HURST-ROSCHE, INC.

PROJECT MANUAL FOR

SOCIAL SECURITY BUILDING RENOVATIONS
1107 WEST FERDON STREET
LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS
HR# 150-3282

Prepared for

TTT Partners, LLC
Litchfield, Illinois 62056

May 1, 2024

Bid Package No. _____

HURST – ROSCHE INC.
1400 E. Tremont St. Hillsboro, IL 62049 217-532-3959

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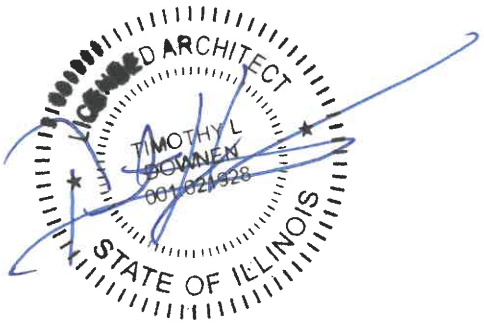
SOCIAL SECURITY BUILDING RENOVATIONS
1107 WEST FERDON STREET
LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

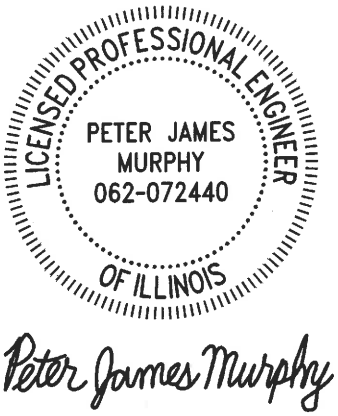
28 15 00 Access Control Hardware Devices 28 15 00-1-10

Specifier: Timothy L. Downen, AIA, LEED AP
Phone: 217-532-3959



Date: 05-01-2024
Expires: 11-30-2024

Peter J. Murphy, PE



Date: 05-01-2024
Expires: 11-30-2025

END OF SECTION

DOCUMENT 00 11 16 - INVITATION TO BID

Project: **SOCIAL SECURITY BUILDING RENOVATIONS**
LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS

Owner: **TTT PARTNERS, LLC**
1107 WEST FERDON STREET
LITCHFIELD, ILLINOIS 62056

Architect/Engineer: **HURST-ROSCHE, INC.**
1400 EAST TREMONT STREET
HILLSBORO, ILLINOIS 62049

Date: **May 1, 2024**

The Owner will receive Bids until 2:00 PM local prevailing time on **Tuesday the 21st day of May, 2024**, at **SOCIAL SECURITY BUILDING, 1107 WEST FERDON STREET, LITCHFIELD, ILLINOIS 62056** for the following work:

SCOPE OF WORK:

The work includes the demolition and renovation of the existing building as necessary for the creation of 5 interview bays, including architectural, mechanical and electrical scopes of work. The work will be constructed in 2 phases to allow continual operation of the facility during construction.

A Pre-bid Meeting will be held on **Tuesday, May 7, 2024**, at **8:00 AM**, prevailing time at **SOCIAL SECURITY OFFICE, 1107 WEST FERDON STREET, LITCHFIELD, ILLINOIS 62056.** Please plan on entering the facility at the employee entrance at the west side of the facility.

Drawings and specifications may be obtained at the office of Hurst-Rosche, Inc., 1400 E. Tremont St., Hillsboro, Illinois, after May 1, 2024, by paying a non-refundable amount of $50.00 ($60.00 if mailed) for each set of drawings and specifications.

Bidding Documents, Drawings and Specifications, may be examined by prospective bidders and material suppliers at the office of Hurst-Rosche, Inc., 1400 E. Tremont St., Hillsboro, Illinois and the following Plan Rooms:

Central Illinois Plan Room, 1620 S. 5th Street, Springfield, Illinois 62703
Southern Illinois Builders Association, 1468 Green Mount Road, O'Fallon, Illinois 62269
McGraw Hill Construction, www.dodgeprojects.construction.com
Greater Peoria Contractors & Suppliers Assoc., 1811 West Altorfer, Peoria, Illinois 61615

Drawings and specifications will be available for viewing on the internet at: www.hurst-rosche.com. The documents are being provided for reference purposes only. Bidders are encouraged to obtain a signed and sealed hard copy set of the bidding documents. At a minimum, bidders must obtain clean copies of bid forms from the offices of Hurst-Rosche, Inc. by paying a non-refundable amount of $10.00 to submit a bid for this project.

Construction can commence immediately after contract execution. The Owner requires the project to be substantially complete within 180 calendar days after executed Notice to Proceed.

Bidders will be required to provide Bid security of a sum no less than 10 percent of the Bid Sum. The bid security shall be either certified check, cashier's check, bank money order or bid bond issued by surety licensed to conduct business in the State of Illinois. Hereinafter this bid security shall be referred to as the bid bond.

Submit two copies of your Bid on the Bid Form provided. Bidders may supplement this form as appropriate.

Your Bid will be required to be submitted under a condition of irrevocability for a period of 45 days after submission.

The Owner reserves the right to accept or reject any or all Bids or any part thereof, to waive any informality in bidding, and to accept bids deemed most favorable to the Owner.

TTT PARTNERS, LLC

END OF DOCUMENT

DOCUMENT 00 21 14 - INSTRUCTIONS TO BIDDERS - AIA

1.1 SUMMARY

A. Document Includes:
   1. Instructions to Bidders.
   2. Site examination.
   3. Prebid conference.

B. Related Documents:
   1. Document 00 11 16 - Invitation To Bid.
   2. Document 00 41 13 - Bid Form - Stipulated Sum.
   3. Document 00 43 00 - Procurement Form Supplements: Appendices A and B.
   4. Document 00 72 14 - General Conditions – AIA Stipulated Sum.
   5. Document 00 73 13 - Supplementary Conditions – AIA.

1.2 INSTRUCTIONS TO BIDDERS

A. These Instructions to Bidders amend or supplement AIA Document A701-1997 - Instructions to Bidders and other provisions of Bidding Documents and Contract Documents.

B. To be considered all bids must in accordance with these Instructions to Bidders.

C. Those interested parties may obtain sets of Drawings and Specifications from the Architect/Engineer upon non-refundable deposit of $50.00 per set ($60.00 if mailed).

D. At a minimum, bidders must obtain clean copies of bid forms from the offices of Hurst-Rosche, Inc. by paying a non-refundable amount of $10.00 to submit a bid for this project.

1.3 SITE EXAMINATION

A. Bidders shall carefully examine documents and construction site to obtain first-hand knowledge of existing conditions. Contractors will not be given extra payments for conditions which can be determined by examining site and these documents.

B. A visit to Project site has been arranged for Bidders following the Pre-Bid Meeting at 8:00 AM on May 21, 2024. Please plan on entering the facility at the employee entrance at the west side of the facility.

C. Any visits after the pre-bid meeting shall be scheduled through 877-319-3077. This is the general inquiry line. Please leave a message indicating that you need to speak with management about this construction project with your name, phone number, date of anticipated visit and time of anticipated visit.

1.4 THE SCHEDULE FOR BIDDING THIS PROJECT IS AS FOLLOWS

A.	**Plans Available:**	**May 1, 2024**
B.	**Pre-Bid Meeting:**	**May 7, 2024** **8:00 A.M.** **1107 West Ferdon Street**
C.	**Latest Time to Submit Request for Interpretation:**	**May 14, 2024**
D.	**Latest Time to Issue an Addendum:**	**May 16, 2024**
E.	**Bid Opening**	**May 21, 2024** **2:00 P.M.** **1107 West Ferdon Street**

F. All requests for interpretations shall be in writing via mail or e-mail addressed to the Architect/Engineer and must be received by the date and time identified in Article 1.4 of this section in order to be given consideration. All questions must be submitted on the "Request for Interpretation Pre-Bid Question and Comment Form" included at the end of this section, and questions not submitted in accordance with this form and specified time frame will not be accepted. Any and all interpretations and supplemental instructions will be made by addendum to the Drawings and Specifications and forwarded to all bidders either by certified mail or e-mail. All responses by the Architect/Engineer must be in writing to be binding. Any response general in nature or affecting these Instructions to Bidders shall be sent via addendum as previously described. All bidders are required to return the signature page of the addendum signed to the Architect within 24 hours after receipt. Failure of any bidder to receive any such addendum or interpretations shall not relieve such bidder from an obligation under the bid as submitted. All addenda so issued shall become part of the Contract Documents. No addendum will be issued later than the date and time identified in Article 1.4 of this section except one withdrawing the request for Bids or one postponing the date for receiving Bids. Oral interpretations, changes or corrections will not be binding and Bidders shall not rely upon such interpretations, changes and corrections. Each Bidder shall ascertain prior to submitting Bid that all addenda issued have been received and shall acknowledge receipt in Bid.

Questions shall be directed to: E-mail: tdownen@hurst-rosche.com

G. Materials, products and equipment described in Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Each such request shall include name of material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or

other work that incorporation of the substitute would require shall be included. The burden of proof of the merit of proposed substitute is upon the proposer. Architect's decision of approval or disapproval of a proposed substitution shall be final. If the Architect approves any proposed substitution prior to receipt of Bids, such approval will be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner. No substitutions will be considered after the contract award unless specifically provided in the Contract Documents.

H. Bids shall be made on unaltered Bid Forms furnished by the Architect. Fill in all blank spaces and submit two (2) copies. Bids shall be signed with name typed below signature. Where bidder is a corporation, bids must be signed with legal name of corporation followed by name of state of incorporation and legal signature of an officer authorized to bind the corporation to a contract.

I. Each bidder submitting a bid shall submit on form provided a list of any subcontractors and major suppliers he proposes to use with the bid. Failure to do so could disqualify the bid.

J. Each bidder shall designate on the attached bid form one person who shall serve as the bidder's contact person for all matters pertaining to the bid. In absence of such designation, the person who signs the bid shall be deemed the bidder contact.

K. For those projects which are bid on a unit price basis, in the event in which a bidder does not fill out the extension of the unit price, or a math error has occurred in calculation, the unit prices listed shall govern.

L. Each bid shall be accompanied by bid bond made payable to the Owner, in the amount of ten percent (10%) of the bid sum. Security shall be either certified check, cashier's check, bank money order or bid bond issued by surety licensed to conduct business in the State of Illinois. Successful bidder's security will be retained until he has signed the contract and furnished required payment and performance bonds. Owner reserves the right to retain security of the next two (2) lowest bidders until the lowest bidder enters into contract or until sixty (60) days after bid opening, whichever is shorter. All other bid security will be returned as soon as practicable. If any bidder refuses to enter into a contract, Owner will retain bid security as liquidated damages, but not as a penalty.

M. All costs associated with the preparation and submission of a bid are the sole responsibility of the bidder. These costs shall not be chargeable to the Owner by any successful or unsuccessful bidder. All bids become the property of the Owner and shall not be returned except in the case of a late submission.

N. Simultaneously, with delivery of the executed contract, the successful bidder, at its own expense, shall furnish surety in the form of a performance bond and a labor and material payment bond in the amount of one hundred percent (100%) of the contract amount. Surety for such bonds shall be a company duly authorized and licensed in the State of Illinois and acceptable to the Owner. The Attorney-In-Fact who signs bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

O. All copies of the bid, bid security and any other documents required to be submitted with bid shall be enclosed in a sealed opaque envelope. Envelope shall be addressed to TTT PARTNERS, LLC, 1107 WEST FERDON STREET, LITCHFIELD, ILLINOIS 62056, and shall be identified with project name, bidder's name and address. Mailed bid envelopes shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof. Oral, telephonic or telegraphic Bids are invalid and will not receive consideration. Bids shall be deposited at the location designated in the Invitation to Bid prior to time and date designated for opening, or any extension thereof made by addendum. Bidder shall assume full responsibility for timely delivery at location designated for receipt of Bids. Bids received after time and date for receipt of bids will be returned unopened.

P. A bid may not be modified, withdrawn or canceled during the forty-five (45) days immediately following bid opening, and each bidder so agrees in submitting his Bid. Any bidder may withdraw, cancel or modify its bid, at any time prior to scheduled time for opening of bids, by letter or telegram actually received by Owner prior to bid time, or, with proper identification, by personally securing bid submitted; if by telegram, written confirmation over signature of bidder shall be mailed and postmarked on or before date and time of bid opening. Withdrawn bids may be resubmitted up to bid opening time provided that they are in full compliance with these Instructions to Bidders.

Q. Protests

1. Any bidder who submitted a bid and believes the bid was improperly rejected or that the bid selected by the Owner is not in the best interest of the Owner may submit a written notice of intent to protest the bid to the Owner within seven (7) days. The Owner shall consider all protests before execution of a contract. Each protest must specify the reasons supporting the protest. The Owner may require that additional information be provided. Failure to supply such required information shall be cause for dismissal of the protest.
2. The Owner shall immediately investigate the allegations against the Owners actions and shall issue a written response to the protest.
3. This provision allowing for the submission of protest shall not confer any right on any bidder but is intended solely to assist the Owner in determining the best responsible bid.

R. Any complaint or protest of the bidding procedure must be filed by the bidder to the Owner. Within 7 days of bid opening the bidder shall notify the Owner in writing of his intent to protest bidding. The bidder shall perfect this notice of intent within 7 days.

S. Owner reserves right to disqualify bids and bidders, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices upon part of bidder, lack of responsibility as evidenced by poor workmanship and progress of past work, incomplete work which, in judgment of Owner, might hinder or prevent prompt completion of additional work if awarded, for being in arrears on existing contracts, in litigation with the Owner, or having defaulted on a previous contract.

T. Bidder's attention is directed to the fact that all Federal and Illinois State Laws, municipal ordinances and regulations of any and all authority having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full. Successful Bidders shall be required to comply with 775 ILCS 10 concerning equal employment opportunities; comply with 30 ILCS 570 concerning the employment of citizens of the State of Illinois; comply with 820 ILCS 265 concerning substance abuse prevention on public works projects; and comply with 820 ILCS 130 concerning prevailing wages.

U. Any successful bidder that is a corporation organized in a state other than Illinois shall furnish to the Owner, upon request, a properly certified copy of its current Certificate of Authority to do business in the State of Illinois, such certificate is to remain on file with the Owner.

V. Any successful bidder that is a corporation organized in the State of Illinois shall furnish at its own cost to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State, such certificate is to remain on file with the Owner.

W. This project is within the Montgomery County Enterprise Zone. Owner is exempt from payment of sales tax on purchase of qualifying building materials purchased in the State of Illinois. Retail sales tax shall not be included in the bid amount. See paperwork attached to this section for list of qualifying building materials. Each contractor and sub-contractor shall assist the Owner in completing this paperwork after contract execution.

X. Bids will be opened as announced in Invitation for Bids.

Y. Owner reserves the right to reject any or all bids or any part thereof, to waive any informalities in bidding and to accept bids deemed most favorable to the Owner.

Z. Notwithstanding any delay in preparation and execution of the formal Contract Agreement, each bidder shall be prepared, upon written notice of bid acceptance, to commence work within ten (10) days following receipt of official written Notice to Proceed, or on date stipulated in such notice.

AA. Any work in providing or preparing to provide the services specified herein that is commenced by the successful bidder prior to execution of a written contract agreement shall be at the bidders expense.

BB. Accepted bidder shall assist and cooperate with the Owner in preparing the formal Contract Agreement, and, within fifteen (15) days following its presentation, shall execute same and return it to Owner.

CC. Contract Time: Construction can commence immediately after contract execution. The Owner requires the project to be substantially complete within 180 calendar days after executed Notice to Proceed.

END OF DOCUMENT

HR Project No.: 150-3282

Hurst-Rosche, Inc. E-Mail: tdownen@hurst-rosche.com

REQUEST FOR INTERPRETATION PRE-BID QUESTION AND COMMENT FORM

(All information entered shall be typed in black).

PROJECT NAME: Social Security Building Renovations, TTT Partners, LLC

BIDDER: SUBMITTED BY (Name): Date:

ADDRESS: CITY: STATE: PHONE: Sheet of

Question No.	Page (or Drawing Sheet) Number	Drawing No. or Spec. Section Article & Paragraph Number	Question by Bidder

NOTE: ***ANY AND ALL QUESTIONS PERTAINING TO THIS BID MUST BE TYPED AND SUBMITTED ON THIS FORM AND MAILED OR E-MAILED TO RECEIVE A RESPONSE.***

END OF SECTION 00 21 14.

MONTGOMERY COUNTY ENTERPRISE ZONE
CERTIFICATE OF SALES TAX EXEMPTION

THIS CERTIFICATION MUST BE FILED WITH EACH RETAILER AT THE TIME BUILDING MATERIALS ARE ORDERED

This is to certify that the project listed below is within the MONTOGMERY COUNTY ENTERPRISE ZONE and is eligible for Sales Tax Exemption on building materials purchased for the period

Beginning date _____ and ending date _____.

Each contractor and sub-contractor for a project must apply for a Sales Tax Exemption Certificate. This exemption applies only to materials purchased from eligible retailers. Please see attached for qualifying materials. This certification should be retained and filed with invoices for tax exempt building materials purchased for this project.

Business/ Cell: _____

Project Name:_____Phone:_____

Project address:_____

FEIN # _____ email address: _____

Project owner (name):_____

Contractor's name (if different than owner):_____FEIN #: _____

Contractor's address:_____

Contractor's Email address: _____ Phone: _____

Project description:_____

_____

Contract Amount $_____ **Cost of Building Materials that qualifies for exemption: $_____** **Sales Tax % _____**

NOTE: A CONTRACTOR OR BUILDER WHO ILLEGALLY USES THIS CERTIFICATION TO OBTAIN BUILDING MATERIALS FOR A PROJECT AT A LOCATION OTHER THAN THE LOCATION LISTED ABOVE, WILL FORFEIT ALL LOCAL ENTERPRISE ZONE BENEFITS.

I hereby certify that the materials purchased with this certificate will be incorporated into the project address listed above and that I have obtained a building permit for this project.

_____ _____ _____

Signature of Project Representative Title Date

Attachment #1

MONTGOMERY COUNTY ENTERPRISE ZONE PROGRAM

#1 Courthouse Square – Room 202, Hillsboro, IL 62049 Phone 217-532-9577

Project Information Form: (Must be completed and returned to receive Enterprise Zone benefits)

ADMINISTRATIVE FEE OF 0.5% OF THE COST OF BUILDING MATERIALS:

The Montgomery County Enterprise Zone Council met and approved to amend the Enterprise Zone Ordinance to implement the Administration fee according to 20 ILCS 655/8.2. The Admin Fee is 0.5% of the cost of building materials of the project associated with the specific Enterprise Zone, with a maximum fee of no more than $50,000. This Admin Fee pays for the administration of the EZ program and GIS mapping expenses. The **EZ Admin Fee of 0.5% of the estimated Building Materials will be calculated and ONE HALF will be collected at the beginning of the project and the balance will be calculated at the end of the project when all the building material costs are totaled.**

Exclusions - Retail/Service/Commercial Companies engaged in the following categories of business below shall be ineligible for any property tax abatement as provided herein:

Self-storage (mini warehouse facilities), Adult Entertainment Venues including Adult Bookstores, Auto Salvage and Junk Yards, Commercial Feed Lots, Hides-Skins and Raw Furs Processing, Landfills and Refuse Incinerators and Slaughter House, Meat Packing, Processing Plants and Stockyards.

Part I – Project Information (To be completed by Project Representative)

1. Name of Business: _____

   FEIN #_____ Property Tax ID (s) #_____

2. Mailing Address/City/Zip: _____

3. Business Ph: ( ) _____ Cell:( ) _____ email: _____

4. Address of Proposed Enterprise Zone Project: T.I.F. District? Yes or No

   _____

5. Please provide a "general description" of proposed zone project, including plans for rehabilitation/remodeling of existing structures, new construction, major on-site improvements, or new equipment, purchases, etc. _____

   _____

   _____

6. Proposed Date of Project Start: _____ Est. Completion Date: _____
7. **Estimated Costs for Zone Improvements**:
   a. Estimated Cost of New Construction: $_____
   b. Estimated Cost of Rehab/remodeling: $_____
   c. Estimated Cost of Site/Land Acquisition: $_____
   d. Cost of Capital Equipment: $_____
   e. **Estimated Cost of Project Building Materials:** $_____ **X .005 = $**_____ **Admin. Fee**
   f. **Total Project Cost:** $_____

11. **Number of Full-Time Equivalent Jobs:** Presently at Project's location: _____

    Employees Retained* at location: _____ Created** within 2 years of project completion: _____

12. Signature of Project Representative(s): _____

    _____ _____ _____

    Printed Name Title Date:

Admin Fee Total: $_____ ½ at time of Application: $_____ Balance at Completion: $_____

Sub-Contractor List for Certificate of Sales Tax Exemption

Project Name: ____

Each sub-contractor for a project must apply for a Sales Tax Exemption Certificate.

Sub-Contractor's Business Name:__________________________________FEIN #: ____________

Business address, town, zip:____

Contact Name: __________________________________ Phone: _____________________

Email address: __________________________________ Business Fax: ___________________

Type of Business: ____

Contract Amount $_____________ Cost of Building Materials that qualifies for exemption: $________________ Sales Tax % _____

****

Sub-Contractor's Business Name:__________________________________FEIN #: ____________

Business address, town, zip:____

Contact Name: __________________________________ Phone: _____________________

Email address: __________________________________ Business Fax: ___________________

Type of Business: ____

Contract Amount $_____________ Cost of Building Materials that qualifies for exemption: $________________ Sales Tax % _____

****

Sub-Contractor's Business Name:__________________________________FEIN #: ____________

Business address, town, zip:____

Contact Name: __________________________________ Phone: _____________________

Email address: __________________________________ Business Fax: ___________________

Type of Business: ____

Contract Amount $_____________ Cost of Building Materials that qualifies for exemption: $________________ Sales Tax % _____

****

Sub-Contractor's Business Name:__________________________________FEIN #: ____________

Business address, town, zip:____

Contact Name: __________________________________ Phone: _____________________

Email address: __________________________________ Business Fax: ___________________

Type of Business: ____

Contract Amount $_____________ Cost of Building Materials that qualifies for exemption: $________________ Sales Tax % _____

Montgomery County Zone Administrator
Christine Daniels
#1 Courthouse Square – Room 202, Hillsboro, IL 62049
217-532-9577
Email: chrisd@montgomeryco.com
(Revised January 2021)

Date: February 2nd, 2021

To: Business Owners:

Re: Instructions for the EZ Packet

The EZ forms have been updated to reflect changes made to the County EZ Ordinance, Resolution and Intergovernmental Agreements and a packet of information is attached.

(EZ Process Guide: Pages 1 – 10) Explains the County EZ Program & Requirements

Project Forms to be completed and returned. (Pages 11 – 13).

- Please note that there is an Admin Fee of .5% of the Building Materials as explained on page 4 of the EZ Process Guide. One half is due when the sales tax exempt cert is issued and the other half is due when the project is completed and a total of building material costs are calculated.
- Please complete all the fields on the attached forms and email them back to me. If you have more than four subcontractors for your project requiring Sales Tax Exempt Certificates, you will need to make an extra copy of that form in your packet.

