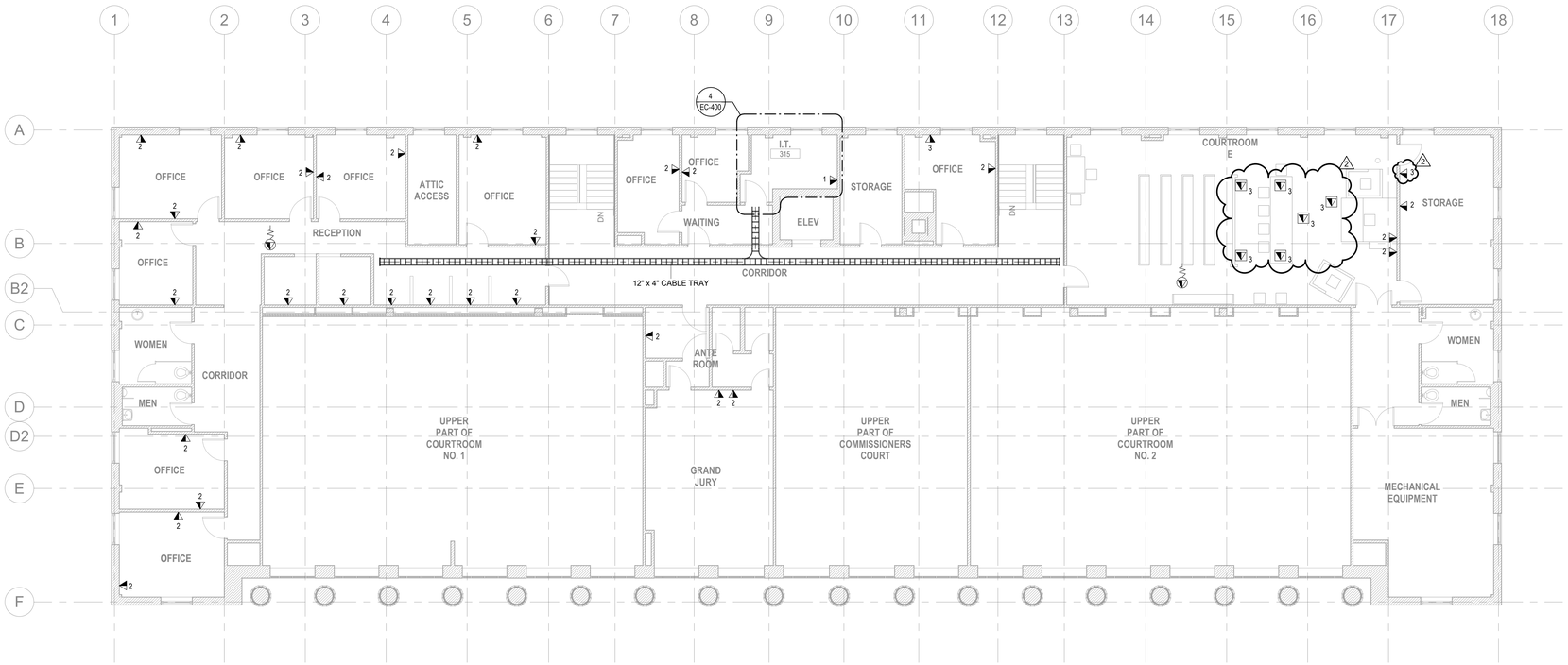

1 COMMUNICATIONS - THIRD FLOOR PLAN
1/8" = 1'-0"

N
PLAN NORTH

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2	02/16/2022	POST BID ADDENDUM #1

Project Number	10163575
Original Issue	11/16/2021

Sheet Name
COMMUNICATIONS - THIRD FLOOR

Scale
1/8" = 1'-0"

Sheet Number
EC-103

Project Status
100% CONSTRUCTION DOCUMENTS

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