IL Dept. of Revenue List of Qualifying Materials for Sales Tax Exemption: (Page 14)

IL Dept. of Revenue instruction and requirements you must follow to close out your project on the Illinois Department of Revenues website. (Pages 15 – 17)

If you have any questions, please call or email me.

Thanks,

Chris Daniels, EZ Administrator

Qualifying Materials for EZ Sales Tax Exemption

Purchase of eligible building materials outside Illinois is allowed as long as the purchase is governed by the Illinois Retailers' Occupation Tax Act. For out-of-state purchases, this generally means that materials must be delivered to Illinois. For specific information about out-of-state purchases, please contact the local office of the Illinois Department of Revenue at (217)-782-3336.

Under Illinois law, construction contractors are considered the end users of the tangible personal property that they take off the market and permanently affix to real estate. Contractors who also sell at retail cannot act as retailers to themselves (by removing stock from their inventory) and claim the enterprise zone exemption. To qualify for the exemption, they must instead purchase qualifying materials from eligible retailers *or* separately bid and invoice labor and materials sold at retail.

Qualifying materials under the exemption include those that will be incorporated into real estate located in an enterprise zone by remodeling, rehabilitation, or new construction.

For example, common building materials such as lumber, bricks, cement, windows, doors, insulation, roofing materials and sheet metal; plumbing systems and components such as bathtubs, lavatories, sinks, faucets, garbage disposals, water pumps, water heaters, water softeners and water pipes can qualify for the deduction;

Heating Systems: and components such as furnaces, ductwork, vents, stokers, boilers, heating pipes and radiators;

Electrical Systems: and components such as wiring, outlets and light fixtures which are physically incorporated;

Central Air Conditioning Systems, ventilation systems and components which are physically incorporated;

Built-in cabinets and other woodwork which are physically attached; floor coverings such as tile, linoleum and carpeting that are permanently affixed by use of tacks, staples, or glue;

Concrete (as long as labor and materials are separated);

Landscaping Materials (as long as labor and materials are separated);

Hard Wired Signs which are not portable; and in general, built-in appliances that are physically incorporated into real estate can qualify for the exemption.

ITEMS WHICH DO NOT QUALIFY: include tools, machinery, equipment, fuel, forms, free-standing appliances and furniture, portable ventilation units, window air-conditioning units, lamps, and area rugs.

If you have any questions please call the Illinois Department of Revenue Office: (217)-782-3336.

Attachment #2

Illinois Department of Revenue

Publication 140

June 2019

Reporting Requirements for Business Incentives

The information in this publication is current as of the date of the publication. Please visit our website at **tax.illinois.gov** to verify you have the most current revision.

The contents of this publication are informational only and do not take the place of statutes, rules, and court decisions. For many topics covered in this publication, we have provided a reference to the applicable section or part of the Illinois Administrative Code for further clarification or more detail. All of the sections and parts referenced can be found in Title 86 of the Illinois Administrative Code.

About this publication

Publication 140, Reporting Requirements for Business Incentives, has been developed to describe the reporting requirements for all entities required to report incentives, including High Impact Businesses, businesses in designated Enterprise and River Edge Redevelopment Zones, Building Materials Exemption Certificate holders, and utility providers. This publication supercedes Informational Bulletin FY 2014-11.

This publication provides a brief description of the requirements. For complete information about what you need, visit our website at tax.illinois.gov and click on the "Business Incentives Reporting " link under the "Businesses" drop-down to get started.

For information or forms, visit our website at: tax.illinois.gov

Who is Required to File a Report?

The following summarizes reporting requirements, including who is required to file a report, and the types of reports required.

- **Building Materials Exemption Certificate (BMEC) report** – If you obtained a building materials exemption certificate issued by the Illinois Department of Revenue (IDOR)*, you are required to file a report with IDOR in which you report the dollar amount of exempt building materials that you purchased. Each contractor, sub-contractor, or other entity that is issued a certificate is liable to file, including filing a zero report when no purchases were made.

  The requirement to file a BMEC report is mandated by Public Act 98-0109, effective July 25, 2013.

- **Business report** – Businesses that receive incentives because they are located within either an Enterprise Zone or River Edge Redevelopment Zone, or because they are a High Impact Business, must file a business report with IDOR. Each business that receives incentives must provide the information IDOR requests.

- **Utility Company report** – Businesses and other entities that are required to file under the Gas Revenue Tax Act, Gas Use Tax Act, Electricity Excise Tax Act, or the Telecommunications Excise Tax Act must report the information IDOR requests about any utility customers who received incentives due to the customer's location within an Enterprise Zone or the customer's certification as a High Impact Business.

* For information on applying for a Building Materials Exemption Certificate, see Publication 139, Application Process to Obtain Sales Tax Exemption Certificates for Building Materials.

When are reports due?

All reports for the previous calendar year are due no later than May 31 of the following year. However, if a report deadline falls on a Saturday, Sunday, or holiday, the deadline to file automatically defaults to the following business day. For example, if May 31 falls on a Saturday, the reports for the previous calendar year are due on Monday, June 2.

How do I file a report?

Use IDOR's online reporting system available through the Department's website, **tax.illinois.gov**. From the "Business" drop-down, click on "Business Incentives Reporting." From there, click "Click Here to Begin Filing a Report" to go to the filing system. After reading the general information about the system, click the "Next" button to start your filing session.

If you are a:

- **BME certificate holder,** select the tab labeled "BME Certificate Report."
- **utility,** select the tab labeled "Utility Company Report."
- **business that received incentives,** select the tab labeled "Business Incentive Report."

The system includes prompts and tips, indicated with a "?" to guide you through the report.

What do I need to file a report?

Depending on the type of filer you are, you should have the following information available when filing a report.

- **BMEC report filers** – Certificate holders need the number used to register for their building materials exemption certificates (Federal Employer Identification Number (FEIN), Social Security number (SSN), or Applicant Identification number). Once logged into the system, the reporting application provides a list of all current certificates you hold for which you have a reporting requirement. For each project-related certificate, you will need to declare the dollar value of the building materials you purchased in the previous calendar year, using each of your certificates.
- **Utility report filers-** You are required to enter your Federal ID number or license number, and exemption figures for all utility businesses that are certified exempt.
- **Business report filers** – You are required to enter identifying information for your business, such as Tax ID number, the type of zone, and zone name, if applicable. In addition, you must report any tax incentives that you have received. Incentives may be related to income tax, utility taxes, sales tax, property tax, or jobs created.

What if I make a mistake or need to correct a report that I already filed?

If you make a mistake or need to correct a report that you already filed, you must submit an entirely new report for all of your certificates again, even the ones that were correctly filed the first time. Please log into your account and file a new report. This new report will completely replace your earlier submissions.

Are there penalties if a certificate holder or business fails to file a report?

Certificate holders who fail to report sales tax exemption benefits for building materials purchased may have their certificates revoked, and shall become ineligible to receive certificates for other projects. The penalties for not complying with reporting requirements are:

- 1st offense-A contractor, sub-contractor, or other entity will have its non-compliant exemption certificate suspended until the reporting requirement is met.
- 2nd offense-A contractor, sub-contractor, or other entity who fails to comply with reporting requirements for two reporting periods within a five-year period will have all exemption certificates issued to it suspended for 30 days past the date that all filing requirements have been met.
- 3rd offense-A contractor, sub-contractor, or other entity who fails to comply with reporting requirements for more than two reporting periods within a five-year period will have all exemption certificates issued to it suspended for 180 days past the date that all filing requirements have been met.

Furthermore, contractors, sub-contractors, or other entities engaged in the fraudulent use of exemption certificates may be subject to further penalties including a permanent revocation of all exemption certificates.

See 86 Ill.Admin. Section 130-1951 for more information on penalties for certificate holders.

Businesses that fail to report benefits may lose their eligibility to receive incentives.

For more information:

Find the most up-to-date information on the Illinois Department of Revenue's website at **tax.illinois.gov.**

Frequently Asked Questions (FAQ) pages have been developed to provide more specific detail about each reporting type. Look for the "Business Incentives Reporting" link under the "Businesses" drop-down on our homepage to get started.

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Building Materials Exemption Certificate Report

Who must file the Building Materials Exemption Certificate report?

You must file this report if you were issued a Building Materials Exemption Certificate by the Illinois Department of Revenue to purchase tax exempt building materials for a high impact business, for a business located in an Enterprise Zone or River Edge Redevelopment Zone, or for a residence located within an Enterprise Zone.

What information will I need to know to file my Building Materials Exemption Certificate Report?

Click on the links below to obtain more information about each required piece of information.

Sales Tax Incentives

- Description of business [/rev/businesses/incentives/reporting/Pages/Business-Incentives-Reporting-Terms.aspx#qst24]
- Project owner holds certificate [/rev/businesses/incentives/reporting/Pages/Business-Incentives-Reporting-Terms.aspx#qst25]
- Exempt building materials [/rev/businesses/incentives/reporting/Pages/Business-Incentives-Reporting-Terms.aspx#qst26]

BUSINESS INCENTIVES REPORTING INFORMATION [/REV/BUSINESSES/INCENTIVES/REPORTING]

Building Materials Exemption Certificate Report [/rev/businesses/incentives/reporting/Pages/Building-Materials-Exemption-Certificate-Report.aspx]

Enterprise Zone Business Report [/rev/businesses/incentives/reporting/Pages/Enterprise-Zone-Business-Report.aspx]

High Impact Business Report [/rev/businesses/incentives/reporting/Pages/High-Impact-Business-Report.aspx]

River Edge Redevelopment Zone Business Report [/rev/businesses/incentives/reporting/Pages/River-Edge-Redevelopment-Zone-Business-Report.aspx]

Utility Report [/rev/businesses/incentives/reporting/Pages/Utility-Report.aspx]

Business Incentives Reporting Terms [/rev/businesses/incentives/reporting/Pages/Business-Incentives-Reporting-Terms.aspx]

Business Incentives Reporting Web Question [/rev/Pages/Questions.aspx?Topic=9]

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(revised January 2021)

Montgomery County Enterprise Zone Process Guide

Effective March 1, 1990, the State of Illinois designated 15.0 square miles in Montgomery County as an Enterprise Zone for a term of 20 years. As of January 9th, 2009 the Illinois Department of Commerce and Economic Opportunity (DCEO) extended the life of the Montgomery County Enterprise Zone for an additional 10 year term until February 28th, 2020. **In January of 2018, DCO approved a new EZ Application for Montgomery and the new termination date is January 1st 2033.** Qualified new and existing businesses in the Zone are offered state and local tax incentives and other benefits to reduce operating and construction costs.

Participating Municipalities in the Montgomery County Enterprise Zone Include:
Butler, Coalton, Coffeen, Donnellson, Hillsboro, Irving, Litchfield, Nokomis, Raymond, Schram City, Taylor Springs and Witt. Check the County Web site for the parcels that are approved in the EZ by each unit of government.

The Enterprise Zone Program is a state and local partnership. It emphasizes a creative coalition of state and local governments, business, labor and community groups to encourage economic growth in the Enterprise Zone. The Montgomery County Enterprise Zone is set aside to attract new industry and revitalize existing businesses by providing initiatives and financial incentives.

The information in this Guide provides further information on which projects might qualify for the Montgomery County Enterprise Zone as well as further information on the incentives potentially available.

Property Tax Abatement

Property tax abatement shall be applicable for eligible office, warehouse/distribution and industrial real property for which construction improvements, renovation or rehabilitation has been completed after January 1st, 2018, and before December 31st, 2033.

Property taxes are abated based on the increase in assessed valuation due to new construction, renovation or rehabilitation of eligible office, warehouse distribution and industrial properties. The abatement will begin with real estate taxes for the first full year of the facility's commercial operation.

DESIGNATING UNITS OF GOVERNMENT shall be abated on property located within the Zone and upon which new improvements have been constructed according to the following schedule:

The schedule is as follows: **Incentives for Industrial and commercial Properties Only**

Amount of Increase in Value:	Term of Abatement:	Amt. of Abatement
$ 0 to 2 million	3 years	100%
$ 2 million to 5 million	5 years	100%
$ 5 million and above	10 years	100% for years 1 - 5 50% for years 6 - 10

Abatement from participating governmental entities for the specific project will cease after the above stated time or upon expiration of the enterprise zone, whichever occurs first.

In order to receive property tax abatement, the Montgomery County Enterprise Zone Administrator must receive a formal written request for abatement from the property owner prior to the start of construction. Project Forms must be completed and returned. Attached

The above property tax abatements shall be applicable for eligible **INDUSTRIAL, MANUFACTURING, LOGISTICS/DISTRIBUTION CENTER PROJECTS and for RETAIL/SERVICE/ COMMERCIAL property developments located within the zone** for increases in assessed valuation to real property upon which new construction, improvements, renovation or rehabilitation has been completed after January 1, 2020, and before the expiration, termination or decertification of the Montgomery County Enterprise Zone, whichever is sooner. Abatement shall only apply to the incremental increase in taxes assessed as a result of the project and its related improvements. Further, if a building permit is required; its issuance is also a condition of abatement approval. Questions as to the eligibility of a project and resulting improvements will be decided by the Montgomery County Enterprise Zone Administrator, with advice and consent of the local Enterprise Zone Advisory Board.

Project Application Approval – No project shall be granted property tax abatement until or unless a Project Application has been submitted to the Administrator of the Montgomery County Enterprise Zone, to insure eligibility and qualifying criteria have been met. Enterprise Zone Property Tax Abatement will not be granted if a project has begun construction prior to receiving approval of an Abatement request from the Administrator. Applicants requesting Building Materials Exemption Certificates (BMEC) from the Administrator and the Illinois Department of Revenue will not receive benefits for materials purchased prior to the issuance of a BMEC by the Illinois Department pf Revenue.

DEFINITIONS

1) **"Project Application"** as defined herein is the written application for Montgomery County Enterprise Zone benefits for job development and capital investment projects. The application must be completed by the company seeking benefits (or the company's designated representative) and submitted to the Montgomery County Enterprise Zone Administrator prior to the initiation of construction for said project. The Application provides information necessary for the Administrator to verify eligibility for Enterprise Zone benefits including, but not limited to, Property Tax Abatement and Sales Tax Exemption for Building Materials in conjunction with the Illinois Department of Revenue processes and procedures in effect at the time of the Application.
2) **"Industrial/Manufacturing Projects"** as defined herein, are enterprises where the manufacturing or assembling of goods takes place.
3) **"Logistic(s)/Distribution Center Projects"** as defined herein, are warehousing and distribution enterprises that are engaged in the storage and/or packaging of goods and/or information and the transfer or transportation of products from a point of origin to a point of consumption. Data Centers supporting Information Storage and distribution are included in this category.
4) **"Retail/Service/Commercial Projects"** as described herein, are enterprises in the business of selling products or services to the general public or wholesale customers as well as restaurants, hotels/motels, assisted living and related concerns, and enterprises that are research oriented and/or provide professional services such as accounting, engineering, architecture, finance, law and telemarketing companies.
6) **Exclusions** - Retail/Service/Commercial Companies engaged in the following categories of business below shall be ineligible for any property tax abatement as provided herein:

Self-storage (mini warehouse facilities), Adult Entertainment Venues including Adult Bookstores, Auto Salvage and Junk Yards, Commercial Feed Lots, Hides-Skins and Raw Furs Processing, Landfills and Refuse Incinerators and Slaughter House, Meat Packing, Processing Plants and Stockyards.

Additional Exclusions – All residential and apartment projects shall be ineligible for any benefits herein established in the Montgomery County Enterprise Zone including sales tax exemption on building materials.

No Tax Levy Objection. Taxpayers receiving Montgomery County Enterprise Zone property tax abatements under the terms and conditions outlined above, agree that they shall not file an objection to the real estate property assessment levied on the site and or facilities. In the event any real estate property tax protestor objection is filed for the subject property, the Enterprise Zone property tax abatement for the subject property shall automatically terminate.

Sales Tax Exemption

A point-of-sale tax exemption is available on building materials incorporated into real estate in the Montgomery County Enterprise Zone. In order to receive this exemption, building materials must be used for remodeling, rehabilitation or permanent new construction. **Construction must be of the nature that a building permit would be required. A completed exemption form with original signatures must be submitted to the Zone Administrator prior to the start of the project.** An exemption form is attached to this document.

- In addition to the completed exemption form, the applicant must submit a copy of the approved building permit issued by the applicable local unit of government. The Administrator will verify the project is eligible and located within the Zone Boundary. The approval process for a sales tax exemption could take up to 5 days.
- Residential properties are not eligible for sales tax exemption with the exception of certain multi-family developments. Eligible multi-family properties are defined as a project containing three (3) or more dwelling units in one building with a minimum construction/rehabilitation value of $100,000 per unit. Construction value may include common area and building systems costs, apportioned to each unit within the structure.
- The City, County and State exemptions provide a full abatement of sales tax on construction materials. Companies undertaking projects in the Enterprise Zone are encouraged to purchase building materials locally and to use local labor.
- Enterprise Zone participants have been granted an exemption of the State, City and County sales tax. Sales tax is exempted on building materials incorporated into real estate located in the Montgomery County Enterprise Zone. The exemption applies to building and construction materials used for remodeling, rehabilitation or new construction.

What is the sales tax deduction and what is the retailer's role?

Each retailer, who makes a qualified sale of building materials to be incorporated into real estate by remodeling, rehabilitation or new construction in the Montgomery County Enterprise Zone, may deduct receipts from such sales when calculating the tax imposed by this Act. For purposes of this Section, "qualified sale" means a sale of building materials that will be incorporated in to real estate as part of a building project for which a Certificate of Eligibility for Sales Tax Exemption has been issued by the administrator of the enterprise zone in which the building project is located. To document the exemption allowed under this Section, the retailer must obtain from the purchaser a copy of the **Certificate of Eligibility for Sales Tax Exemption issued by the administrator of the Montgomery County Enterprise Zone.**

The Certificate of Eligibility for Sales Tax Exemption must contain:

- a statement that the building project identified in the Certificate meets all the requirements for the building material exemption of the Montgomery County Enterprise Zone;
- the location or address of the building project; and

In addition, the retailer must obtain certification from the purchaser that includes:

- a statement that the building materials are being purchased for incorporation into real estate located in the Montgomery County Enterprise Zone;
- the location or address of the real estate into which the building materials will be incorporated;
- the name of the enterprise zone – Montgomery County Enterprise Zone – in which that real estate is located;
- a description of the building materials being purchased; and
- the purchaser's signature and date of purchase.

The ordinance that governs the enterprise zone into which the building materials will be incorporated may neither require nor prohibit the purchase of building materials from any retailer or class of retailers in order to qualify for the exemption.

ADMINISTRATIVE FEE OF 0.5% OF THE COST OF BUILDING MATERIALS:

The Montgomery County Enterprise Zone Council met and approved to amend the Enterprise Zone Ordinance to implement the Administration fee according to 20 ILCS 655/8.2. The Admin Fee is 0.5% of the cost of building materials of the project associated with the specific Enterprise Zone, with a maximum fee of no more than $50,000. This Admin Fee pays for the administration of the EZ program and GIS mapping expenses. The **EZ Admin Fee of 0.5% of the estimated Building Materials will be calculated and ONE HALF will be collected at the beginning of the project and the balance will be calculated at the end of the project when all the building material costs are totaled.**

ZONE MANAGEMENT COSTS AND OPERATION

A) Staff salary and fringe benefits of the Zone Administrator shall be determined and paid by Montgomery County or other qualified party, as part of his or her responsibilities in acting as Zone Administrator. Administration fees from Applicants may be used for this purpose.

B) Operating expenses for the administration of the Zone may include, but are not limited to:

1) Expenses related to promoting the Zone, e.g., brochure production and dissemination, television and newspaper advertising, workshops, presentations, training and travel.

2) Clerical, copying, printing, postage and minor equipment expenses associated with Zone Advisory Board meetings, activities of the Zone Advisory Board and reporting to the State of Illinois.

3) Project related activities which benefit the region's economic development strategy and plan, which are directly impacted by the Montgomery County Enterprise Zone.

Please complete the "Project Information Sheet" Attached. An EZ Admin Fee of 0.5% of the estimated Building Materials will be calculated and collected at the beginning of the project.

BUILDING PERMIT FEE WAIVER. If applicable, Montgomery County, the Cities of Coffeen, Hillsboro, Litchfield, Nokomis and Witt, Illinois; and the Villages of Butler, Coalton, Donnellson, Irving, Raymond, Schram City, and Taylor Springs, Illinois will waive the normal amount charged for any and all fees or building permits necessary for rehabilitation, expansion or new construction associated with **INDUSTRIAL, MANUFACTURING and LOGISTICS/ DISTRIBUTION CENTER PROJECTS and for RETAIL/SERVICE/COMMERCIAL PROJECTS**, as defined

herein, within the Montgomery County Enterprise Zone. The provision or this incentive shall not be construed to provide for the elimination of any permit.

TAX INCREMENT FINANCING DISTRICT OR REDEVELOPMENT AREA OVERLAY. In the event that a Tax Increment Financing (TIF) District or redevelopment district or project area (20 ILCS 655/5.4.1) is, will be, or has been created by a municipality under Division 74.4 of the Illinois Municipal Code, and said redevelopment project area contains property that is located in an enterprise zone, and the municipality adopts an enterprise zone designating ordinance pursuant to Section 5.4 of the Act specifically concerning the abatement of taxes on property, as above, located within a redevelopment project area created pursuant to Division 74.4 of the Illinois Municipal Code, and the Department certifies the Ordinance, then the property that is located in both the enterprise zone and the redevelopment project area or TIF District shall not be eligible for the abatement of taxes under Section 18-170 of the Illinois Property Tax Code.

BUSINESS ENTERPRISE FOR MINORITIES, WOMEN, AND PERSONS WITH DISABILITIES. The Designating Units of Government are committed to the development of businesses owned by minorities, women and disabled persons, as defined in the Business Enterprise for Minorities, Women and persons With Disabilities Act (30 ILCS 575), in the Montgomery County Enterprise Zone. Further, as described in the Illinois Enterprise Zone Act (20 ILCS 655/4.e.11), the Designating Units of Government are committed to encouraging employers located within the boundaries of the Montgomery County Enterprise Zone to hire minorities, women and disabled persons in accordance with the intent of the Act and the regional economic development strategy.

UPON PROJECT COMPLETION: Businesses receiving a Sales Tax Exempt Certificate must report at the close of the project on the DCEO Web Site. Information is Attached.

Frequently Asked Questions:

What is the enterprise zone property tax abatement incentive?
The Illinois Revenue Act 35 ILCS 200/18-170, as amended, provides that any taxing district may order the county clerk to abate (that is, to give up) any portion of its taxes on real property, or on any particular class thereof, located within a zone and upon which new improvements have been renovated or rehabilitated.

Are taxes reduced on the current value of the property (or on existing improvements)?
No. The abatement applies only to taxes on the increase in assessed value attributable to the new construction, renovation or rehabilitation. Taxes based on the assessed value of land and existing improvements continue to be extended and collected.

If property tax abatement is authorized, are new improvements made to property located within a zone assessed?
Yes. By law, every time property is improved, it is reassessed.

How do these incentives affect the multiplier?
They don't. The multiplier or equalization factor is the application of a percentage increase or decrease, generated by the Illinois Department of Revenue, in order to adjust assessment levels in various counties to the same percentage of full value. Multipliers are not affected by the enterprise zone property tax abatement provision or by county assessment reductions.

Does the abatement of taxes on improvements in an enterprise zone affect the tax rate?
Yes, however in most cases the effect will be marginal. Tax rates depend on the levy (amount of tax revenue the local government is raising) and the size of the tax base (total equalized assessed valuation of the district less homestead exemptions, plus the value of any State assessed property).

Under normal circumstances, the tax rate for a district is calculated by dividing the district's tax levy by its tax base. The greater the tax base, the lower the rate needed to generate the amount of the levy.

Under the Enterprise Zone Program, the value of abated property is subtracted from the tax base prior to the calculation of the tax rate. In most cases, the tax base is large enough and the enterprise zone abatements are low enough that the overall effect is negligible.

How does the enterprise zone property tax abatement provision in 18-170 of the Revenue Act differ from the property tax provision in 18-165?
The enterprise zone provision is broader and more flexible. The enterprise zone property tax abatement:

- May be offered on all classes or real property, including commercial, residential and industrial (18-165 abatements are limited to commercial and industrial improvements). Please see page 2 of this Guide to see if your project qualifies under the Montgomery County Enterprise Zone provisions.
- May be offered for any number of years, up to the termination date of zone certification (18-165 abatements cannot exceed 10 years). Please see page 2 of this Guide to see the years and percentage abatement offered to qualified projects under the Montgomery County Enterprise Zone provisions.
- May be offered by a taxing district in amount (the abatement offered under 18-165 limits the aggregated amounts of an abatement offered by all taxing districts to $3,000,000).

Can property tax be abated in a tax increment finance district (TIF)?
Tax increment financing is a financing technique that cities may use to pay for public improvements such as land assemblage, building demolition, utilities, streets, and sidewalks. Property owners in the project area do pay their full share of taxes. Taxes generated by the increase in assessed valuation – the tax increment – go into a special allocation fund used to pay the bonds which financed the public improvement costs. This financing method is not a tool to speculatively prepare for development – tax increment financing requires an advance commitment by a developer to a project. Property tax abatement is, however, a tool that is used for development. It is not a financing technique. The Revenue Act provides that any taxing district, upon a majority vote of its governing authority, may order the county clerk to abate any portion of its taxes on improvements made to real property located in a zone. The increase in assessed valuation due to new construction, rehabilitation or renovation is not taxed for the term of the abatement as set by local ordinance. A TIF district may be included in the legal description of the zone and consequently be eligible to receive other tax incentives and benefits, but the property tax abatement provision must exclude the TIF district from the area eligible for abatement.

How does the enterprise zone sales tax deduction affect Home Rule Municipal Taxes or County Supplemental Taxes? Once the gross receipts from sales of building materials are excluded from the Illinois Retailers' Occupation Tax base by virtue of exempted building materials, these receipts are also excluded from the Home Rule Muni Tax Base and County Supplemental Tax Base.
Do all retailers offer a point of sale exemption? No. Retailers are not required by law to participate. The purchaser must ask the retailer for cooperation on this incentive. Retailers have, however, demonstrated good cooperation throughout the history of this program, as this incentive permits them to give customers a "break" without cost to themselves.
What qualifies as "building materials" eligible for the sales tax deduction?

Building materials that are eligible for the enterprise zone sales tax deduction include items that are permanently affixed to real property such as lumber, mortar, glued-down carpets, paint, wallpaper and similar affixed items.

Tax Credits: Investment Tax Credit

The Illinois Income Tax Act 35 ILCS 5/201, as amended, allows corporations, trusts, estates, individuals, partners and Subchapter S shareholders a 0.5 percent credit against the state income tax for investments in qualified property which is placed in service in the Montgomery County Enterprise Zone. This credit is in addition to the existing 0.5 percent investment tax credit allowed statewide against the corporate personal property replacement tax. The investment tax credit applies against gross income subject to Illinois income tax and to the depreciable basis of qualified property placed in service within the Montgomery County Enterprise Zone. It is a one-time credit given in the taxable year in which the property is placed in service. If the amount of the credit exceeds the tax liability for that year, the excess may be carried forward and applied to the tax liability of the five taxable years following the excess credit year.

Who are qualifying taxpayers? The credit may be taken by corporations, trusts, estate, individuals, partners and Subchapter S shareholders who make investments in qualified property and who otherwise meet the terms and conditions established by statute.

What are examples of "qualified property"? Examples of qualified property include:
Buildings, structural components of buildings, elevators, materials tanks, boilers and major computer installations. Examples of non-qualifying property include: Land, inventories, small personal computers, trademarks, typewriters and other small non-depreciable or intangible assets.

What does "Placed in service" mean? Qualified property is "placed in service" on the earlier of 1) the date the property is placed in a condition of readiness and availability for use, or 2) the date on which the depreciation period of that property begins. To qualify for the enterprise zone investment tax credit, the property must be placed in service on or after the date the zone is certified by the Department of Commerce and Economic Opportunity, and, on or before the last day of the firm's taxable year.

What is "depreciable" property? Property must be depreciable pursuant to Internal Revenue Code Section 167. Depreciable property is used in the taxpayer's trade or business or held for the production of income (but not inventory) which is subject to wear and tear, exhaustion or obsolescence.
There are some types of assets that may not be depreciable, even though they are used in the taxpayer's business or trade or are held for the production of income. Good will and land are examples. Other examples of tangible property which are not depreciable are inventories, natural resources and currency.

Does "used" property qualify for the enterprise zone investment tax credit?
Used property does not qualify if it was previously used in Illinois in such a manner and by such a person as would **qualify** for either the statewide investment tax credit or the enterprise zone investment tax credit. Example: A corporation purchases a used pick-up truck for use in its manufacturing business in an enterprise zone from an Illinois resident who used the truck for personal purposed in Illinois. If the truck meets the other requirements for the investment tax credit, it will not be disqualified because it was previously used in Illinois for a purpose which did not qualify for the credit. However, had the corporation purchased the truck from an Illinois taxpayer in whose hands the truck qualified for the credit, the truck would not be qualified for the investment tax credit, even though the party from whom the truck was acquired had never received an investment tax credit for it.

What is the "basis" value of property? The "basis" value of property, for the purposes of this credit, is defined the same way it is defined for purposes of federal depreciation calculations. Essentially, the basis is the cost of the property, as well as related capital costs.

Does the enterprise zone investment tax credit carry forward?
Yes. The credit is allowed for the tax year in which the property is placed in service, or, if the amount of the credit exceeds the tax liability for that year, the excess may be carried forward and applied to the

tax liability of the five taxable years following the excess credit year. The credit must be applied to the earliest year for which there is a liability. If there is credit from more than one tax year that is available to offset a liability, the credit accruing first in time is applied first.

Jobs Tax Credit

What is the enterprise zone jobs tax credit?

The enterprise zone tax credit 35 ILCS 5/201 offers employers a tax credit on their Illinois income taxes for hiring individuals who are certified as economically disadvantaged or dislocated workers.

How much is the tax credit?

An employer who conducts a trade or business in an enterprise zone is allowed a credit of $500 per eligible employee hired to work in a zone during the taxable year. Any unused portion of the credit may be carried forward five years. The credit must be applied to the earliest year for which there is a tax liability.

How do employers qualify for the jobs tax credit?

To qualify for the credit: a minimum of five eligible employees must be hired in a zone during the taxable year; and, the taxpayer's total employees must increase by five beyond the total employed in the zone at the end of the previous tax year for which a jobs tax credit was taken.

What individuals quality as eligible employees for the Jobs Tax Credit?

An employee must be:

- Certified by a Sub-state Grantee (SSG) or Service Delivery Area Administrative Entity (SDA) as "eligible for services" under Titles II or III of the Job Training Partnership Act (JTPA);
- employed in an enterprise zone where the employee either works in the zone or the zone is the base of operations for the services performed; and,
- employed at least 180 consecutive days for 30 or more hours per week.

How do employers obtain jobs tax credit eligible individuals?

An employer should list job openings with the local SSG or SDA; note that the business is within an enterprise zone; and specify that the business seeks to hire workers certified as eligible for services under Title II or III of WIA formerly known as JTPA. If employers have job applicants who have not been referred by the SSG or SDA, they can offer to determine if they are eligible. Eligible individuals will be issued a Jobs Tax Credit Certification Voucher to present to prospective employers. When a person is hired, the employer keeps the voucher for tax records. This voucher is all the paperwork required.

Tax Exemptions - Utility Tax Exemption

What is the Utility Tax Exemption?

The Public Utilities Act 220 ILCS 5/9-222.1, as amended, and the Telecommunications Excise Tax Act 35 ILCS 630/2(a)(5), as amended, allows a business enterprise certified by DCEO as making an investment in a zone that either creates a minimum of 200 full-time equivalent jobs in Illinois or retains a minimum of 1,000 full-time jobs in Illinois, a 5 percent state tax exemption on gas, electricity and the Illinois Commerce Commission .1 percent administrative charge and excise taxes on the act or privilege of originating or receiving telecommunications. Local units of government may also exempt their taxes on gas, electricity and water.

How does a business become eligible for the Utility Tax Exemption?

To be eligible for this incentive, DCEO must certify that the business makes an investment of at least $5 million in an enterprise zone and has created a minimum of 200 full-time equivalent jobs in Illinois or makes an investment of at least $20 million in an enterprise zone and has retained a minimum of 1,000 full-time jobs in Illinois. A business must submit an application to DCEO documenting the eligible investment and that the job creation or job retention criteria has been met.

What is an eligible investment?

For purposes of this incentive, eligible investment may be either: 1) investments in qualified property as defined in the Enterprise Zone Investment Tax Credit (described on Page 1 of this publication); or, 2) non-capital and non-routine investments and associated service costs made for the basic construction, renovation or improvement of qualified property including productive capacity, efficiency, product quality or competitive position. Regular maintenance and routine expenditures are not included.

Open Market Natural Gas Tax Exemption

Companies who are located within the boundaries of the Montgomery County Enterprise Zone are entitled to an exemption on the state sales tax for "wheeled" or open market natural gas transactions.

In order to receive the exemption, the Form RG-61 Gas Use Tax Exemption Certificate (Addendum B) must be completed and given to your delivering supplier. If any of the information you provide on Form RG-61 changes, you must complete a new Form RG-61. Even if no changes are required, a new Form RG-61 must be completed every five years to keep records current.

Manufacturing Machinery and Equipment (M. M & E Sales Tax Exemption)

What is the Enterprise Zone Manufacturing Machinery and Equipment (M, M & E) Sales Tax Exemption? The Revenue Act 35 ILCS 120/ld-lf, as amended, allows a business enterprise that is certified by DCEO, as making a $5 million investment that either: creates a minimum of 200 full-time equivalent jobs in Illinois; or retains a minimum of 2,000 full-time jobs in Illinois; or which retains 90% of the existing jobs, a 6.25 percent state sales tax exemption on all tangible personal property which is used or consumed within an enterprise zone in the process of manufacturing or assembly of tangible personal property for wholesale or retail sale or lease. This exemption includes repair and replacement parts for machinery and equipment used primarily in the process of manufacturing or assembling tangible personal property for wholesale or retail sale or lease, and equipment, manufacturing fuels, material and supplies for the maintenance, repair or operation of manufacturing, or assembling machinery or equipment.

How does a business become eligible for the M, M & E Sales Tax Exemption?

To be eligible for this incentive, DCEO must certify that the business has made an investment of at least $5 million in an enterprise zone and has created a minimum of 200 full-time equivalent jobs in Illinois, or has made an investment of at least $40 million in an enterprise zone and has retained a minimum of 2,000 full-time jobs in Illinois or has made an investment of $40 million in an enterprise zone and retained 90 percent of the jobs in place on date of certification. A business must submit an application to DCEO documenting the eligible investment and that the job creation or job retention criteria will be met.

What is an eligible investment?

For the purposes of this incentive, eligible investment may be either: 1) investments in qualified property as defined in the Enterprise Zone Investment Tax Credit (described on Page 1 of this publication); or, 2) non-capital and non-routine investments and associated service costs made for the basic construction, renovation or improvement of qualified property including productive capacity, efficiency, product quality or competitive position. Regular maintenance and routine expenditures are not included.

Are eligible sales limited to the units of government sponsoring the zone? No. Items eligible for the 6.25 percent state sales tax exemption may be purchased anywhere in Illinois.

What tangible personal property is eligible for the M, M & E sales tax exemption?

To be eligible for this exemption the tangible personal property must be directly used or consumed in the process of manufacturing or assembling tangible personal property for wholesale or retail sale or lease. Examples of this include: repair and replacement parts; hand tools; materials and supplies such as abrasive, acids or lubricants; protective clothing and safety equipment; and, any fuel used for machinery and equipment.

Note: The above examples are only exempt to the extent they are used with machinery and equipment that qualifies for the statewide Manufacturing Machinery and Equipment Sales Tax Exemption.

Pollution Control Facilities Exemption

For eligible businesses, a sales tax exemption is available on tangible person property (e.g., machinery, equipment, supplies, etc.) used or consumed within the Montgomery County Enterprise Zone in the operation of pollution control facilities. The Illinois Department of Commerce and Economic Opportunity must certify the business as "eligible" to qualify, which means a business must make an investment in the Montgomery County Enterprise Zone that creates a minimum of 200 full time jobs or retains a minimum of 2,000 full time jobs.

Income Tax Deductions: Corporate Contribution Deduction

The Illinois Income Tax Act 35 ILCS 5/203 provides that corporations may make donations to designated zone organizations for projects approved by the Illinois Department of Commerce and Economic Opportunity and claim an income tax deduction at double the value of the contribution, to the extent that the contribution qualifies as a charitable contribution under Section 170, Subsection (c) of the Internal Revenue Code; and the Department approves the amount and type of contribution which may be claimed as a deduction.

What is a designated zone organization?

Only an organization that meets the eligibility criteria set forth in the Enterprise Zone Act, including approval from the local government and the Illinois Department of Commerce and Economic Opportunity, is a designated zone organization. For a list of these groups, contact local zone administrators or call the Department of Commerce and Economic Opportunity at 217.785.6142.

Who is an eligible taxpayer? Only corporations may deduct twice the amount of cash or in-kind contribution made to a designated zone organization project.

What is an approved contribution? In order to deduct twice the amount of a contribution, the contribution must be approved by the Illinois Department of Commerce and Economic Opportunity and must be made to an approved designated zone organization.

Dividend Income Deduction? The Illinois Income Tax Act 35 ILCS 5/203 provides that taxpayers may deduct from their taxable income an amount equal to those dividends which were paid to them by a corporation which conducts substantially all of its operations in an enterprise zone or zones.

Can dividends from companies like Ameren be deducted? No. The firm must conduct substantially all of its operations within a zone or zones, and firms with locations throughout the state (such as Commonwealth Edison, Verizon, AT&T, Sears, Occidental Petroleum, etc.) do not fit this definition.

Who is an eligible taxpayer? Individuals, corporations, partnerships, trusts and estates are eligible to take the dividend deduction on their Illinois income tax returns.

Which dividends may be subtracted? Only dividends paid on or after the date of the zone certification and before the last day of your taxable year may be deducted.

Is there a list of companies doing substantially all of their business in enterprise zones?

No. Corporations must be contacted directly to verify their eligibility.

Income Tax Deduction for Financial Institutions: The Illinois Income Tax Act 35 ILCS 5/203 provides that financial institutions in Illinois, such as banks and savings and loans, are eligible for a special deduction from their Illinois corporate income tax return. Such institutions may deduct from their taxable income an amount equal to the interest received from a loan for development in an enterprise zone. This is limited to the interest earned on loans or portions of loans secured by property which is eligible for the enterprise zone investment tax credit, described elsewhere in this publication. Please refer to the section on the investment tax credit for a definition of eligible property.

State Regulatory Relief

The Illinois Department of Commerce and Economic Opportunity reviews and identifies State agency rules and regulations affecting the conduct of business in Enterprise Zones. Enterprise Zone participants are exempt from any State regulations which impose excessive cost on the creation, expansion or conduct of business.

DOCUMENT 00 41 13 - BID FORM - STIPULATED SUM

To: **TTT PARTNERS, LLC**
1107 WEST FERDON STREET
LITCHFIELD, ILLINOIS 62056

Project: **SOCIAL SECURITY BUILDING RENOVATIONS**
LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS
HR #150-3282

Date: _____

Submitted by: _____
(full name)

(full address) _____
_____
_____

Contact Name: _____

1. OFFER

Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Architect for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of _____ $_____dollars, in lawful money of the United States of America.

We have included bid security as required by the Instruction to Bidders.

All sales tax on purchases of qualifying building materials purchased in the State of Illinois are excluded. See 00 21 14 Instructions to Bidders AIA for additional information.

2. REVIEW OF BID DOCUMENTS

The bidder represents that he is skilled and experienced in the use and interpretation of drawings and specifications such as those included in the bid documents for this contract. He has carefully reviewed the drawings, specifications and other bid documents, and has found them free of ambiguities and sufficient for bid purposes. Further, the Bidder has carefully examined the site of the work and, from his own observations, has satisfied himself as to the nature and location of the work; the character, quality and quantity of materials; the difficulties likely to be encountered;

and any other items which may affect the performance of the Work. He has based his bid solely on these documents and observations, and has not relied in any way on any explanation or interpretation, oral or written, from any other source.

3. CONTRACTOR'S FEE FOR CHANGES IN WORK

Undersigned herein indicates a single percentage, not to exceed 12% for own forces and not to exceed 8% for subcontractors, for overhead and profit to be added to net extra job cost for changes in the work required to be performed by:

a) Own Forces ____% b) Subcontractors ____%

Undersigned herein indicates a single percentage, not less than 10% for own forces and not less than 5% for subcontractors, for overhead and profit to be added to net credit for job costs for changes in the work required to be performed by:

a) Own Forces ____% b) Subcontractors ____%

Percentages named above shall not include any items of insurance, bond or taxes since these are considered job cost items in contractor's quotations for changes in the work.

Any percentages indicated which are higher or lower than the maximum or minimum in the typewritten language herewith, shall be disregarded and typewritten figure used.

4. CONTRACT TIME

Undersigned agrees that, if awarded the Contract for Work bid upon herein, work will start on date designated in a written Notice to Proceed order issued by the Architect and will be completed in accordance with the contract documents, with all phases of work completed and operational and ready for acceptance by the Owner no later than as required by the Contract Agreement.

5. ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

Addendum # _____ Dated _____; Addendum # _____ Dated _____
Addendum # _____ Dated _____; Addendum # _____ Dated _____

6. APPENDICES

The following documents are attached to and made a condition of the Bid:

Bid security in the form of _____
Document 00 43 00 - Procurement Form Supplements including:
Appendix A - List of Subcontractors.

7. EQUAL EMPLOYMENT OPPORTUNITY

During performance of this contract, Contractor agrees as follows:

a. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

b. The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

c. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract of understanding, notice advising the labor union or worker's representative of the contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and by the rules, regulations, and relevant orders of the Secretary of Labor.

e. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and order of the Secretary of Labor pursuant thereto, and will permit access to his books, records and accounts by the Department of the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

f. In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any such rules, regulations or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies involved as provided in Executive Order 11246 of September 24, 1965, or by

rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

g. The contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Department may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with the subcontractor or vendor as a result of such direction by the Department, the contractor may request the United States to enter into such litigation to project the interest of the United States.

8. NOT BARRED

The contractor by submitting its bid certifies that the Contractor is not barred from bidding on the contract as a result of a conviction for either bid-rigging or bid-rotating. 720 ILCS 5/33/E-11.

9. DRUG FREE WORKPLACE

The Contractor by submitting its bid certifies that it will provide a drug free workplace and that it is in compliance with the requirements of the Drug Free Workplace Act 30 ILCS 580.1 et. seq., and the Substance Abuse Prevention on Public Works Projects Act PA095-0635.

10. SEXUAL HARASSMENT POLICY

The Contractor by submitting its bid certifies that it has a written sexual harassment, (ii) a description of sexual harassment, utilizing examples; (iv) an internal complaint process including penalties (v) the legal resource, investigative and compliant process through the Illinois Department of Human Rights: (vi) directions on how to contact the Department and Commission; and (vii) protection against retaliation for exercising rights under the policy in accordance with 775 ILCS 5/2-105(A)(4).

11. CRIMINAL RECORDS CHECKS

The Contractor by submitting its bid certifies that it will submit to background screening those employees, including subcontract employees, which will be working on any district project. This information is to be provided in accordance with the requirements of 105 ILCS 5/10-21.9. The Contractor by submitting its bid understands that employees found to be in violation of the Illinois School Code will not be permitted to work on school grounds.

12. BID FORM SIGNATURES

The Corporate Seal of

_____
(Bidder - print the full name of your firm)
was hereunto affixed in the presence of:

_____
(Authorized signing officer Title)

(Seal)

_____
(Authorized signing officer Title)

(Seal)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF DOCUMENT

DOCUMENT 00 43 00 - PROCUREMENT FORM SUPPLEMENTS

To: **TTT PARTNERS, LLC**
1107 WEST FERDON STREET
LITCHFIELD, ILLINOIS 62056

Project: **SOCIAL SECURITY BUILDING RENOVATIONS**
LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS
HR #150-3282

Date: _____

Submitted by: _____
(full name)

(full address) _____
_____
_____

Contact Name: _____

In accordance with Document 00 21 14 - Instructions to Bidders – AIA and Document 00 41 13 - Bid Form - Stipulated Sum, we include the Appendices to Bid Form Supplements listed below. The information provided shall be considered an integral part of the Bid Form.

The following Appendices are attached to this document:

Appendix A - List of Subcontractors: Include names of all Subcontractors and portions of the Work each Subcontractor will perform.

BID FORM SUPPLEMENTS SIGNATURES

The Corporate Seal of

_____
(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

_____
(Authorized signing officer Title) (Seal)

_____
(Authorized signing officer Title) (Seal)

APPENDIX A - LIST OF SUBCONTRACTORS

Herewith is the list of subcontractors referenced in the bid submitted by:

(Bidder) _____

To (Owner) TTT Partners, LLC

Dated _____ and which is an integral part of the Bid Form.

The following work will be performed (or provided) by subcontractors and coordinated by us:

WORK SUBJECT	NAME
Demolition	
Carpentry	
Hollow Metal Frames	
Transaction Windows	
Metal Studs/Gypsum Board	
Ceilings	
Flooring	
HVAC	
Electrical	

DOCUMENT 00 52 14 - AGREEMENT FORM - AIA

1.1 SUMMARY

A. Document Includes:
1. Contract Agreement.

B. Related Documents:
1. Document 00 72 14 - General Conditions – AIA Stipulated Sum.
2. Document 00 73 13 - Supplementary Conditions - AIA.

1.2 CONTRACT AGREEMENT BETWEEN OWNER AND CONTRACTOR

A. THIS AGREEMENT, made and entered into as of the __ day of _____ in the year of Two Thousand and 24 by and between _____ hereinafter and in the Contract Documents called "Contractor" and the TTT PARTNERS, LLC, hereinafter and in the Contract Documents called "Owner."

B. WITNESSETH: That for and in consideration of the mutual covenants and agreements, hereinafter stated, Contractor and Owner covenant and agree as follows:

C. THE CONTRACT WORK:

1. Contractor covenants and agrees to furnish all labor, materials, equipment, transportation, construction plant and facilities necessary to perform all Work required by the Contract Documents, for the Project entitled:

a. SOCIAL SECURITY BUILDING RENOVATIONS
LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS

as shown on Drawings and described in Specifications prepared by Design Architects, Inc., Hillsboro, Illinois, acting as, and in these Contract Documents referred to as Architect/Engineer and covenants and agrees to do and perform all acts and things required of Contractor by this Contract and the Contract Documents.

D. TIME OF COMPLETION:

1. The Owner requires the Project to be substantially complete by August 4, 2024.

E. CONTRACT SUM AND TERMS OF PAYMENT:

1. Contract Sum: The Owner, if Contractor shall faithfully fulfill and perform this Contract, covenants and agrees to pay Contractor in current funds, subject to additions and deductions by Change Order as provided in the Contract Documents, the sum of _____Dollars ($_____ _____), which sum shall constitute the Contract Sum, said Contract Sum being derived from Contractor's Bid dated _____. It is understood and agreed that should there be any increase in wage rates, or in cost of materials or equipment, or in any other of Contractor's costs or should Contractor be compelled to pay premium wages, or for overtime work, during the life of this

Contract and/or prior to completion of Contractor's work thereunder, Contractor shall absorb all such increased costs, without addition to the Contract Sum except when otherwise expressly provided in Contract Documents.

2. Payments: Owner shall make payments for work performed under the Contract as provided in Article Nine of the General Conditions and in accordance with other applicable articles of the Supplementary Conditions and Contract Documents.

3. Contractor's Fees for Changes in Work: In accordance with Contractor's bid, it is agreed that the following percentages for overhead and profit shall be applied on work added to or omitted from the Contract by written Change Order approved by Architect and Owner in advance of performance of the work.

Additional Work performed by:

1. Own Forces ___% 2. Subcontractors ___%

Omitted Work originally required by:

1. Own Forces ___% 2. Subcontractors ___%

F. CONTRACT DOCUMENTS:

1. Contract Documents include the Contract Agreement, Contractor's Bid as accepted by Owner, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract Agreement.

2. Bidder’s attention is directed to the fact that all Federal and Illinois State Laws, municipal ordinances and regulations of any and all authority having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full. Successful Bidders shall be required to comply with 777 ILCS 10 concerning equal employment opportunities; comply with 30 ILCS 570 concerning the employment of citizens of the State of Illinois; comply with 820 ILCS 265 concerning substance abuse prevention on public works projects; and comply with 820 ILCS 130 concerning prevailing wages.

G. ILLINOIS LABOR:

Contractor shall comply with all Illinois statutory requirements regarding labor, including, but not limited to, the following:

1. Illinois Public Act 77-1552 and Chapter 48, Sections 39S-1 through 39S-12 of the Illinois Revised Statutes regulating wages of laborers, mechanics and other workers employed in any public works and known as the "Prevailing Wage Act," which provides in part that all laborers, mechanics and workers performing work under the Contract shall be paid not less than the prevailing rate of wages as determined by the Illinois Department of Labor (820 ILCS 130).

2. Illinois Public Act 83-1472, Article 2 and Chapter 48, Sections 2201 through 2207, 1984 of the Illinois Revised Statutes pertaining to hiring of Illinois labor and known as the "Illinois Preference Act (30 ILCS 570)."

3. "Illinois Human Rights Act of 1980," Chapter 68, Illinois Revised Statutes, and the Rules and Regulations, Title 44, Section 750 of the Illinois Administrative Code, Illinois Department of Human Rights; pertaining to equal employment opportunity (777 ILCS 10).

H. PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND:

1. Within ten (10) days immediately following date of his receipt of this contract, Contractor shall furnish Owner the signed Contract and Performance Bond and Labor and Material Payment Bond as required by and in accordance with the terms of Contract Documents in a penal sum of one hundred percent (100%) of the Contract sum.

2. In the event Contractor fails to furnish Owner such Contract and Bonds within said period, this Contract shall thereupon become null and void at Owner's option, exercised by written registered notice and mailed to Contractor by said Owner within five (5) days thereafter. Owner may then retain and enforce as liquidated damages, bid guarantee heretofore deposited with it in connection with Contractor's proposal for this Contract or the difference between his bid and a subsequent awarded bid, whichever is lesser.

I. IN WITNESS HEREOF, the parties hereto have executed this agreement as of the day and year first written above.

OWNER:

TTT PARTNERS, LLC

BY_____

TITLE_____

CONTRACTOR:

Attest: _____

BY_____ BY_____

Secretary

TITLE_____

(Corporate Seal)

END OF DOCUMENT

CONTRACTOR'S AFFIDAVIT FOR FINAL COMPLETION
(To be filed with final request for payment)

STATE OF_____)

COUNTY OF _____)

_____, being first duly sworn upon oath deposes and says:

That he/she is _____ of _____
_____

hereinafter termed "The Contractor" for all work upon the hereinafter termed "Said Project," work for the TTT PARTNERS, LLC, under that certain contract between said Contractor and said Owner, bearing date of _____ pertaining to said work.

Affiant further states, of his/her own knowledge, that all bills incurred by the Contractor, for services, labor and material furnished, for work done by the Contractor under said Contract, or in connection with said project have been paid and all subcontractors who have furnished services, labor or materials have no claim or demand against Owner for any services, labor and/or materials furnished and/or work done by them upon said Project.

Affiant further states that this affidavit is made on behalf of the Contractor for the purpose of obtaining payment of the sum of _____($_____) dollars, which affiant states, upon his/her own knowledge, constitutes the full balance due the Contractor for all services, labor and materials furnished and work done to and upon Said Project by the Contractor whether under and pursuant to provisions of said Contract and all subsequent modifications thereof and changes therein or otherwise; and that payment of the sum to the Contractor will constitute payment in full on everything due for such services, labor, materials and work, and will fully satisfy any and all claims or demands which Contractor may have or assert against said Owner, arising out of anything done or furnished by the Contractor or occurring in connection with said Project and/or Contract.

_____
CONTRACTOR

By _____

Title _____

Subscribed and Sworn to before me the _____ day of_____, 20____.

_____
NOTARY PUBLIC

(PARTIAL) (FINAL)
WAIVER OF LIEN

STATE OF _____
}SS
COUNTY OF _____

TO WHOM IT MAY CONCERN:

WHEREAS the undersigned has been employed by TTT PARTNERS, LLC, hereinafter known as the OWNER,

To Furnish: _____

For the project known as: SOCIAL SECURITY BUILDING RENOVATIONS

For the premises known as: _____

Address: 1107 WEST FERDON STREET, LITCHFIELD, ILLINOIS 62056

THE undersigned, for and in consideration of the dollar amount shown below and other good and valuable considerations, do(es) hereby waive and release under the mechanics' lien statutes of the State where the project premises are located, to the extent of the payment recited below is received by the undersigned and is applicable to lienable labor, services, materials, fixtures, or apparatus, any and all lien or claim or right of lien on the above-described premises and the improvements, fixtures and appurtenances thereon, and on the monies or other considerations due or to become due from the Owner and on all other project-related monies from whatever source, on the account of the above-mentioned labor, services, materials, fixtures, or apparatus furnished by the undersigned for or in connection with the above-described premises.

_____
(Payment amount written in long form)

PAYMENT AMOUNT _____

_____
(Company Name)

_____
(Address)

_____
(City/State/Zip)

_____
(Signature of Officer)

Sworn to and subscribed before me this _____ day of _____.

(Notary Public)

My commission expires: _____

150-3282

AFFIDAVIT OF PAYMENT TO MATERIAL SUPPLIERS AND SUBCONTRACTORS

STATE OF _____

COUNTY OF _____

_____, being first duly sworn upon oath deposes and says, that he/she entered into a Contract with the TTT PARTNERS, LLC, known as the Owner, for furnishing of labor, work services, materials, fixtures, and supplies for SOCIAL SECURITY BUILDING RENOVATIONS at the following described real estate: SOCIAL SECURITY OFFICE.

That for the purpose of said Contract, the following persons, firms or corporations have been contracted with to furnish, have furnished or prepared, or will furnish or prepare labor, services, materials, fixtures, apparatus, machinery or supplies, or are furnishing and preparing material for said construction; that there are due or to become due to them respectively, the amounts set opposite their names for said labor, services, materials, fixtures, apparatus, machinery and supplies as stated; that there are no other contractors outstanding and there is nothing due or to become due any person, firm, or corporation, for labor, services, materials, fixtures, machinery, apparatus, or supplies, other than as stated herewith.

MATERIAL SUPPLIER AND/OR SUBCONTRACTOR	CONTRACT ITEM	CONTRACT AMOUNT	AMOUNT PAID TO DATE	AMOUNT DUE OR TO BECOME DUE

_____
CONTRACTOR

Subscribed and sworn to before me, a Notary Public, this _____day of _____; A.D. 20____.

_____
NOTARY PUBLIC

CONSENT OF SURETY COMPANY TO FINAL PAYMENT
(To be filed with final request for payment)

PROJECT: SOCIAL SECURITY BUILDING RENOVATIONS
LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS

TO (Owner): TTT PARTNERS, LLC
1107 WEST FERDON STREET
LITCHFIELD, ILLINOIS 62056

CONTRACTOR:
(Name, address)

CONTRACT DATE: BOND NO.:

In accordance with the provisions between Owner and Contractor indicated above, _____
_____
_____ SURETY COMPANY, hereby approves of final payment to Contractor, and agrees that final payment to Contractor shall not relieve Surety Company of any of its obligations to Owner, as set forth in Surety Company's bond.

IN WITNESS WHEREOF, Surety Company has hereunto set its hand this _____ day of _____, 20___.

_____ _____
Attest: Surety Company

(Seal): _____
Signature of Authorized Representative

_____
Title

DOCUMENT 00 72 14 - GENERAL CONDITIONS – AIA STIPULATED SUM

1.1 SUMMARY

A. Document Includes:
   1. General Conditions.

B. Related Documents:
   1. Document 00 52 14 – Agreement Form – AIA Stipulated Sum.
   2. Document 00 73 13 – Supplementary Conditions - AIA.

1.2 GENERAL CONDITIONS

A. AIA Document A201-2007, General Conditions of the Contract for Construction, is the General Conditions of the Contract.

1.3 SUPPLEMENTARY CONDITIONS

A. Refer to Document 00 73 13 for modifications to General Conditions.

END OF DOCUMENT

DOCUMENT 00 73 13 - SUPPLEMENTARY CONDITIONS - AIA

1.1 SUMMARY

A. Document Includes:
   1. General Conditions.
   2. Supplementary Conditions.

B. Related Documents:

   1. Document 00 41 13 – Bid Form – Stipulated Sum
   2. Document 00 52 14 – Agreement Form - AIA

1.2 GENERAL CONDITIONS

A. The General Conditions of the Contract for Construction, AIA Document A201, Sixteenth Edition, 2007, Articles 1 through 15, is a part of this Contract and is incorporated herein as fully as if here set forth. Copies of the General Conditions are on file and may be reviewed at the offices of the Architect, or may be obtained from the American Institute of Architects, St. Louis Chapter, 911 Washington St., #225, St. Louis, Missouri 63101-1203.

1.3 SUPPLEMENTARY CONDITIONS

A. The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction," AIA Document A201, Sixteenth Edition, 2007. Where any Article of the General Conditions is modified or changed or any Paragraph, Subparagraph or Clause thereof is modified, changed or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

1.4 REFERENCE TO DIVISION 01

A. Where provisions of General Conditions relate to project administrative or work-related requirements of the Contract, and those provisions differ from those specified in Division 01, provisions outlined in Division 01 shall prevail.

1.5 ARTICLE 1: GENERAL PROVISIONS

A. 1.5.1 In the second line following the word "Specifications” insert the words "and Project Manual,”.

B. 1.6 TRANSMISSION OF DATA IN DIGITAL FORM: Add new subparagraph 1.6.1:

   1.6.1 Electronic drawings provided by the Owner or Architect are for informational purposes only and are not intended for any other use. The paper copies provided are a true representation of the completed design and if discrepancies should exist between the paper copy and the electronic copy, the paper copy shall govern.

C. Delete Subparagraph 1.1.8 its entirety and substitute the following:

1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2. If the Initial Decision Maker is not specifically identified in the Agreement, the responsibilities of the Initial Decision Maker shall default to the Architect.

D. DEFINITIONS: Add Paragraph 1.1.9

1.1.9 PROJECT MANUAL

The Project Manual is the collection of documents which includes the bidding requirements, sample forms and, certain Contract Documents such as the Conditions of the Contract and the Specifications.

1.6 ARTICLE 2: OWNER

A. 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER:

B. Delete Subparagraphs 2.2.3 and 2.2.5 in their entireties and substitute the following:

2.2.3 The Owner shall, at the request of the Contractor, furnish to Contractor any survey or other similar descriptive information of project site that Owner has in his possession. Upon demonstration of need by Contractor for specific additional survey information, Owner shall obtain and furnish such information to Contractor.

2.2.5 Contractor will be furnished, free of charge, 3 copies of Drawings, Specifications, and Project Manual as set forth in Division 1 of the Specifications. Additional copies will be furnished to Contractor at cost of reproduction, postage and handling.

1.7 ARTICLE 3: CONTRACTOR

3.2. REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR: Add Subparagraphs 3.2.5 and 3.2.6:

3.2.5 The Contractor by executing the Contract represents that he has carefully examined the Site of the Work at each location and that he has full knowledge of and fully understands the facilities, site conditions, difficulties and restrictions attending performance of the Work. Contractor further represents that he has taken all required measurements and carefully inspected existing constructions, irregularities and interferences which may affect the Work. No additional compensation will be allowed for conditions increasing Contractor's cost which were not known to or appreciated by him prior to executing the Contract if they could have been discovered by him following the foregoing procedures and thoroughly informing himself of all existing conditions affecting the Work.

3.2.6 Contractor will not, however, be required to excavate, penetrate or demolish any constructions or other work and conditions prior to executing the Contract in order to uncover and/or expose concealed conditions that affect the Work. If, during course of construction, Contractor uncovers conditions that affect the work that could not have been known and understood by the above described careful examination of conditions affecting the Work, he shall promptly notify the Architect, in writing, who will determine if claims for additional costs or extensions of time are justified. If such claims are found to be justified, Contract will be modified in accordance with Article 7 of the General Conditions.

1.8 ARTICLE 4: ARCHITECT

A. 4.1 GENERAL: Delete Subparagraph 4.1.1 in its entirety and substitute the following:

4.1.1 The Owner shall retain an architect or engineer lawfully licensed to practice architecture or engineering or an entity lawfully practicing architecture or engineering in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

1.9 ARTICLE 5: SUBCONTRACTORS

A. 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK: Add new Subparagraph 5.2.1.1.:

5.2.1.1. Within ten (10) days of notification of acceptance of his proposal, Contractor shall submit the names of those to whom he intends to award a Subcontract.

1.10 ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

A. 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS: Delete Subparagraph 6.1.3 in its entirety and substitute the following:

6.1.3 General Contractor shall have responsibility of coordinating efforts of all contractors and to maintain overall direction of job progress. Each Contractor shall coordinate operational methods with other contractors and encourage communications among all trades. All Contractors shall make other contractors aware of any problems, delays in materials shipments or lack of work force, and assist other contractors in maintaining job momentum and direction of overall project.

1.11 ARTICLE 9: PAYMENTS AND COMPLETION

A. 9.3 APPLICATIONS FOR PAYMENT: Add new Subparagraph 9.3.1.3

9.3.1.3.: The Owner will accept pay requests monthly from the prime contractor. The Owner will hold 10% retainage through final acceptance.

1.12 ARTICLE 11: INSURANCE AND BONDS

A. 11.1.1 In the first line following the word "maintain," insert the words "in a company or companies licensed to do business in the state in which the project is located and rated 'A' or better by A.M. Best Co.."

B. Add new Subparagraph 11.1.1.9:

11.1.1.9 General Liability Insurance shall be comprehensive, on occurrence, and shall include:

- Premises and Operations.
- Independent Contractors.
- Products and Completed Operations.
- Broad Form Property Damage.
- Personal Injury.
- Explosion, Collapse and Underground damage where the hazard exists.
- Contractual liability.

C. Add the following Sub-Subparagraphs to Subparagraph 11.1.2:

11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be on a project specific basis and written for not less than the following, or greater if required by law:

1. Worker's Compensation:

   a. State: Statutory
   b. Applicable Federal: Statutory
   c. Employer's Liability: $500,000

2. Comprehensive General Liability:

   a. Bodily Injury:

      $1,000,000 Combined Single Limit

   b. Property Damage:

      $1,000,000 Combined Singled Limit

Limit Coverage for bodily injury and property damage per occurrence and in the same aggregate limit will be accepted in lieu of the separate limits specified above.

3. Personal Injury:

$ 1,000,000	Combined single limit including owned non-owned, and hired motor vehicle.

4. Comprehensive Automobile Liability:

a. Bodily Injury:

$1,000,000	Combined single limit including owned, non-owned, and hired motor vehicle.

b. Property Damage:

$1,000,000	Combined single limit including owned, non-owned, and hired motor vehicle

c.	$1,000,000	Combined Single

Limit coverage for bodily injury and property damage per occurrence and in the same aggregate limit will be accepted in lieu of the separate limits specified above.

11.1.2.2 Umbrella Form Liability Coverage:

An Umbrella Form Liability coverage to not less than $2,000,000 for any one occurrence and subject to the same aggregate over the Employer's Liability, Comprehensive General Liability, and Comprehensive Automobile Liability coverage is required.

D. Add the following Subparagraph 11.1.3.1:

11.1.3.1 Contractor shall furnish one copy each of Certificates of Insurance herein required for each copy of the Agreement which shall specifically set forth evidence of all coverage required by Paragraph 11.1. The Certificate of Insurance is to be accompanied by AIA Document G715TM-1997 (Supplemental Attachment for ACORD Certificate of Insurance 25-S). Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits. The Contractor shall furnish to the Owner notice of any policy cancellation at least 30 days (10 days for non payment of premiums) prior to the effective date of cancellation. The Contractor shall submit copies of subcontractor's Certificates of Insurance prior to the beginning of work.

E. Add the following Subparagraph 11.1.4.1:

11.1.4.1 The Owner and Architect shall be named as additional insureds on ISO form 20331001 by endorsement for the purpose of coverage only with no liability for premium payments. All policies and coverages shall include a waiver of subrogation in favor of the Owner, Architect, and all subconsultants.

F. 11.3. PROPERTY INSURANCE: Delete Subparagraph 11.3.1 in its entirety and substitute the following:

11.3.1: The General Contractor shall be responsible to maintain property (builder's risk) insurance upon the completed value of all work at the site under this contract to the full insurable value thereof. This insurance shall include the interests of the Owner, the General Contractor, Subcontractors, and Sub-subcontractors in the work and as their interests may appear in the work, and shall be an all-risk type policy, including theft, subject to the exclusions generally accepted in the insurance industry. This coverage is not intended to, and shall not, provide coverage for tools, equipment, scaffolding, forms, or other devices used by the Contractors or Subcontractors in performing work under this contract.

11.3.1.2 Delete this Paragraph in its entirety.

G. Delete Subparagraphs 11.3.1.3 in its entirety and substitute the following:

11.3.1.3 If the property insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles.

1.13 ARTICLE 13: MISCELLANEOUS PROVISIONS

A. Add new paragraph 13.8 as follows:

13.8 REFERENCED STANDARDS

13.8.1 No provision of any referenced standard specification, manual or code; whether or not specifically incorporated by reference in the Contract Documents; shall be effective to change the duties and responsibilities of Owner, Contractor or Architect, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Architect, or any of Architect's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Articles 1 through 15.

END OF SECTION

ARTICLE 25: PREVAILING RATE OF WAGES

25.1 Pursuant to Illinois Compiled Statutes 820 ILCS 130/0.01 et seq., these specifications list on the following pages, the Illinois Department of Labor prevailing rate of wages for the county where the contract is being performed and for each craft or type of worker needed to execute the contract.

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						Overtime										
Trade Title	Rg	Type	C	Base	Foreman	M-F	Sa	Su	Hol	H/W	Pension	Vac	Trng	Other Ins	Add OT 1.5x owed	Add OT 2.0x owed
ASBESTOS ABT-GEN	All	ALL		31.36	32.36	1.5	1.5	2.0	2.0	7.75	23.27	0.00	0.80		15.51	31.02
ASBESTOS ABT-MEC	All	BLD		34.30	35.30	1.5	1.5	2.0	2.0	10.20	6.80	0.00	0.50	0.00	0.00	0.00
BOILERMAKER	All	BLD		42.50	46.00	1.5	1.5	2.0	2.0	7.07	27.21	0.00	1.06		0.00	0.00
BRICK MASON	All	BLD		36.74	38.94	1.5	1.5	2.0	2.0	9.05	15.68	0.00	0.91	0.00	0.00	0.00
CARPENTER	All	BLD		35.15	37.40	1.5	1.5	2.0	2.0	9.45	21.50	0.00	0.79	0.00	15.48	30.95
CARPENTER	All	HWY		37.82	39.57	1.5	1.5	2.0	2.0	9.45	21.50	0.00	0.76	0.00	0.00	0.00
CEMENT MASON	All	ALL		38.00	39.00	1.5	1.5	2.0	2.0	11.00	16.80	0.00	0.50	0.00	14.15	28.30
CERAMIC TILE FINISHER	All	BLD		28.08		1.5	1.5	2.0	2.0	9.05	7.69	1.00	0.85	0.00	0.00	0.00
ELECTRIC PWR EQMT OP	NE	ALL		52.63	62.45	1.5	1.5	2.0	2.0	8.58	14.74	0.00	0.79	0.00	0.00	0.00
ELECTRIC PWR EQMT OP	SW	ALL		52.84	63.69	1.5	1.5	2.0	2.0	6.95	14.79	0.00	0.53		11.14	22.27
ELECTRIC PWR GRNDMAN	NE	ALL		35.76	62.45	1.5	1.5	2.0	2.0	8.07	10.01	0.00	0.54	0.00	0.00	0.00
ELECTRIC PWR GRNDMAN	SW	ALL		39.45	63.69	1.5	1.5	2.0	2.0	5.19	11.04	0.00	0.39		8.33	16.62
ELECTRIC PWR LINEMAN	NE	ALL		58.58	62.45	1.5	1.5	2.0	2.0	8.76	16.40	0.00	0.88	0.00	0.00	0.00
ELECTRIC PWR LINEMAN	SW	ALL		60.74	63.69	1.5	1.5	2.0	2.0	7.99	17.02	0.00	0.61		12.81	25.62
ELECTRIC PWR TRK DRV	NE	ALL		37.53	62.45	1.5	1.5	2.0	2.0	8.13	10.51	0.00	0.57	0.00	0.00	0.00
ELECTRIC PWR TRK DRV	SW	ALL		43.13	63.67	1.5	1.5	2.0	2.0	5.67	12.08	0.00	0.43		9.10	18.18
ELECTRICIAN	E	BLD		43.30	47.63	1.5	1.5	2.0	2.0	8.66	12.30	0.00	0.65	0.00	0.98	1.95
ELECTRICIAN	NW	BLD		39.74	42.24	1.5	1.5	2.0	2.0	9.15	12.09	0.00	0.70	0.00	0.99	1.99
ELECTRICIAN	SW	ALL		47.44	50.29	1.5	1.5	2.0	2.0	8.79	14.49	0.00	1.31	3.10	13.83	27.69
ELECTRONIC SYSTEM TECH	E	BLD		37.50	40.50	1.5	1.5	2.0	2.0	9.10	9.25	0.00	0.40		0.57	1.13
ELECTRONIC SYSTEM TECH	NW	BLD		35.78	38.78	1.5	1.5	2.0	2.0	8.35	11.72	0.00	0.40	0.00	0.54	1.07
ELECTRONIC SYSTEM TECH	SW	BLD		38.42	41.42	1.5	1.5	2.0	2.0	4.00	11.16	0.00	0.40	1.50	0.58	1.15
ELEVATOR CONSTRUCTOR	All	BLD		57.69	64.90	2.0	2.0	2.0	2.0	16.07	20.56	4.61	0.70		0.00	0.00
GLAZIER	All	BLD		38.60	40.60	1.5	1.5	2.0	2.0	7.85	13.77	0.00	0.68	0.00	0.00	0.00
HEAT/FROST INSULATOR	All	BLD		41.73	42.73	1.5	1.5	2.0	2.0	11.74	13.50	0.00	1.05		0.00	0.00
IRON WORKER	N	BLD		35.20	37.20	1.5	1.5	2.0	2.0	10.55	18.50	0.00	1.00		0.00	0.00
IRON WORKER	N	HWY		36.84	38.59	1.5	1.5	2.0	2.0	10.55	20.09	0.00	1.00		0.00	0.00

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IRON WORKER	S	ALL		40.40	42.40	1.5	1.5	2.0	2.0	10.55	19.05	0.00	0.48	0.00	15.09	30.18
LABORER	All	ALL		30.86	31.86	1.5	1.5	2.0	2.0	7.75	23.27	0.00	0.80		15.51	31.02
LATHER	All	BLD		35.15	37.40	1.5	1.5	2.0	2.0	9.45	21.50	0.00	0.79	0.00	15.48	30.95
MACHINIST	All	BLD		55.74	59.74	1.5	1.5	2.0	2.0	9.93	8.95	1.85	1.47		0.00	0.00
MARBLE FINISHER	All	BLD		28.08		1.5	1.5	2.0	2.0	9.05	7.69	1.00	0.85	0.00	0.00	0.00
MILLWRIGHT	All	BLD		35.58	37.83	1.5	1.5	2.0	2.0	9.45	21.54	0.00	0.79	0.00	15.50	30.99
MILLWRIGHT	All	HWY		40.10	41.85	1.5	1.5	2.0	2.0	9.45	22.34	0.00	0.76	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	1	43.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	2	42.82	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	3	38.34	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	4	44.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	5	45.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	6	46.50	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	7	46.80	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	8	47.10	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	9	47.75	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	10	48.25	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	11	45.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	12	46.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	13	43.95	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	BLD	14	38.40	46.95	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	1	42.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	2	41.32	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	3	36.84	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	4	43.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	5	44.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	6	45.00	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	7	45.30	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	8	45.60	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	9	46.25	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85

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OPERATING ENGINEER	All	HWY	10	46.75	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	11	44.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	12	45.45	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
OPERATING ENGINEER	All	HWY	13	36.90	45.45	1.5	1.5	2.0	2.0	14.45	19.75	0.00	1.65		17.93	35.85
PAINTER	All	BLD		32.87	34.37	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER	All	HWY		34.07	35.57	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER OVER 30 FT.	All	BLD		33.87	35.37	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER PWR EQMT	All	BLD		33.87	35.37	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PAINTER PWR EQMT	All	HWY		35.07	36.57	1.5	1.5	2.0	2.0	7.85	14.25	0.00	0.70	0.00	0.00	0.00
PILEDRIVER	All	BLD		36.15	38.40	1.5	1.5	2.0	2.0	9.45	21.50	0.00	0.79	0.00	15.48	30.95
PILEDRIVER	All	HWY		38.82	40.57	1.5	1.5	2.0	2.0	9.45	21.50	0.00	0.76	0.00	0.00	0.00
PIPEFITTER	NE	BLD		43.73	47.73	1.5	1.5	2.0	2.0	9.45	13.86	0.00	1.33	0.00	0.00	0.00
PIPEFITTER	SW	BLD		50.11	55.12	1.5	1.5	2.0	2.0	5.55	10.90	0.00	0.90	0.00	0.00	0.00
PLASTERER	All	BLD		36.50	38.00	1.5	1.5	2.0	2.0	11.00	12.00	0.00	0.75	0.00	11.88	23.75
PLUMBER	NE	BLD		43.73	47.73	1.5	1.5	2.0	2.0	9.45	13.86	0.00	1.33	0.00	0.00	0.00
PLUMBER	SW	BLD		50.11	55.12	1.5	1.5	2.0	2.0	5.55	10.90	0.00	0.90	0.00	0.00	0.00
ROOFER	All	BLD		34.11	37.21	1.5	1.5	2.0	2.0	10.40	13.31	0.00	0.56	0.00	0.00	0.00
SHEETMETAL WORKER	All	ALL		39.53	41.03	1.5	1.5	2.0	2.0	11.05	9.81	2.37	0.71	1.88	0.00	0.00
SPRINKLER FITTER	All	BLD		47.09	50.09	1.5	1.5	2.0	2.0	11.45	14.92	0.00	0.52		0.00	0.00
TERRAZZO FINISHER	All	BLD		28.08		1.5	1.5	2.0	2.0	9.05	7.69	1.00	0.85	0.00	0.00	0.00
TERRAZZO MASON	All	BLD		33.62		1.5	1.5	2.0	2.0	9.05	9.25	1.00	0.94	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	1	42.25	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	2	42.83	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	3	43.15	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	4	43.50	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	5	44.61	46.61	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	1	33.80	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	2	34.26	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	3	34.52	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	4	34.80	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00

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TRUCK DRIVER	All	O&C	5	35.69	37.26	1.5	1.5	2.0	2.0	15.39	7.73	0.00	0.25	0.00	0.00	0.00

Legend
Rg Region
Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers
C Class
Base Base Wage Rate
OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.
OT Sa Overtime pay required for every hour worked on Saturdays
OT Su Overtime pay required for every hour worked on Sundays
OT Hol Overtime pay required for every hour worked on Holidays
H/W Health/Welfare benefit
Vac Vacation
Trng Training
Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations MONTGOMERY COUNTY

CARPENTERS AND PILEDRIVERS (NORTH) - The area north of Route 108, running east to Route 55, then north to Routes 48/127, east following Route 48 from Raymond to Harvel.

ELECTRICIANS (EAST) - Townships of Audubon, East Fork, Fillmore, Irving, Nikomis, Roundtree, South Fillmore and Witt.

ELECTRICIANS (NW) - Townships of Bois D'Arc, Pitman, and Harvel (Northern projection).

ELECTRICIANS (SW) - Townships of Zanesville, Raymond, North and South Litchfield, Butler Grove, Hillsboro, Walshville and Grishman.

ELECTRONIC SYSTEMS TECHNICIAN (EAST) – The entirety of Montgomery County except for the portions defined as the Southwest and Northwest regions.

ELECTRONIC SYSTEMS TECHNICIAN (NORTHWEST) – Townships of Bois D'Arc, Pitman, and Harvel.

ELECTRONIC SYSTEMS TECHNICIAN (SOUTHWEST) – Townships of Zanesville, Raymond, North and South Litchfield, Butler Grove, Hillsboro, Walshville and Grisham.

ELECTRIC POWER LINEMAN, GROUNDMAN, EQUIPMENT OPERATOR, TRUCK DRIVER (NE) - Entire county except Butler Grove, Grisham, Hillsboro, North and South Litchfield, Raymond, Walshville, and Zanesville Townships.

IRONWORKERS (NORTH) - That part of the county north of a diagonal line through Taylor Springs and Chapman.

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PLUMBERS & PIPEFITTERS (SW) - That part of the county South and West of Route 127.

ELECTRONIC SYSTEMS TECHNICIAN (WEST) - Townships of Zanesville, Raymond, North Litchfield, Butler Grove, South Litchfield, Hillsboro, Walshville and Grisham.

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER AND MARBLE FINISHER

The handling, at the building site, of all sand, cement, tile, marble or stone and all other materials that may be used and installed by [a] tile layer or marble mason. In addition, the grouting, cleaning, sealing, and mixing on the job site, and all other work as required in assisting the setter. The term "Ceramic" is used for naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

ELECTRONIC SYSTEMS ELECTRICIAN

Installation, service and maintenance of low-voltage systems which utilizes the transmission and/or transference of voice, sound, vision, or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, field programming, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school, intercom and sound burglar alarms and low voltage master clock systems.

Excluded from this classification are energy management systems, life safety systems, supervisory controls and data acquisition systems not intrinsic with the above listed systems, fire alarm systems, nurse call systems and raceways exceeding fifteen feet in length.

Montgomery County Prevailing Wage Rates posted on 4/15/2024

OPERATING ENGINEER - BUILDING

GROUP I

Cranes, Draglines, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, Screws on Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines, or Backfiller, Cherrypickers, overhead Cranes, Roller, Steam or Gas, Concrete Pavers, Excavator Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick-Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than derrick type), Mud Jacks, or Well Drilling Machines, Boring Machines or Track Jacks, Mixers, Conveyors (two), Air Compressors (two) Water Pumps, regardless of size (two), Welding Machines (two), Siphons or Jets (two), Winch Head or Apparatuses (two), Light Plants (two), Waterblasters (two), all Tractors, regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (one), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master Mechanic and Heavy Duty Mechanic, Autonomous and semi-autonomous equipment, concrete saws of all types and sizes with their attachments, gob-hoppers, excavators all sizes, the repair, greasing, and fueling of all diesel hammers, the operation, set-up and cleaning of bidwells, concrete placement booms, the alterations, repair of all barges, water blasters of all sizes and their clutches, mobile lifts, hydraulic jacks where used for hoisting, diesel or gas powered flashing signs used for traffic control, micro pavers, log skiders, iceolators used on and off of pipeline, condor cranes, drill rigs of all sizes, bow boats, survey boats, ross carriers, bob-cats and all their attachments, skid steer loaders and all their attachments, creter crane, direct drive electric motors the bolting and unbolting the adjusting and shimming, (dewatering jobs, whirley crane, conveyor belts) etc., batch plants (all sizes), roto mills, conveyors systems of any size and any configuration, hydroseeders and straw-blowers all sizes, operation, repair, service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, grout machines regardless of size, Nail Launchers when mounted on a machine or self-propelled, con-cover machines, Goldhofer and similar S.P.M.T. (self-propelled modular transporters) heavy transport units and all Operators (except those listed below).

GROUP II
Assistant Operators

GROUP III
Air Compressors (one), Water Pumps, regardless of size (one), Water-blasters (one), Welding Machine (one), Mixers (one bag), Conveyor (one), Siphon or Jet (one), Light Plant (one), Heater (one), Immobile Track Air (one), and Self-Propelled Walk Behind Rollers.

GROUP IV
CCO-17 ton and below

GROUP V
CCO-17.5 to 35 Ton and Boom to 50’

Montgomery County Prevailing Wage Rates posted on 4/15/2024

GROUP VI
CCO-35.5 to 75 Ton and Boom to 100′

GROUP VII
CCO-75.5 to 125 Ton and Boom to 125′

GROUP VIII
CCO- 125.5 to 200 Ton and Boom to 100′

GROUP IX
CCO-200.5 to 300 Ton and Boom to 100′

GROUP X
CCO-300.5 to 450 Ton and Boom to 150′

GROUP XI
Master Mechanic

GROUP XII
Operator Foreman, Licensed Boat Pilot

GROUP XIII
Track type hydraulic hoes & crawler gradealls prep time.

GROUP XIV
Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant oiler and Creter Crane Oiler (when required), barge tenders, oilers on drill rigs used for caisson or for pile driving and Oiler.

OPERATING ENGINEERS – Highway

GROUP I

Cranes, Draglines, Shovels, Skimmer Scoops, Clamshells or Derrick Boats, Pile Drivers, Crane-Type Backhoes, Asphalt Plant Operators, Concrete Plant Operators, Dredges, Asphalt Spreading Machines, Screws on Asphalt Spreading Machines, All Locomotives, Cable Ways or Tower Machines, Hoists, Hydraulic Backhoes, Ditching Machines, or Backfiller, Cherrypickers, overhead Cranes, Roller, Steam or Gas, Concrete Pavers, Excavator Concrete Breakers, Concrete Pumps, Bulk Cement Plants, Cement Pumps, Derrick¬Type Drills, Boat Operators, Motor Graders or Pushcats, Scoops or Tournapulls, Bulldozers, Endloaders or Fork Lifts, Power Blade or Elevating Graders, Winch Cats, Boom or Winch Trucks or Boom Tractors, Pipe Wrapping or Painting Machines, Asphalt Plant Engineer, Journeyman Lubricating Engineer, Drills (other than derrick type), Mud Jacks, or Well Drilling Machines, Boring Machines or Track Jacks, Mixers, Conveyors (two), Air Compressors (two) Water Pumps, regardless of size (two),

Welding Machines (two), Siphons or Jets (two), Winch Head or Apparatuses (two), Light Plants (two), Waterblasters (two), all Tractors, regardless of size (straight tractor only), Fireman on Stationary Boilers, Automatic Elevators, Form Grading Machines, Finishing Machines, Power Sub-Grader or Ribbon Machines, Longitudinal Floats, Distributor Operators on Trucks, Winch Heads or Apparatuses (one), Mobil Track air and heaters (two to five), Heavy Equipment Greaser, Relief Operator, Assistant Master Mechanic and Heavy Duty Mechanic, concrete saws of all types and sizes with their attachments, gob¬hoppers, excavators all sizes, the repair, greasing, and fueling of all diesel hammers, the operation, set-up and cleaning of bidwells, concrete placement booms, the alterations, repair of all barges, water blasters of all sizes and their clutches, mobile lifts, hydraulic jacks where used for hoisting, diesel or gas powered flashing sings used for traffic control, micro pavers, log skiders, iceolators used on and off of pipeline, condor cranes, drill rigs of all sizes, bow boats, survey boats, ross carriers, bob-cats and all their attachments, skid steer loaders and all their attachments, creter crane, direct drive electric motors the bolting and unbolting the adjusting and shimming, (dewatering jobs, whirley crane, conveyor belts) etc., batch plants (all sizes), roto mills, conveyors systems of any size and any configuration, hydroseeders and straw-blowers all sizes, operation, repair, service of all vibratory hammers, all power pacs and their controls regardless of location, curtains or brush burning machines, stump cutter machines, grout machines regardless of size, Nail launchers when mounted on a machine or self-propelled, con-cover machines, Goldhofer and similar S.P.M.T. (self-propelled modular transporters) heavy transport units and all Operators (except those listed below).

GROUP II
Assistant Operators

GROUP III
Air Compressors (one), Water Pumps, regardless of size (one), Water-blasters (one), Welding Machine (one), Mixers (one bag), Conveyor (one), Siphon or Jet (one), Light Plant (one), Heater (one), Immobile Track Air (one), and Self-Propelled Walk Behind Rollers.
GROUP IV
CCO-17 ton and below

GROUP V
CCO-17.5 to 35 Ton and Boom to 50’

GROUP VI
CCO- 35.5 to 75 Ton and Boom to 100’

GROUP VII
CCO- 75.5 to 125 Ton and Boom to 75’

GROUP VIII
CCO- 125.5 to 200 Ton and Boom to 100’

GROUP IX
CCO- 200.5 to 300 Ton and Boom to 100’

GROUP X

Montgomery County Prevailing Wage Rates posted on 4/15/2024

CCO- 300.5 to 450 Ton and Boom to 150'

GROUP XI
Master Mechanic, Working Foreman/Mechanic.

GROUP XII
Operator Foreman, licensed boat pilot.

GROUP XIII
Fireman on Whirlies and Heavy Equipment Oilers, Truck Cranes, Dredges, Monigans, Large Cranes - (Over 65-ton rated capacity) Concrete Plant Oiler, Blacktop Plant Oiler and Creter Crane Oiler (when required), barge tenders, oilers on drill rigs used for caisson or for pile driving, and Oiler.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vactor trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work.

TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

TERRAZZO FINISHER

The handling of all materials used for Mosaic and Terrazzo work including preparing, mixing by hand, by mixing machine or transporting of pre-mixed materials and distributing with shovel, rake, hoe, or pail, all kinds of concrete foundations necessary for Mosaic and Terrazzo work, all cement terrazzo, magnesite terrazzo, Do-O-Tex terrazzo, epoxy matrix ter-razzo, exposed aggregate, rustic or rough washed for exterior or interior of buildings placed either by machine or by hand, and any other kind of

mixture of plastics composed of chips or granules when mixed with cement, rubber, neoprene, vinyl, magnesium chloride or any other resinous or chemical substances used for seamless flooring systems, and all other building materials, all similar materials and all precast terrazzo work on jobs, all scratch coat used for Mosaic and Terrazzo work and sub-bed, tar paper and wire mesh (2x2 etc.) or lath. The rubbing, grinding, cleaning and finishing of same either by hand or by machine or by terrazzo resurfacing equipment on new or existing floors. When necessary finishers shall be allowed to assist the mechanics to spread sand bed, lay tarpaper and wire mesh (2x2 etc.) or lath. The finishing of cement floors where additional aggregate of stone is added by spreading or sprinkling on top of the finished base, and troweled or rolled into the finish and then the surface is ground by grinding machines.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

DRAWING NO.	TITLE
G-101	COVER SHEET
A-101	DEMOLITION PLAN
A-102	PROPOSED FLOOR PLAN
A-103	PROPOSED REFLECTED CEILING PLAN
A-104	ELEVATIONS AND DETAILS
A-105	SIB PLAN AND ELEVATIONS
M-101	DEMOLITION PLAN
M-102	PROPOSED PLAN
E-101	DEMOLITION PLAN
E-102	PROPOSED LIGHTING PLAN
E-103	PROPOSED POWER AND SYSTEMS PLAN AND DETAILS
E-104	SCHEDULES AND RISER DIAGRAM

All drawings dated May 1, 2024

END 00 86 00.

SECTION 01 10 00 - SUMMARY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Contract description.

B. Owner supplied products.

C. Contractor's use of site and premises.

D. Owner occupancy.

E. Specification Conventions.

F. Contractor’s Duties.

G. Contract Documents.

1.2 CONTRACT DESCRIPTION

A. The work includes the demolition and renovation of the existing building as necessary for the creation of 5 interview bays, including architectural, mechanical and electrical scopes of work. The work will be constructed in 2 phases to allow continual operation of the facility during construction.

B. Perform Work of Contract under stipulated sum contract with Owner in accordance with Conditions of Contract.

1.3 OWNER SUPPLIED PRODUCTS

A. Owner's Responsibilities:
   1. Arrange for and deliver Owner-reviewed Shop Drawings, Product Data, and Samples, to Contractor.
   2. Arrange and pay for delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner-reviewed Shop Drawings, Product Data, and Samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.

4. Repair or replace items damaged after receipt.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

A. Limit use of site and premises to allow:
   1. Owner occupancy.
   2. Use of site and premises by the public.

B. Construction Operations: Limited to areas noted on Drawings.

C. Allow for public use of all adjoining streets and sidewalks.

D. Light duty vehicle parking is permitted. All parking lots and sidewalks are to be restored to their original condition.

1.5 OWNER OCCUPANCY

A. The Owner will occupy the premises during the entire period of construction for the conduct of normal operations.

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

C. Schedule the Work to accommodate Owner occupancy.

1.6 SPECIFICATION CONVENTIONS

A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words “shall be” are included by inference where a colon (:) is used within sentences or phrases.

1.7 CONTRACTOR’S DUTIES

A. Except as specifically noted, Contractor shall provide and pay for:
   1. All labor, materials, and equipment used for construction of and/or incorporated into the project.
   2. All tools, construction equipment and machinery.
   3. Required building permits, and all inspection fees by governmental authorities.
   4. Other facilities and services necessary for proper execution and complete of work.

B. This project is within the Montgomery County Enterprise Zone. Owner is exempt from payment of sales tax on purchase of qualifying building materials purchased in the State of Illinois. Retail sales tax shall not be included in the bid amount. See paperwork attached to 00 21 14 Instruction to Bidders AIA for list of qualifying building materials. Each contractor and sub-contractor shall assist the Owner in completing this paperwork after contract execution. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of work.

C. Promptly submit written notice to Architect/Engineer of observed variance of contract documents from legal requirements.
   1. It is not the Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
      a. Appropriate modifications to contract documents will account for/reflect necessary changes.
      b. Assume responsibility for work known to be contrary to such requirements if written notice is not provided by the Contractor to the Architect.

D. Enforce strict discipline and good order among employees.

E. Do not unreasonably encumber site with materials or equipment.

F. Do not load structure with weight that will endanger structure.

G. Assume full responsibility for protection and safe-keeping of products stored on premises.

H. Move any stored products which interfere with operations of Owner or other Contractors.

I. Obtain and pay for use of additional storage or work areas needed for operations.

J. Contractor shall maintain building free from entrance of water at all times during construction.

K. Contractor shall furnish, erect and maintain temporary ladders, ramps, or hoists as may be required for performance of his work.
   1. All such equipment shall be substantially designed, constructed, and maintained in accordance with applicable federal, state, and local laws, ordinances, and regulations, and shall be promptly removed when no longer needed.

L. Contractor shall design, furnish, erect, maintain, and move all ladders and scaffolding required for this work.
   1. All ladders and scaffolding shall be designed, constructed, and maintained in accordance with applicable federal, state, and local law, ordinances, and regulations, and shall be promptly removed when no longer needed.

1.8 CONTRACT DOCUMENTS

A. Contractor will be furnished free of charge three (3) copies of drawings and specifications.

B. On request, additional copies will be furnished to Contractor at cost of reproduction, postage and handling.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Schedule of values.

B. Applications for payment.

C. Change procedures.

D. Defect assessment.

E. Alternates.

1.2 SCHEDULE OF VALUES

A. Submit printed schedule on AIA Form G703 - Continuation Sheet for G702. Contractor's standard form or electronic media printout will be considered.

B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

C. Format: Utilize Table of Contents of this Project Manual. Identify each line item with number and title of major specification Section. Identify site mobilization, bonds and insurance, and overhead and profit.

D. Include separately from each line item, direct proportional amount of Contractor's overhead and profit.

E. Revise schedule to list approved Change Orders, with each Application For Payment.

1.3 APPLICATIONS FOR PAYMENT

A. Submit three copies of each application on AIA Form G702-Application and Certificate for Payment. Contractor’s standard form or electronic media printout will be considered.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Submit updated construction schedule with each Application for Payment.

D. Payment Period: Submit applications for payment to Architect/Engineer for processing no later than 10 days prior to date established for progress payment meeting.

E. Submit with transmittal letter as specified for Submittals in Section 01 33 00.

F. Submit lien waivers.

G. Substantiating Data: When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:

1. Partial release of liens from major subcontractors and vendors.
2. Affidavits attesting to off-site stored products.
3. Construction progress schedules, revised and current.

H. Application for Progress Payment No. 1 shall be accompanied by a notarized statement on Contractor's letterhead as follows:

1. I certify that the funds requested for the accompanying Pay Request No. 1 will be used to pay all just and lawful bills against the undersigned and his subcontractors for labor, material and equipment employed in the performance of the work. I further certify that such bills will be paid no later than ten (10) calendar days from date of receipt of the Owner's disbursement.
2. Execute statement with signature of a responsible officer of contracting firm.

I. Each subsequent application for progress payment shall be accompanied by the following supporting documents:

1. Partial or final waivers of lien in monetary amount from Contractor, each material supplier and/or subcontractor reflecting amounts incorporated into preceding request for progress payment.
2. A notarized Affidavit of Payment to Material Suppliers and Subcontractors.
    a. Affidavit shall be submitted in exact text as exhibit furnished by Architect/Engineers, signed by Contractor or Subcontractor.
    b. Include unit item, actual amount of contract without overhead or profit, amount paid to date, and amount to become due (balance of account).

J. Progress payments will be made for materials and equipment not incorporated in the work provided that:
1. Such materials and equipment have been delivered to and suitable stored at site or some other location approved in writing by Owner and Architect/Engineer. All such materials stored off-site shall be marked or tagged with identification of project to which they are assigned.
2. Contractor submits evidence of title to such materials and equipment.
3. Care and custody of such materials and equipment and all costs incurred for movement and storage shall be responsibility of Contractor.
4. Such materials and equipment are suitably insured by Contractor. Contractor shall submit a certificate of insurance showing the Owner as an additional insured and showing amount of insurance overage of suitable proof that material and equipment are stored in a bonded warehouse.

K. Refer to Section 01 70 00 for submittal requirements for application for final payment and related closeout procedures.

1.4 CHANGE PROCEDURES

A. Submittals: Submit name of individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. The Architect/Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions in writing.

C. The Architect/Engineer may issue a Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with stipulation of overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit estimate within 10 days.

D. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation.

E. Architect/Engineer may issue directive, on **Hurst-Rosche, Inc.** Change Order form signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.

F. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Architect/Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.

G. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

H. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.

I. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

J. Correlation Of Contractor Submittals:
   1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
   2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
   3. Promptly enter changes in Project Record Documents.

1.5 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Architect/Engineer, it is not practical to remove and replace the Work, the Architect/Engineer will direct appropriate remedy or adjust payment.

C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Architect/Engineer.

D. Defective Work will be partially repaired to instructions of Architect/Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Architect/Engineer.

E. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.

F. Authority of Architect/Engineer to assess defects and identify payment adjustments, is final.

G. Non-Payment For Rejected Products: Payment will not be made for rejected products for any of the following:
   1. Products wasted or disposed of in a manner that is not acceptable.
   2. Products determined as unacceptable before or after placement.
   3. Products not completely unloaded from transporting vehicle.
   4. Products placed beyond lines and levels of required Work.
   5. Products remaining on hand after completion of the Work.
   6. Loading, hauling, and disposing of rejected products.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Coordination and project conditions.

B. Preconstruction meeting.

C. Progress meetings.

D. Cutting and patching.

E. Special procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.

C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.

E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.

F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 PRECONSTRUCTION MEETING

A. Architect/Engineer will schedule meeting after Notice of Award.

B. Attendance Required: Owner, Architect/Engineer, and Contractor.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
   5. Designation of personnel representing parties in Contract and Architect/Engineer.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Scheduling.

D. Architect/Engineer will record minutes and distribute copies with reasonable promptness after meeting to participants, with two copies to Owner and those affected by decisions made.

1.4 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.

B. Architect/Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Architect/Engineer, as appropriate to agenda topics for each meeting.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems impeding planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Maintenance of progress schedule.
   8. Corrective measures to regain projected schedules.
   9. Planned progress during succeeding work period.
   10. Coordination of projected progress.
   11. Maintenance of quality and work standards.
   12. Effect of proposed changes on progress schedule and coordination.
   13. Other business relating to Work.

E. Architect/Engineer will record minutes and distribute copies with reasonable promptness after meeting to participants, with copies to Owner, and those affected by decisions made.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 CUTTING AND PATCHING

A. Employ skilled and experienced installer to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements affecting:
   1. Structural integrity of element.
   2. Integrity of weather-exposed or moisture-resistant elements.
   3. Efficiency, maintenance, or safety of element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate contractor.

C. Execute cutting, fitting, and patching to complete Work, and to:
   1. Fit the several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.

E. Cut masonry and concrete materials using masonry saw or core drill.

F. Restore Work with new products in accordance with requirements of Contract Documents.

G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of penetrated element.

J. Refinish or restore surfaces and finished to match existing finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

K. Identify hazardous substances or conditions exposed during the Work to Architect/Engineer for decision or remedy.

3.2 SPECIAL PROCEDURES

A. Materials: As specified in product sections; match existing with new products for patching and extending work.

B. Employ skilled and experienced installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to permit installation of new work and finishes.

G. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

H. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original or specified condition.

I. Refinish existing visible surfaces to remain in renovated rooms and spaces, to specified condition for each material, with neat transition to adjacent finishes.

J. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

K. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect/Engineer for review.

L. Where change of plane of 1/4 inch or more occurs, submit recommendation for providing smooth transition; to Architect/Engineer for review.

M. Trim existing doors to clear new floor finish. Refinish trim to original condition.

N. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

O. Finish surfaces as specified in individual product sections.

END OF SECTION

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedules.

C. Proposed products list.

D. Product data.

E. Shop drawings.

F. Samples.

G. Design data.

H. Manufacturer's instructions.

1.2 SUBMITTAL PROCEDURES

A. Transmit each submittal with shop drawing submittal form found at the end of this section. A copy of the submittal form must be attached to each copy of the submittal; if not, the submittal will be rejected and returned to the Contractor.

B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.

C. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.

D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

E. Schedule submittals to expedite Project, and deliver to Architect/Engineer at business address. Coordinate submission of related items.

F. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.

G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.

H. Allow space on submittals for Contractor and Architect/Engineer review stamps.

I. When revised for resubmission, identify changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

K. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial schedules within 15 days after date of Owner-Contractor Agreement. After review, resubmit required revised data within ten days.

B. Submit revised Progress Schedules with each Application for Payment.

C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.

D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

E. Submit computer generated horizontal bar chart with separate line for each major portion of Work or operation, identifying first work day of each week.

F. Submit separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products and dates reviewed submittals will be required from Architect/Engineer. Indicate decision dates for selection of finishes.

G. Indicate delivery dates for Owner furnished products.

H. Revisions To Schedules:
   1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
   2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
   3. Prepare narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.

1.4 PROPOSED PRODUCTS LIST

A. Within 15 days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

A. Product Data: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Submit number of copies Contractor requires, plus 3 copies Architect/Engineer will retain.

C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

E. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01 70 00.

1.6 SHOP DRAWINGS

A. Shop Drawings: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
   1. Include signed and sealed calculations to support design.
   2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
   3. Make revisions and provide additional information when required by authorities having jurisdiction.

D. Submit number of opaque reproductions Contractor requires, plus 3 copies Architect/Engineer will retain.

E. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01 70 00.

1.7 SAMPLES

A. Samples: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.

B. Samples For Selection as Specified in Product Sections:
   1. Submit to Architect/Engineer for aesthetic, color, or finish selection.
   2. Submit samples of finishes from full range of manufacturers' available colors, textures, and patterns for Architect/Engineer selection.

C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

D. Include identification on each sample, with full Project information.

E. Submit number of samples specified in individual specification sections; Architect/Engineer will retain one sample.

F. Reviewed samples which may be used in the Work are indicated in individual specification sections.

G. Samples will not be used for testing purposes unless specifically stated in specification section.

H. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01 70 00.

1.8 DESIGN DATA

A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.

B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.9 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect/Engineer for delivery to Owner in quantities specified for Product Data.

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

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

HURST-ROSCHE, INC.

SHOP DRAWING SUBMITTAL

PROJECT: Social Security Building Renovations
1107 West Ferdon Street
Litchfield, Montgomery County, Illinois

DATE: _____

A/E PROJECT NO: 150-3282

CONTRACTOR: _____

PRESENTED BY:
(Subcontractor/Supplier)

_____
Company Name

_____
Address

_____
Phone/Fax

_____
Contact Person

ITEM: _____

SPEC SECTION: _____

_____

By approving and submitting these shop drawings, product data and samples, we represent that we have determined and verified all materials, field measurements and field construction criteria related thereto, or will do so, and that we have checked and coordinated information contained within submittal with requirements of the work and contract documents.

_____
Contractor's Signature

_____
Date

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality control and control of installation.

B. Tolerances

C. References.

D. Examination.

E. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor quality 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. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

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

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

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

1.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

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

1.4 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

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 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 new material or substance in contact or bond.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities:
   1. Temporary electricity.
   2. Temporary lighting for construction purposes.
   3. Temporary heating.
   4. Temporary cooling.
   5. Temporary ventilation.
   6. Temporary water service.
   7. Temporary sanitary facilities.

B. Construction Facilities:
   1. Parking.
   2. Progress cleaning and waste removal.

C. Temporary Controls:
   1. Barriers.
   2. Dust control.
   3. Noise control.

D. Removal of utilities, facilities, and controls.

1.2 TEMPORARY ELECTRICITY

A. Owner will pay cost of energy used. Exercise measures to conserve energy. Utilize Owner’s existing power service.

1.3 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Permanent building lighting may be utilized during construction.

1.4 TEMPORARY HEATING

A. Existing facilities may be used.

1.5 TEMPORARY COOLING

A. Existing facilities may be used.

1.6 TEMPORARY VENTILATION

A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

1.7 TEMPORARY WATER SERVICE

A. Owner will pay cost of temporary water. Exercise measures to conserve energy. Utilize Owner's existing water system.

1.8 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of project mobilization. Locate facilities as directed by Owner.

1.9 PARKING

A. Use existing facilities as directed by Owner.

1.10 PROGRESS CLEANING AND WASTE REMOVAL

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

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.

C. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from site daily and dispose off-site.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.11 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's continued use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

1.12 DUST CONTROL

A. Execute Work by methods to minimize raising dust from construction operations.

B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.13 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by demolition and construction operations.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Products.

B. Product delivery requirements.

C. Product storage and handling requirements.

D. Product options.

E. Product substitution procedures.

F. Equipment electrical characteristics and components.

1.2 PRODUCTS

A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.

C. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products in accordance with manufacturers' instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

D. For exterior storage of fabricated products, place on sloped supports above ground.

E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.

1.6 PRODUCT SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for Substitutions during bidding period to requirements specified in this section.

B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

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

E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.

F. Substitution Submittal Procedure:
   1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
   2. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
   3. Architect/Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

2.1 EQUIPMENT ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Include lugs for terminal box.

B. Cord and Plug: Furnish minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures.

B. Final cleaning.

C. Protecting installed construction.

D. Project record documents.

E. Operation and maintenance data.

F. Manual for materials and finishes.

G. Spare parts and maintenance products.

H. Product warranties and product bonds.

1.2 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's review.

B. Provide submittals to Architect/Engineer required by authorities having jurisdiction.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

D. Provide a notarized Affidavit for Final Completion in exact text as exhibit furnished by Architect/Engineer, signed by Contractor.

E. Owner will occupy all of building as specified in Section 01 10 00.

1.3 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.

C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.

D. Replace filters of operating equipment.

E. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

F. Prohibit traffic from landscaped areas.

1.5 PROJECT RECORD DOCUMENTS

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

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
3. Field changes of dimension and detail.
4. Details not on original Contract drawings.

G. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit data bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project , and subject matter of binder when multiple binders are required.

C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    a. Significant design criteria.
    b. List of equipment.
    c. Parts list for each component.
    d. Operating instructions.
    e. Maintenance instructions for equipment and systems.
    f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:
    a. Shop drawings and product data.
    b. Air and water balance reports.
    c. Certificates.
    d. Originals of warranties and bonds.

1.7 MANUAL FOR MATERIALS AND FINISHES

A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.

B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

C. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy be reviewed and returned, with Architect/Engineer comments. Revise content of document sets as required prior to final submission.

D. Submit two sets of revised final volumes in final form within 10 days after final inspection.

E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations.

F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.

H. Additional Requirements: As specified in individual product specification sections.

I. Include listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.8 MANUAL FOR EQUIPMENT AND SYSTEMS

1.9 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.

B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

PART 2

1.10 PRODUCT WARRANTIES AND PRODUCT BONDS

A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.

C. Verify documents are in proper form, contain full information, and are notarized.

D. Co-execute submittals when required.

E. Include Table of Contents and assemble in three D side ring binder with durable plastic cover.

F. Submit prior to final Application for Payment.

G. Time Of Submittals:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
   2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

PART 3 PRODUCTS

Not Used.

PART 4 EXECUTION

Not Used.

END OF SECTION

SECTION 06 10 53

MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes concealed wood blocking for support of miscellaneous items.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI A208.1 - Mat-Formed Wood Particleboard.

B. American Wood-Preservers' Association:
   1. AWPA C1 - All Timber Products - Preservative Treatment by Pressure Process.
   2. AWPA C20 - Structural Lumber - Fire-Retardant Treatment by Pressure Processes.

C. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. National Fire Protection Association:
   1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

E. The Redwood Inspection Service:
   1. RIS - Standard Specifications for Grades of California Redwood Lumber.

F. Southern Pine Inspection Bureau:
   1. SPIB - Standard Grading Rules for Southern Pine Lumber.

G. Underwriters Laboratories Inc.:
   1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

H. U. S Department of Commerce National Institute of Standards and Technology:
   1. DOC PS 1 - Construction and Industrial Plywood.
   2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
   3. DOC PS 20 - American Softwood Lumber Standard.

I. West Coast Lumber Inspection Bureau:
   1. WCLIB - Standard Grading Rules for West Coast Lumber.

J. Western Wood Products Association:
   1. WWPA G-5 - Western Lumber Grading Rules.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit technical data on wood preservative and fire retardant treatment materials and application instructions.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with the following:
   1. Lumber Grading Agency: Certified by DOC PS 20.
   2. Wood Structural Panel Grading Agency: Certified by EWA - The Engineered Wood Association.
   3. Lumber: DOC PS 20.
   4. Wood Structural Panels: DOC PS 1 or DOC PS 2.

PART 2 PRODUCTS

2.1 MATERIALS

A. Lumber Grading Rules: AP&PA. SPIB. WCLIB.

B. Miscellaneous Framing: Stress Group D, S/P/F, species, grade 19 percent maximum moisture content after treatment, pressure preservative treat.

C. Plywood: APA/EWA Rated Sheathing Structural I, Grade C-D; Exposure Durability 2; unsanded.

2.2 ACCESSORIES

A. Fasteners and Anchors:
   1. Fasteners: Hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
   2. Nails and Staples: ASTM F1667.
   3. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify substrate conditions are ready to receive blocking, curbing and framing.

3.2 PREPARATION

A. Coordinate placement of blocking, curbing and framing items.

3.3 INSTALLATION

A. Set members level and plumb, in correct position.

B. Place horizontal members, crown side up.

END OF SECTION

SECTION 07 90 00

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes preparing sealant substrate surface and sealant and backing.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM C717 - Standard Terminology of Building Seals and Sealants.
   2. ASTM C834 - Specification for Latex Sealants.
   3. ASTM C920 - Specification for Elastomeric Joint Sealants.
   4. ASTM D1056 - Flexible Cellular Material- Sponge or Expanded Rubber.

B. Federal Specifications (FS):
   1. FS TT-S-1657 - Sealing Compound, Single Component Butyl Rubber Based Solvent Release Type (for Buildings and other Types of Construction).

1.3 SUBMITTALS

A. Product Data: Product chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.

B. Warranty: Submit manufacturer warranty information.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing Work of this Section with minimum 5 years documented experience.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver Products in manufacturer's original unopened containers or packages with labels intact, identifying product and manufacturer, date of manufacture, lot number, shelf life, curing time, and mixing instructions, where applicable.

B. Store and handle materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

A. Environmental Requirements: Install sealant during manufacturers' recommended temperature ranges and weather conditions for application and cure. Consult manufacturer when sealant cannot be applied during recommended conditions.

1.7 WARRANTY

A. Warranty:
   1. Submit written warranty signed by sealant manufacturer agreeing to replace sealants and accessories which fail because of loss of cohesion or adhesion or which do not cure.
   2. Warranty Period: 5 years or longer per the manufacturers' standard warranties.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Bostik, Inc, Huntingdon Valley, PA, (800) 523-2678, (125) 674-5600.

B. Dow Corning, Midland, MI (517) 496-4000.

C. GE Silicones, Waterford, NY (518) 233-3330.

D. Mameco International, Cleveland, OH, (800) 321-6412, (216) 752-4400.

E. Nomaco, Inc., Zebulon, NC, (919) 269-6500.

F. Pecora Corporation, Harleysville, PA, (800) 523-6688, (215) 723-6051.

G. Sonneborn Building Products Div. ChemRex, Inc., Shakopee, MN (800) 243-6739, (612) 496-6000.

H. USG Corp., Chicago, IL (800) 874-4968, (312) 606-4000.

2.2 BUILDING SEALANTS (See Sealant Schedule at the end of this Section for specific use of sealants.)

A. Urethanes:
   1. Type 1: Two-Part Urethane: Self-Leveling, ASTM C920, Type M, Grade P, Class 25.
      a. Chem-Calk CC-550, by Bostik.
      b. Vulkem 245, by Mameco.
      c. Vulkem 255, Wide-Joint, by Mameco.
      d. NR-200 Urexpan, by Pecora Corporation.

   2. Type 2: Two-Part Urethane: Non-Sag, ASTM C920, Type M, Grade NS, Class 25.
      a. Chem-Calk 500, by Bostik.
      b. Vulkem 227, by Mameco.
      c. Sonolastic NP 2, by Sonneborn Building Products, ChemRex Inc.

3. Type 3: One-Part Urethane: Self-Leveling, ASTM C920, Type S, Grade P, Class 25.
   a. Vulkem 45, by Mameco.
   b. Urexpan NR-201, by Pecora Corporation.
   c. Sonolastic SL1, by Sonneborn Building Products, ChemRex Inc.
4. Type 4: One-Part Urethane: Non-Sag, ASTM C920, Type S, Grade NS, Class 25.
   a. Chem-Calk 900, by Bostik.
   b. Vulkem 116, by Mameco.
   c. Sonolastic NP I, by Sonneborn Building Products, ChemRex Inc.

B. Silicones:
1. Type 1: One-Part Silicones: ASTM C920, Type S, Grade NS, Class 50.
   a. 795 Silicone Building Sealant, by Dow Corning.
   b. 864 Architectural Silicone Sealant, by Pecora Corporation.
   c. Spectrum 3 by Mameco.
2. Type 2: One-Part Silicones: ASTM C920, Type S, Grade NS, Class 25. Vertical Surfaces Only.
   a. Construction 1200 Sealant, General Electric Company.
   b. 999-A, Dow Corning.
   c. 860 Glaziers and Contractors Silicone Sealant, by Pecora Corporation. (colors only)
3. Type 3: One-Part Silicones: ASTM C920, Type S, Grade NS, Class 25 or 50.
   a. 786 Mildew Resistant Silicone Sealant, Dow Corning.
   b. SCS 1700 Sanitary Sealant, General Electric.
   c. 898 Silicone Sanitary Sealant, Pecora Corporation.

C. Acrylics, Latex:
1. Type 1: One-Part Acrylic Latex, Non-Sag, ASTM-C-834-76.
   a. Chem-Calk 600, by Bostik.
   b. AC-20+Silicone Acrylic Latex, by Pecora Corporation.
   c. Sonolac, Sonneborn Building Products, ChemRex Inc.

D. Acoustical Sealants:
1. Type 1: AC-20 FTR Acoustical and Insulation Sealant, by Pecora Corporation.
2. Type 2: 60+ Unicrylic, by Pecora Corporation.
3. Type 3: Sheetrock Acoustical Sealant, by United States Gypsum.

E. Butyls:
1. Type 1: One-Part Butyl, Non-Sag, FS TT-S-1657.
   a. Chem-Calk 300, by Bostik.
   b. BC-158 Butyl Rubber, by Pecora Corporation. (ASTM C1085)
   c. Tremco Butyl Sealant by Mameco.

F. Preformed Compressible & Non-Compressible Fillers:
1. Type 1: Backer Rod - Closed cell polyethylene foam:
   a. HBR Backer Rod, by Nomaco.
   b. #92 Greenrod, by Nomaco.
   c. Sonofoam Closed-Cell Backer Rod, Sonneborn Building Products, ChemRex Inc.

G. Bond Breaker Tape: Polyethylene tape of plastic as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate of joint filler must be avoided for proper performance of sealant

2.4 COLORS

A. Generally use sealant colors matching color of material joint is located in.

B. Where a joint occurs between two materials of differing colors and Contractor cannot determine which material to match, contact Architect / Engineer for selection.

2.5 ACCESSORIES

A. Joint Cleaner: Provide type of joint cleaning compound recommended by sealant manufacturer for joint surfaces to be cleaned.

B. Primer: As recommended by sealant manufacturer.

C. Masking tape and similar accessories to protect surfaces from damage.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
   1. Verify that joint widths are in conformance with sealant manufacturer allowable limits.
   2. Verify that contaminants capable of interfering with adhesion have been cleaned form joint and joint properly prepared.

B. Report in writing to Architect / Engineer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.

C. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Using Agency.

3.2 PREPARATION

A. Prepare and size joints in accordance with manufacturer's instructions. Clean substrates of dirt, laitance, dust, or mortar using solvent, abrasion, or sandblasting as recommended by manufacturer. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Verify that joint backing and release tapes are compatible with sealant. Verify sealant is suitable for substrate. Verify that sealant is paintable if painted finish is indicated.

C. Protect materials surrounding work of this Section from damage or disfiguration.

3.3 INSTALLATION

A. Install sealant in accordance with manufacturer's published instructions.

B. Prime or seal joint surfaces where recommended by sealant manufacturer. Do not allow primer or sealer to spill or migrate onto adjoining surfaces.

C. Install backer rod and bond breaker tape where required by manufacturer.

D. Install preformed compressible and non-compressible fillers in accordance with manufacturer's published instructions.

E. Install sealants to depths recommended by sealant manufacturer in uniform, continuous ribbons free of air pockets, foreign embedded matter, ridges, and sags, "wetting" joint bond surfaces equally on both sides.

F. Tool joints concave unless shown otherwise. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form slight cove so that joint will not trap moisture and foreign matter. Dry tool joints. Do not use soap, water, or solvent to tool joints.

G. Epoxy Floor Joint Sealant: Install sealant at floor construction and control joints in accordance with manufacturer's published instructions and initially under manufacturer's supervision.

3.4 CURING

A. Cure sealants in compliance with manufacturer's published instructions.

3.5 CLEANING

A. Remove excess and spillage of sealants promptly as the work progresses, using materials and methods as recommended by sealant and substrate manufacturers. Clean adjoining surfaces to eliminate evidence of spillage without damage to adjoining surfaces or finishes.

3.6 SEALANT SCHEDULE

B. Interior Joints:
   1. Seal interior perimeters of exterior openings.
   2. Perimeters of interior hollow metal and aluminum frames.
   3. Interior masonry vertical control joints and intersecting masonry walls; CMU-to-CMU, CMU-to-concrete.
   4. For all of the above interior joints:
      a. Sealant Urethane Type 2
      b. Sealant Urethane Type 4
      c. Sealant Silicone Type 1 (for prefinished materials only)
   5. Interior expansion and control joints in floor surfaces exposed to foot traffic.
      a. Sealant Urethane Type 2
      b. Sealant Urethane Type 4
      c. Preformed Compressible & Non-Compressible Filler Type 1

C. Glazing:
    1. Structural Glazing.
        a. Sealant Silicone Type 2
        b. Sealant Silicone Type 3
    2. General Purpose Glazing.
        a. Sealant Silicone Type 3
    3. End Damming.
        a. Sealant Butyl Type 1

END OF SECTION

SECTION 08 12 14

STANDARD STEEL FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes non-rated frames for glazing and cased openings.
   1. Provide frames for interior glazed lights.

B. Related Sections:
   1. Section 08 81 00 – Glazing.
   2. Section 09 90 00 - Painting and Coating: Field painting of frames.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.

B. ASTM International:
   1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. International Code Council:
   1. ICC 500-2014 – Standard for the Design and Construction of Storm Shelters.

D. National Fire Protection Association:
   1. NFPA 80 - Standard for Fire Doors, Fire Windows.
   2. NFPA 105 - Standard for the Installation of Smoke Door Assemblies and other Opening Protectives.
   3. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.

E. Underwriters Laboratories Inc.:
   1. UL 10B - Fire Tests of Door Assemblies.
   2. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
   3. UL 1784 - Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate frame elevations, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.

C. Product Data: Submit frame configuration and finishes.

D. Manufacturer's Installation Instructions: Submit special installation instructions.

1.4 QUALITY ASSURANCE

A. Conform to requirements of ANSI A250.8.

1.5 QUALIFICATIONS

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

B. Installer: Company specializing in performing work of this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Accept frames on site in manufacturer's packaging. Inspect for damage.

C. Break seal on-site to permit ventilation.

1.7 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate Work with frame opening construction.

PART 2 - PRODUCTS

2.1 STANDARD STEEL FRAMES

A. Manufacturers:
   1. Amweld Building Products, Inc.
   2. Ceco Door Products.
   3. Republic Builders Products.
   4. Steelcraft.
   5. Curries Company.
   6. Mesker Door Inc.
   7. Substitutions: Not Permitted.

B. Product Description: Standard shop fabricated steel frames, fire rated and non-rated types.
   1. Interior Frames:
      a. Nominal 16 gage/0.053 inch thick material, base metal thickness.

2.2 ACCESSORIES

A. Removable Stops: Rolled steel channel shape, mitered corners; prepared for countersink style tamper proof screws and as required for fire ratings indicated.

B. Bituminous Coating: Non-asbestos fibered asphalt emulsion.

C. Primer: ANSI A250.10 rust inhibitive type.

2.3 FABRICATION

A. Fabricate frames as welded unit.

2.4 SHOP FINISHING

A. Steel Sheet: Galvanized to ASTM A653 A60.

B. Primer: Baked.

C. Field finish frames per Section 09 90 00. Ensure finish coat is compatible with factory applied primer – consult manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify opening sizes and tolerances are acceptable.

3.2 INSTALLATION

A. Install frames in accordance with ANSI A250.8.

B. Coordinate with gypsum board wall construction for anchor placement.

C. Coordinate installation of glass and glazing specified in Section 08 80 00.

3.3 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

END OF SECTION

SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes glass glazing, non-rated for hollow metal frames.

B. Related Sections:
   1. Section 08 12 14 – Standard Steel Frames: Glazed frames.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings Safety.

B. American Society of Civil Engineers:
   1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

C. ASTM International:
   1. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
   2. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
   3. ASTM C1036 - Standard Specification for Flat Glass.
   4. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
   5. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
   6. ASTM C1193 - Standard Guide for Use of Joint Sealants.
   7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   8. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
   9. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
   10. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors By Uniform Static Air Pressure Difference.
   11. ASTM E576 - Standard Test Method for Frost Point of Sealed Insulating Glass Units in the Vertical Position.
   12. ASTM E773 - Standard Test Methods for Seal Durability of Sealed Insulating Glass Units.
   13. ASTM E774 - Standard Specification for Sealed Insulating Glass Units.

D. Consumer Products Safety Commission:
   1. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing.

E. Glass Association of North America:
   1. GANA - Sealant Manual.
   2. GANA - Glazing Manual.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data:
   1. Glass: Provide structural, physical, and thermal and solar optical performance characteristics, size limitations, special handling or installation requirements.
   2. Glazing Sealants, Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors where exposed.

C. Samples:
   1. Glass: Submit two samples 12 x 12 inch in size, illustrating each glass units, coloration and design.
   2. Glazing Materials: Submit 12 inch long bead of glazing sealant and gaskets, color as selected.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual for glazing installation methods.

1.5 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this section with minimum three years experience.

B. Design glass resisting wind and live loads under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Illinois.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Do not install glazing when ambient temperature is less than 50 degrees F.

C. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.7 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish ten year warranty to include coverage for sealed glass units from seal failure, inter-pane dusting or misting, and replacement of same.

PART 2 PRODUCTS

2.1 GLAZING

A. Manufacturers:
   1. PPG Industries, Inc.
   2. Pilkington LOF.
   3. Nippon Electric Glass Company, Ltd.

2.2 COMPONENTS

A. Safety Glass (Type SG): CPSC 16 CFR 1201 Category II, minimum thickness 1/4 inch unless otherwise indicated. Safety glass shall be labeled and label shall be visible after glazing.
   1. Clear Tempered Glass (Type SG-CT): ASTM C1048, Kind FT Fully tempered, Condition A, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select; with horizontal tempering.

B. Clear Insulated Glass Units (Type INS-C): Total unit thickness 1 inch.
   1. Double Pane Insulated Glass Units: ASTM E774 Class A and E773; with silicone sealant edge seal; purge inter-pane space with dry hermetic air.
      a. Outer Pane: Glass Type: SG-CT.
      b. Inner Pane: Glass Type SG-CT.
   2. Insulated Glass Unit Edge Seal Construction: Aluminum mitered and spigoted corners.
   3. Minimum STC of 36, using resilient gasket as necessary to achieve STC rating.

2.3 ACCESSORIES

A. Elastomeric Glazing Sealants: Materials compatible with adjacent materials including glass, insulating glass seals, and glazing channels.
   1. Silicone Glazing Sealant: ASTM C920, Type S, Grade NS, Class and Use suitable for glazing application indicated; single component; chemical curing; capable of water immersion without loss of properties; non-bleeding, non-staining, cured Shore A hardness of 15 to 25.
      a. Acceptable Manufacturers and products:
         1) General Electric – “Silpruf”.
         2) General Electric – “Silglaze 2400”.
         3) Woodmount Products – “Chem-Caulk 1000”.
         4) Dow Corning – “790”.
         5) Pecora – “863”.
      b. Color: As selected.
      c. Structural Silicone: Furnish high-modulus structural silicone glazing materials where sealant bonds glass to substrate.

B. Glazing Gaskets: ASTM C864 Option I or II, resilient polyvinyl chloride extruded shape to suit glazing channel retaining slot.
   1. Color: Black.

C. Pre-Formed Glazing Tape: Size to suit application.

1. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air barrier and vapor retarder seal.

D. Setting Blocks: ASTM C864 Option I, Neoprene, 80 to 90 Shore A durometer hardness, length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

E. Spacer Shims: ASTM C864 Option I, Neoprene, 50 to 60 Shore A durometer hardness, minimum 3 inch long x one half the height of glazing stop x thickness to suit application, self adhesive on one face.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify openings for glazing are correctly sized and within acceptable tolerance.

C. Verify surfaces of glazing channels or recesses are clean, free of obstructions impeding moisture movement, weeps are clear, and ready to receive glazing.

3.2 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION

A. Perform installation in accordance with GANA Glazing Manual.
1. Glazing Sealants: Comply with ASTM C1193.

B. Interior Wet/Dry Method (Tape and Sealant) Installation:
1. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.
2. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
3. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
4. Install removable stops, spacer shims inserted between glazing and applied stops at 24-inch intervals, 1/4 inch below sight line.
5. Fill gaps between pane and applied stop with elastomeric glazing sealant to depth equal to bite on glazing, to uniform and level line.
6. Trim protruding tape edge.

C. Interior Wet Method (Compound and Compound) Installation:
   1. Install glazing resting on setting blocks. Install applied stop and center pane by use of spacer shims at 24-inch centers, kept 1/4 inch below sight line.
   2. Locate and secure glazing pane using glazers' clips.
   3. Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

3.4 FIELD QUALITY CONTROL

A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Monitor quality of glazing.

3.5 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Remove glazing materials from finish surfaces.

C. Remove labels after Work is complete.

D. Clean glass and adjacent surfaces.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 70 00 - Execution and Closeout Requirements: Protecting installed construction.

B. After installation, mark pane with an 'X' by using removable plastic tape or paste.

END OF SECTION

SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Metal stud wall framing.
   2. Metal channel ceiling framing.
   3. Gypsum board and joint treatment.

B. Related Requirements:
   1. Section 06 10 53 - Miscellaneous Rough Carpentry: Wood blocking.

1.2 REFERENCE STANDARDS

A. ASTM International:
   1. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
   2. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board.
   3. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
   4. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members.
   5. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
   6. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
   7. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board.
   8. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.
   9. ASTM C1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases.
   10. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
   11. ASTM C1178/C1178M - Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.
   12. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing.
   13. ASTM C1288 - Standard Specification for Discrete Non-Asbestos Fiber-Cement Interior Substrate Sheets.
   14. ASTM C1325 - Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cement Substrate Sheets.
   15. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
   16. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

17. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
18. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
19. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

B. American National Standards Institute:
1. ANSI A108.11- Specifications For Interior Installations Of Cementitious Backer Units.
2. ANSI A118.9 - Test Methods and Specifications for Cementitious Backer Units.

C. American Society of Civil Engineers:
1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

D. Gypsum Association:
1. GA 214 - Recommended Levels of Gypsum Board Finish.
2. GA 216 - Application and Finishing of Gypsum Board.
3. GA 600 - Fire Resistance Design Manual Sound Control.

E. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.

F. National Fire Protection Association:
1. NFPA 265 - Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls, Method B.
2. NFPA 286 - Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Wall and Ceiling Interior Finish.

G. Underwriters Laboratories Inc.:
1. UL - Fire Resistance Directory.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on metal framing, gypsum board, joint tape, and acoustic accessories.

C. Shop Drawings:
1. Indicate special details associated with acoustic seals.
2. Indicate installation details required for seismic design loads.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ASTM C840, ASTM C1280; GA-214, GA-216 and GA-600.

1.5 QUALIFICATIONS

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

B. Installer: Company specializing in performing Work of this section with minimum three years experience.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

A. Manufacturer List:
   1. CertainTeed.
   2. Georgia-Pacific.
   3. National Gypsum Co.
   4. United States Gypsum Co.

B. Performance / Design Criteria:
   1. Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated according to ASCE 7 and applicable codes for Seismic Design Category indicated on Drawings.

2.2 COMPONENTS

A. Framing Materials:
   1. Studs and Tracks: ASTM C645; GA-216 and GA-600; galvanized sheet steel, 20 gauge minimum, unless indicated otherwise on Drawings; C shape, of depth as shown on Drawings.
   2. Furring, Framing, and Accessories: ASTM C645, GA-216 and GA-600.
   3. Fasteners: ASTM C1002, screws.
   4. Anchorage to Substrate: Tie wire, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
   5. Seismic Bracing: As required for seismic performance requirements.

B. Gypsum Board Materials: ASTM C1396.
   1. Fire Rated Gypsum Board: ASTM C36; fire resistive type, UL or WH rated; 5/8 inch thick, maximum available length in place; ends square cut, tapered edges.

2.3 ACCESSORIES

A. Rock Wool Acoustical Insulation:
   1. R-Value: R-13 minimum.
   2. Density: Greater than 2 pounds per cubic foot nominal.
   3. Surface Burning Characteristics: Tested in accordance with ULC S102.
      a. Unfaced: Flame Spread 0 and Smoke Developed 0.
   4. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.

5. Corrosion Resistance: Non-corrosive / Passed when tested in accordance with ASTM C665.
6. Fungi Resistance: Zero mold growth to ASTM C1338.

B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

C. Gypsum Board Accessories: ASTM C1047; plastic; corner beads, edge trim, and expansion joints.
1. Plastic Accessories: PVC plastic.

D. Joint Materials: ASTM C475; GA-216; reinforcing tape, joint compound, and water.

E. Gypsum Board Screws: ASTM C1002; length to suit application.
1. Screws for Steel Framing: Type S.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify site conditions are ready to receive Work and opening dimensions are as indicated on shop drawings and as instructed by manufacturer.

3.2 INSTALLATION

A. Metal Stud Installation:
1. Install studs in accordance with ASTM C754, ASTM C1007, GA-216 and GA-600.
2. Metal Stud Spacing: 16 inches on center.
3. Refer to Drawings for indication of partitions extending stud framing through ceiling to structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide extended leg ceiling runners.
4. Door Opening Framing: Install double studs at door frame jambs. Install box beam and stud track at frame head height.
5. Blocking: Nail wood blocking to studs.

B. Acoustic Accessories Installation:
1. Place acoustic insulation in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions.
2. Install acoustic sealant within partitions.

C. Gypsum Board Installation:
1. Install gypsum board in accordance with GA-216 and GA-600.
2. Erect single layer fire rated gypsum board horizontally, with edges and ends occurring over firm bearing.
3. Use screws when fastening gypsum board to metal furring or framing.

4. Place control joints consistent with lines of building spaces, as per manufacturer's recommendations consistent with lines of building spaces and at all openings.
5. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials as indicated on Drawings.

D. Joint Treatment:
1. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
2. Feather coats on to adjoining surfaces so that camber is maximum 1/32 inch.

E. Provide skim coat of joint compound in accordance with GA-214 to provide a Level 5 finish as specified.

3.3 TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation of Finished Gypsum Board Surface from Flat Surface: 1/8 inch in 10 feet.

3.4 SCHEDULE

A. Finishes in accordance with GA-214 Level:
1. Level 1: Above finished ceilings concealed from view.
2. Level 5: Walls exposed to view.

END OF SECTION

SECTION 09 51 13

ACOUSTICAL PANEL CEILINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes suspended metal grid ceiling system, and accessories. Acoustical panels are to be salvaged and reinstalled.

B. Related Requirements:
   1. Section 07 90 00 - Joint Protection.
   2. Division 23 - Air Outlets and Inlets: Air diffusion devices in ceiling system.
   3. Division 26 - Interior Lighting: Light fixtures in ceiling system.

1.2 REFERENCE STANDARDS

A. ASTM International:
   1. ASTM C635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
   2. ASTM C636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
   3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   4. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
   5. ASTM E580 - Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint.
   6. ASTM E1264 - Standard Classification for Acoustical Ceiling Products.

B. Ceilings and Interior Systems Construction Association:
   1. CISCA - Acoustical Ceilings: Use and Practice.

C. Intertek Testing Services (Warnock Hersey Listed):
   1. WH - Certification Listings.

D. National Fire Protection Association:
   1. NFPA 255 – Standard Method of Test of Surface Burning Characteristics of Building materials.
   2. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

E. Underwriters Laboratories Inc.:
   1. UL - Fire Resistance Directory.
   2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.3 PERFORMANCE REQUIREMENTS

A. Suspension System: Rigidly secure acoustic ceiling system including integral mechanical and electrical components with maximum deflection of 1:240.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on metal grid system components and acoustic units.

C. Samples:
   1. Submit two samples each, 12 inches long, of suspension system main runner, cross runner, perimeter molding.

D. Manufacturer's Instructions: Submit special procedures, perimeter conditions requiring special attention.

1.5 QUALITY ASSURANCE

A. Conform to CISCA requirements.

1.6 QUALIFICATIONS

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

B. Installer: Company specializing in performing Work of this section with minimum three years experience.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Maintain uniform temperature of minimum 55 degrees F, and maximum humidity of 65 to 70 percent prior to, during, and after acoustic unit installation.

1.8 SEQUENCING

A. Section 01 10 00 - Summary: Requirements for sequencing.

B. Sequence Work to ensure acoustic ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

C. Install acoustic units after interior wet work is dry.

PART 2 PRODUCTS

2.1 COMPONENTS

A. Grid:
1. Non-fire Rated Grid: ASTM C635, Heavy Duty; exposed T components die cut and interlocking.
a. Armstrong: Prelude XL.
b Celotex: Classic Stab System.
c. USG: Donn DX.

2. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
3. Exposed Grid Surface Width: As per applicable code for seismic design category indicated on Drawings.
4. Grid Finish: White color.
5. Accessories: Stabilizer bars, clips, splices, perimeter moldings, and hold down clips, as required for suspended grid system.

2.2 ACCESSORIES

A. Touch-up Paint: Type and color to match acoustic and grid units.

B. Seismic Bracing: As required to meet seismic performance requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify layout of hangers will not interfere with other Work.

3.2 INSTALLATION

A. Lay-In Grid Suspension System:
1. Install suspension system in accordance with ASTM C636 and as supplemented in this section.
2. Install suspension system in accordance with ASTM E580.
3. Install system capable of supporting imposed loads with maximum deflection of 1/240 maximum.
4. Install after major above ceiling work is complete. Coordinate location of hangers with other work.
5. Install hanger clips during steel deck erection. Install additional hangers and inserts as required.
6. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

7. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest affected hangers and related carrying channels to span extra distance.
8. Do not support components on main runners or cross runners when weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.
9. Do not eccentrically load system, or produce rotation of runners.
10. Install light fixture boxes constructed of acoustic panel above light fixtures in accordance with UL assembly requirements and light fixture ventilation requirements.
11. Laterally brace entire suspended system as required for seismic design category as indicated on Drawings.

3.3 TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

C. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes resilient tile flooring; and resilient base.

1.2 REFERENCES

A. ASTM International:
   1. ASTM D 543 - Standard Practices for Evaluating Resistance to Chemical Reagents.
   2. ASTM D2047 - Standard Test Method for Static Coefficient of Friction as Measured by the James Machine.
   3. ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
   4. ASTM E 1155 - Standard Test Method for Determining FF (Floor Flatness) and FL (Floor Levelness) Numbers.
   5. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
   6. ASTM F 970 - Standard Test Method for Static Load Limit.
   7. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile.
   8. ASTM F1344 - Standard Specification for Rubber Floor Tile.
   9. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile.
   10. ASTM F1861 - Standard Specification for Resilient Wall Base.
   11. ASTM F2169 - 12 Standard Specification for Resilient Stair Treads.

B. National Fire Protection Association:
   1. NFPA 253 - Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data describing physical and performance characteristics; including sizes, patterns, and colors available; and installation instructions.

C. Samples:
   1. Submit manufacturer's complete set of color samples for initial selection.
   2. Submit two samples, 2 x 2 inch size illustrating color and pattern for each product specified.

1.4 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.5 QUALITY ASSURANCE

A. Surface Burning Characteristics:
   1. Floor Finishes: Class I, minimum 0.45 watts/sq cm when tested in accordance with NFPA 253.
   2. Base Material: Class I, minimum 0.45 watts/sq cm when tested in accordance with NFPA 253.

1.6 QUALIFICATIONS

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

B. Installer: Company specializing in performing Work of this section with minimum five years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Protect roll materials from damage by storing on end.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

C. Store materials for not less than 48 hours prior to installation in area of installation at temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.1 VINYL COMPOSITION TILE FLOORING

A. Manufacturers:
   1. To match existing – see Drawings.

2.2 RESILIENT BASE

A. Manufacturers:
   1. Armstrong.
   2. Flexco.
   3. Johnsonite Inc.
   4. Roppe Corp.

B. Base: ASTM F1861Type TS – Vulcanized Rubber; coved style:
   1. Height: 4 inch, unless otherwise noted on Drawings.
   2. Thickness: 0.125 inch thick.
   3. Finish: Matte.
   4. Length: Roll.
   5. Accessories: Premolded external corners, internal corners and end stops.
   6. Color: As selected by Architect / Engineer from manufacturer's full range of color selections. Multiple colors will be selected.

2.3 ACCESSORIES

A. Subfloor Filler: Premix latex; type recommended by adhesive material manufacturer.

B. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer for high moisture content concrete.

C. Sealer: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify concrete floors are dry to maximum moisture content as recommended by manufacturer for their moisture resistant adhesives, and exhibit negative alkalinity, carbonization, and dusting.

C. Verify floor and lower wall surfaces are free of substances capable of impairing adhesion of new adhesive and finish materials.

3.2 PREPARATION

A. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.

B. Prohibit traffic until filler is cured.

C. Clean substrate.

D. Apply primer as required to prevent "bleed-thru" or interference with adhesion by substances cannot be removed.

3.3 EXISTING WORK

A. Extend existing resilient flooring installations using materials and methods compatible with existing installations and matching size, thickness, etc. of existing materials, or as specified.

3.4 INSTALLATION - TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed.

B. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

C. Install tile in pattern to match existing flooring. Allow minimum 1/2 full size tile width at room or area perimeter.

D. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

E. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door.

F. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.

3.5 INSTALLATION - BASE

A. Fit joints tightly and make vertical.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.6 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Remove excess adhesive from floor, base, and wall surfaces without damage.

C. **Clean, seal, and maintain** resilient flooring products.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Section 01 70 00 - Execution and Closeout Requirements: Protecting installed construction.

B. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

SECTION 09 77 13

STRETCHED-FABRIC WALL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes stretched fabric tackable panels.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI A208.1 - Mat-Formed Wood Particleboard.

B. ASTM International:
   1. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
   2. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
   3. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
   4. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

C. APA-The Engineered Wood Association:
   1. APA/EWA PS 1 - Voluntary Product Standard for Construction and Industrial Plywood.

D. American Wood-Preservers' Association:
   1. AWPA C20 - Structural Lumber - Fire-Retardant Treatment by Pressure Processes.
   2. AWPA C27 - Plywood, Fire-Retardant Pressure Treatment.

E. National Fire Protection Association:
   1. NFPA 265 - Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls, Method B.
   2. NFPA 286 - Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Wall and Ceiling Interior Finish.

F. U. S Department of Commerce National Institute of Standards and Technology:
   1. DOC PS 1 - Construction and Industrial Plywood.
   2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
   3. DOC PS 20 - American Softwood Lumber Standard.

1.3 PERFORMANCE REQUIREMENTS

A. Acoustical Absorption: Perform testing in accordance with ASTM C423, Type A mounting method unless otherwise specified.

B. Flame Spread Rating: Provide all components with Class A flame spread rating when tested in accordance with ASTM E 84, unless otherwise specified.

C. Noise Reduction Coefficient (NRC): Minimum 0.90 when tested in accordance with ASTM C423.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Shop Drawings:
   1. Indicate layout and dimensions of acoustical wall panels, frame profiles, core materials, and fabric face.
   2. Indicate interface with adjacent materials.

C. Product Data: Submit data frame, core, fabric, and accessory materials.

D. Samples: Submit two samples of each component illustrating construction, profile and surface texture and finish.
   1. Core Samples: Minimum 2x2 inch in size to illustrate core construction.
   2. Fabric Samples: Minimum 2x2 inch in size to illustrate fabric pattern with full repeat, color, and texture.

E. Manufacturer's Installation Instructions:
   1. Submit manufacturers written installation instructions.
   2. Submit special procedures, and perimeter conditions requiring special attention.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

B. Operation and Maintenance Data: Submit fabric care and maintenance procedures, recommended fabric maintenance materials, and suggested schedule for fabric cleaning.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 10 years of experience in producing acoustical products of the types specified herein.

B. Installer Qualifications: Acceptable to the manufacturer of the acoustical products being installed.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in manufacturer's original packaging. Inspect for damage.

C. Store materials indoors with environmental conditions as specified for installation, protect edges from damage.

D. Acclimate materials to installation conditions for seventy-two hours prior to installation.

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

1.8 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.

B. Do not install acoustical wall treatment until space has been enclosed and is watertight, wet work is complete and dry and adjacent and related work is completed.

C. Do not install acoustical wall until ambient temperature and humidity level will be continuously maintained at conditions indicated for Owner occupancy.

1.9 EXTRA MATERIALS

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for extra materials.

B. Supply 5 yards of full width fabric for each type, color, and pattern specified.

PART 2 PRODUCTS

2.1 STRETCHED FABRIC ACOUSTIC PANELS

A. Manufacturers:
   1. Homasote Company, Design Wall Interior Panels.
   2. Panel Solutions, Inc., Tackable Surfaces.
   3. Golterman and Sabo, Acoustic-Track ATM Acoustical Wall Panels.

B. Product Description: Stretched fabric acoustical panels, tackable core and fabric face.
   1. Provide all acoustical products specified in this section by a single manufacturer.

2.2 CORE MATERIALS

A. Tackable Core:
   1. Material, thickness, mounting style and density required to achieve NRC rating.

2.3 FABRIC

A. Fabric:
   1. Content: 100 percent polyester.
   2. Weight: 16 pounds per linear yard.
   3. Tensile Strength: 150 pounds minimum.
   4. Tear Strength: 30 pounds minimum.
   5. ASTM E84: Class A.
   6. MFPA Test No. 214: Passes.
   7. Adhered to face of substrate.
   8. Color: As selected by Architect / Engineer from manufacturer's full range of color selections. Multiple colors will be selected.

2.4 ACCESSORIES

A. Fasteners: Type recommended by panel manufacturer to suit application.

B. Adhesive: Type recommended by panel manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify substrate is flat, plumb and level and ready to receive the Work of this section.

C. Verify adjacent and related Work is complete.

D. Verify blocking to receive frame attachment is installed and properly located.

3.2 PREPARATION

A. Follow manufacturer's instructions by separating and allowing panels to be exposed to environmental temperature and humidity conditions for not less than 24 hours before start of installation.

B. Clean surfaces thoroughly prior to installation.

3.3 INSTALLATION

A. Install plumb, level, in plane, and aligned from wall to wall and floor to ceiling where indicated on Drawings.

B. Secure to substrate with adhesive and fasteners in accordance with manufacturer's instructions.

3.4 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation From Indicated Position: 1/4 inch.

C. Maximum Offset From Indicated Alignment: 1/16 inch.

D. Maximum Out of Square: 1/4 inch difference in panel diagonals.

3.5 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.

B. Clean exposed fabric faces as per manufacturer’s instructions.

C. Replace damaged panels.

END OF SECTION

SECTION 09 90 00

PAINTING AND COATING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and field application of paints and other coatings.

1.2 REFERENCES

A. ASTM International:
   1. ASTM D16 - Standard Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
   2. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
   3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. Green Seal:
   1. GC-03 - Anti-Corrosive Paints.
   2. GS-11 - Product Specific Environmental Requirements.

C. National Fire Protection Association:
   1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

D. Painting and Decorating Contractors of America:
   1. PDCA - Architectural Painting Specification Manual.

E. South Coast Air Quality Management District:
   1. SCAQMD Rule 1113 - Architectural Coatings.

F. SSPC: The Society for Protective Coatings:
   1. SSPC - Steel Structures Painting Manual.

G. Underwriters Laboratories Inc.:
   1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data on finishing products and special coatings.

C. Samples:
   1. Submit two paper chip samples illustrating full range of colors available for each surface finishing product scheduled.

D. Manufacturer's Installation Instructions: Submit special surface preparation procedures, and substrate conditions requiring special attention.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.6 QUALIFICATIONS

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

B. Applicator: Company specializing in performing Work of this section with minimum three years documented experience and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

C. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

D. Paint Materials: Store at minimum ambient temperature of 45 degrees F and maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.

C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

D. Provide lighting level of 80 foot candle measured mid-height at substrate surface.

1.9 SEQUENCING

A. Section 01 10 00 - Summary: Work sequence.

B. Verify existing conditions and requirements of other trades before starting Work.

C. Sequence application to the following:
   1. Do not apply finish coats until paintable sealant is applied.
   2. Back prime wood trim before installation of trim.

PART 2 PRODUCTS

2.1 PAINTS AND COATINGS

A. Manufacturers:
   1. The Glidden Co.
   2. Benjamin Moore.
   3. Sherwin-Williams.
   4. PPG Pittsburg Paints.

B. Colors:
   1. As selected by the Architect / Engineer from the manufacturer’s full range of color selections. Multiple colors will be used.

2.2 COMPONENTS

A. Coatings: Ready mixed, except field catalyzed coatings. Prepare coatings:
   1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
   2. For good flow and brushing properties.
   3. Capable of drying or curing free of streaks or sags.

B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve finishes specified; commercial quality.

C. Patching Materials: Latex filler.

D. Fastener Head Cover Materials: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions and requirements of other trades before starting Work.

B. Verify surfaces and substrate conditions are ready to receive Work as instructed by product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of Work. Report conditions capable of affecting proper application.

D. Test shop applied primer for compatibility with subsequent cover materials.

E. Do not apply paint pavement markings to concrete surfaces until concrete has cured for 28 days.

F. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Plaster and Gypsum Wallboard: 12 percent.
   2. Masonry, Concrete and Concrete Unit Masonry: 12 percent.

3.2 PREPARATION

A. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

B. Surfaces: Correct defects and clean surfaces capable of affecting Work of this section. Remove or repair existing coatings exhibiting surface defects.

C. Marks: Seal with shellac those which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

F. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

G. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

H. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

I. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.

3.3 APPLICATION

A. Multiple colors shall be selected and accent walls shall be a component of the Project.

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

C. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.

D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

E. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.

F. Finishing Mechanical And Electrical Equipment:
1. Refer to Division 22, Division 23, Division 26, and Division 27 for schedule of color-coding and identification banding of equipment, ductwork, piping, and conduit.
2. Paint shop primed equipment.
3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are shop finished.
5. Paint interior surfaces of air ducts visible through grilles and louvers with one coat of flat black paint to visible surfaces. Paint dampers exposed behind louvers, and grilles to match face panels.
6. Paint exposed conduit and electrical equipment occurring in finished areas.
7. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
8. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.4 FIELD QUALITY CONTROL

A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect and test questionable coated areas.

3.5 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.

B. Collect waste material which may constitute fire hazard, place in closed metal containers, and remove daily from site.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Protect Work of other trades and surfaces not being painted.

B. Protect completed Work from damage by other trades.

3.7 SCHEDULE - INTERIOR SURFACES

A. Steel:
   1. One coat SW Pro Industrial Pro-Cryl Primer; B66-310 or approved equal.
      a. Two to four mils dry.
   2. Two coats SW ProMar 200 Alkyd Semi-Gloss; B34W200 or approved equal.
      a. Four mils wet, 1.7 mils dry.

B. Steel - Galvanized:
   1. One coat SW Pro Industrial Pro-Cryl Primer; B66-310 or approved equal.
      a. Two to four mils dry.
   2. Two coats SW ProMar 200 Alkyd Semi-Gloss; B34W200 or approved equal.
      a. Four mils wet, 1.7 mils dry per coat.

C. Gypsum Board Walls:
   1. One coat SW PrepRite 200 Latex Primer; B28W200 or approved equal.
      a. Four mils wet, 1.2 mils dry.
   2. Two coats SW ProMar 200 Latex eggshell or satin; B300W200 or approved equal.
      a. Four mils wet, 1.4 mils dry per coat.

END OF SECTION

SECTION 10 26 00 - WALL AND DOOR PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes plastic laminate wall protection and corner guards

1.2 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit physical dimensions, features, anchorage details, and rough-in measurements.

C. Samples: Submit two samples, illustrating component design, configuration, color and finish.

D. Manufacturer's Installation Instructions: Submit procedures and perimeter conditions requiring special attention.

1.3 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.4 DELIVERY, STORAGE, HANDLING

A. Deliver materials to the project site in unopened original factory packaging and inspect for damage.

B. Store materials in a cool dry place out of direct sunlight and exposure to elements. A minimum roof temperature of 40 degrees F and a maximum room temperature of 100 degrees F shall be maintained.

C. Materials must be stored flat.

1.5 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Materials must be acclimated in an environment of 65 degrees to 75 degrees F for at least 24 hours prior to be beginning of installation.

C. Coordinate Work with wall or partition sections for installation of concealed blocking or anchor devices.

PART 2 - PRODUCTS

2.1 LAMINATE WALL PROTECTION

A. Plastic Laminate Manufacturers: Subject to compliance with project requirements provide plastic laminates and other finish materials of one of the following:
   1. Formica Corp.
   2. Micarta Corp.
   3. Nevamar Coprt.
   4. Wilsonart International.
   5. Pionite.
   6. Samsung.
   7. Forbo.

B. High-Pressure Decorative Laminate: NEMA LD3, GP-50 General Purpose: 0.050 inches thick.

C. Adhesive: Non-VOC type as recommended by laminate manufacturer.

2.2 CORNER GUARDS

A. Manufacturers:
   1. Babcock Davis.
   2. Construction Specialties.
   3. InPro Corporation.
   4. Koroseal Wall Protection Systems, Inc.
   5. Pawling Corp.

B. Corner Guard - Surface Mounted:
   1. Material: High impact vinyl with extruded aluminum full height retainer with integral shock device.
   2. Projection From Wall to Outside of Guard: 1/2 inch.
   3. Length: One piece with preformed end caps.
   4. Width: Each leg of guard to be a minimum of 3 inches in length.
   5. See Drawings for applications.

C. Mounting Brackets and Attachment Hardware: Appropriate to component and substrate.

2.3 CORNER GUARD FABRICATION

A. Fabricate components with tight joints, corners and seams.

B. Pre-drill holes for attachment.

C. Form end trim closure by capping and finishing smooth.

2.4 LAMINATE WALL PROTECTION FABRICATION

A. Fabricate components with tight joints, corners and seams.

B. Form end and top trim closure by capping and finishing smooth.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify rough-in for components are correctly sized and located.

3.2 PREPARATION

A. Surface Preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer's instructions.

3.3 INSTALLATION

A. Install ½ inch thick MDF panels over gypsum wallboard and fasten to studs at 16 inches on center horizontally and vertically. Adhere laminate to MDF with adhesive. Protect edges of MDF.

B. Install guards in strict accordance with the manufacturer's recommendations, using only approved mounting hardware, and locating all components firmly into position, level and plumb.

C. Temperature at the time of installation shall be between 65 degrees and 75 degrees F and shall be maintained for a minimum of 48 hours after the installation.

D. Position corner guard from four inches above finished floor (above base material) to forty six inches high; unless noted otherwise on Drawings. Adjust end caps as necessary to ensure tight seams.

3.4 CLEANING

A. Immediately upon completion of installation, clean guards and accessories in accordance with manufacturer's recommended cleaning method.

B. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

END OF SECTION

SECTION 12 30 40

GENERAL CASEWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:
1. Plastic laminate work surfaces/back splashes, and cutouts required providing a complete and finished project. Plastic laminate work surfaces shall include backer sheet.

B. Related Sections:
1. Section 06 10 53 - Miscellaneous Rough Carpentry.

1.2 REFERENCES

A. American National Standards Institute.
1. ANSI A208.1 - Mat formed Particleboard.

B. Architectural Woodwork Institute.
1. AWI - Quality Standards Illustrated.

C. National Electrical Manufacturers Association.
1. NEMA LD3- High Pressure Decorative Laminates.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal Procedures.

B. Shop drawings shall be submitted for approval within thirty days after formal notification of award of contract. Drawings shall consist of floor plans indicating arrangement and relation to adjacent work and equipment, and complete elevations of casework. Centerline of service requirements shall be noted for use by other trades.

C. Color samples shall be submitted for selection by Architect/Engineer. Samples of actual material and color shall be available as required.

1.4 QUALITY ASSURANCE;

A. Manufacturer: Company specializing in manufacture of institutional and commercial plastic laminate casework with minimum of five years experience.

B. Installer Qualifications: Installer with 5 years experience who has successfully completed installations of plastic laminate faced casework similar in material, design, and extent to that indicated for this project.

C. Perform work in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Custom Grade.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Protect units from moisture damage.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Section 01 60 00 - Product Requirements.

B. During and after installation of Work of this section, maintain same temperature and humidity conditions in building spaces as will occur after occupancy.

1.7 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.8 WARRANTY

A. Casework manufacturer shall warrant for a period of three years, the product manufactured by it to be free from defects in material and workmanship when properly installed under normal use, but not limited to delamination, swelling or warping.

PART 2 PRODUCTS

2.1 GENERAL CASEWORK

A. Manufacturers:
1. Case Systems, Inc.
2. LSI Corporation of America, Inc.
3. Precision Millwork Company.
4. Reynolds & Doyle, Inc.
5. Stevens Cabinet Co., Division of Stevens Industries.
6. TMI Systems Design Corporation.
7. Wilson Kitchens, Inc.
8. ACS, Advanced Cabinet Systems.

2.2 LAMINATE TOPS

A. Countertops shall be high pressure decorative laminate, thermoset to core using catalyzed PVA glue with minimum average pressure of 80 pounds per square inch and average 180 degree F temperature. Decorative laminate shall meet NEMA LD3-2005 PF-42 specification standards.

B. Laminate tops shall be solid particleboard core structures and laminated with backer sheet.

PART 3 EXECUTION

3.1 INSTALLATION

A. The installer must examine the job site and the conditions under which the Work in this section is to be performed, and notify the contractor in writing of any unsatisfactory conditions. Do not proceed with Work under this section until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

B. Countertops, and related materials to be conditioned to average prevailing humidity condition in installation areas prior to start of Work.

C. Install countertops with factory-trained supervision authorized by manufacturer. Casework shall be installed plumb, level, true and straight with no distortions. (Shim as required). Securely attached to building structure with anchorage devices of appropriate type, size and quantity to meet applicable codes, specifications, and safety conditions. Where laminate clad casework and countertop abuts other finished Work, scribe and trim to accurate fit.

D. Repair, or remove and replace, defective work as directed upon completion of installation.

E. Clean plastic surfaces, repair minor damage per plastic laminate manufacturer's recommendations. Replace other damaged parts of units.

F. Advise contractor of procedures and precautions for protection of casework and countertops from damage by other trades until acceptance of Work by Owner.

G. Cover countertops with 4-mil polyethylene film for protection against soiling and deterioration during remainder of construction period.

END OF SECTION

SECTION 23 31 00 - HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Duct materials.
2. Insulated flexible ducts.
3. Single-wall, spiral round ducts.
4. Single-wall, spiral flat oval ducts.
5. Double-wall, insulated, spiral round ducts.
6. Double-wall, insulated, spiral flat oval ducts.
7. PVC-coated steel ducts.
8. Glass-fiber-reinforced plastic round ducts.
9. Double-wall, insulated, glass-fiber-reinforced plastic round ducts.
10. Slab duct ventilation system.
11. Transverse duct connection system.
12. Casings.
13. Ductwork fabrication.

B. Related Requirements:
1. Section 03 30 00 - Cast-in-Place Concrete: Requirements for concrete curbs as specified in this Section.
2. Section 09 90 00 - Painting and Coating: Requirements for painting or coating as specified in this Section.
3. Section 11 40 00 - Foodservice Equipment: Requirements for kitchen range hoods for placement by this Section.
4. Section 23 33 00 - Air Duct Accessories: Requirements for duct accessories as specified in this Section.

1.2 REFERENCE STANDARDS

A. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
1. ASHRAE Handbook - Fundamentals.

B. ASTM International:
1. ASTM A36 - Standard Specification for Carbon Structural Steel.
2. ASTM A90 - Standard Test Method for Weight [**Mass**] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
3. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
4. ASTM A1008 - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.

5. ASTM A1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
6. ASTM A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon,
7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

C. International Code Council:
1. International Energy Conservation Code (IECC).
2. International Mechanical Code (IMC).

D. NFPA:
1. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems.
2. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems.
3. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

E. Sheet Metal and Air Conditioning Contractors' National Association:
1. SMACNA 016 - HVAC Air Duct Leakage Test Manual.
2. SMACNA 1767 - Kitchen Ventilation Systems and Food Service Equipment Guidelines.
3. SMACNA 1884 - Fibrous Glass Duct Construction Standards.
4. SMACNA 1966 - HVAC Duct Construction Standards - Metal and Flexible.

F. UL:
1. UL 181 - Factory-Made Air Ducts and Air Connectors.
2. UL 181A - Closure Systems for Use With Rigid Air Ducts.
3. UL 1978 - Grease Ducts.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information for duct materials , duct liner , duct and connectors.

C. Test and Evaluation Reports: Indicate pressure tests performed, including date, section tested, test pressure, and leakage rate according to SMACNA 016.

D. Manufacturer Instructions:
1. Submit detailed instructions on installation requirements, including storage and handling procedures.
2. Submit special procedures for glass-fiber ducts.

1.4 QUALITY ASSURANCE

A. Perform Work according to SMACNA 1884 and 1966.

B. Construct ductwork to NFPA 90B standards.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

B. Installer: Company specializing in performing Work of this Section with minimum three years' experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Protection:
   1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
   2. Provide additional protection according to manufacturer instructions.

1.7 AMBIENT CONDITIONS

A. Section 01 50 00 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.

B. Minimum Conditions: Do not install duct sealant when temperatures are less than those recommended by sealant manufacturer.

C. Subsequent Conditions: Maintain temperatures during and after installation of duct sealant.

1.8 EXISTING CONDITIONS

A. Field Measurements:
   1. Verify field measurements prior to fabrication.
   2. Indicate field measurements on Shop Drawings.

1.9 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.

B. Furnish five-year manufacturer's warranty for ducts.

PART 2 PRODUCTS

2.1 DUCTS

A. Performance and Design Criteria:
   1. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission of Architect/Engineer.
   2. Size round ducts installed in place of rectangular ducts according to ASHRAE Handbook - Fundamentals.

B. Galvanized-Steel Ducts:
   1. Material: ASTM A653 galvanized-steel sheet.
   2. Quality: Lock forming.
   3. Finish: G90 zinc coating according to ASTM A90.

C. Fasteners: Rivets, bolts, or sheet metal screws.

D. Hanger Rod:
   1. Material: Galvanized steel.
   2. Comply with ASTM A36.
   3. Type: Threaded.

2.2 INSULATED FLEXIBLE DUCTS

A. Description:
   1. Two-ply vinyl film supported by helical-wound spring steel wire.
   2. Insulation: Fiberglass.
   3. Vapor Barrier Film: Polyethylene (PE).
   4. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
   5. Maximum Velocity: 4,000 fpm.
   6.

2.3 FABRICATION

A. Internally Lined Round Ducts:
   1. According to SMACNA 1966 and as indicated on Drawings.
   2. Seams: Longitudinal.
   3. Provide duct material, gages, reinforcing, and sealing for indicated operating pressures.

B. Tees, Bends, and Elbows:
   1. Minimum Radius:
      a. 1-1/2 times centerline duct width.
      b. If not possible or if rectangular elbows are used, provide airfoil turning vanes.
   2. If acoustical lining is indicated, furnish turning vanes of perforated metal with glass-fiber insulation.

C. Divergence:
   1. Increase duct sizes gradually, not exceeding 15 degrees of divergence wherever possible.
   2. Upstream of Equipment: Maximum 30 degrees.

3. Downstream of Equipment: Maximum 45 degrees.

D. Takeoffs:
   1. Provide standard 45-degree lateral wye takeoffs.
   2. If not possible due to space limitations, provide 90-degree conical tee connections.

E. Sealing:
   1. Seal joints between duct sections and duct seams with welds, gaskets, mastic adhesives, mastic plus embedded fabric systems, or tape.
   2. Sealants, Mastics, and Tapes: Comply with UL 181A and provide products bearing appropriate UL 181A markings.

2.4 ACCESSORIES

A. Hangers and Supports:
   1. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.
   2. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
   3. Strap and Rod Sizes:
      a. Comply with SMACNA 1966.
      b. Glass-Fiber-Reinforced Ducts: Comply with SMACNA 1884.
   4. Trapeze and Riser Supports:
      a. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
      b. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
      c. Supports for Aluminum Ducts: Aluminum or galvanized steel, coated with zinc chromate.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify sizes of equipment connections before fabricating transitions.

3.2 PREPARATION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Obtain manufacturer's inspection and acceptance of fabrication and installation at beginning of installation.

C. Install temporary closures of metal or taped PE on open ductwork to prevent construction dust from entering ductwork system.

3.3 INSTALLATION

A. Install and seal ducts according to SMACNA 1966.

B. Glass-Fiber-Reinforced Ducts: Comply with SMACNA 1884.

C. Insulated Flexible Duct Fittings:
   1. Join each flexible duct section to main trunk duct through sheet metal fittings.
   2. Material: Galvanized steel.
   3. Equip fittings with factory-installed volume damper having positive locking regulator.
   4. Provide insulation guard with fittings installed in lined ductwork.

D. Use crimp joints with or without bead or beaded sleeve couplings for joining round duct sizes 8 inches and smaller.

E. Hanger and Supports:
   1. Fabricate and support ducts according to SMACNA 1884.
   2. Threaded Rods: Provide double nuts and lock washers.
   3. Hanger Spacing:
      a. Comply with SMACNA 1884.
      b. Install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.
      c. Extend strap supports down both sides of ducts and turn under bottom at least 1 inch.
      d. Secure hanger to sides and bottom of ducts with sheet metal screws.
   4. Hangers Exposed to View: Provide threaded rod and angle or channel supports.
   5. Upper Attachments:
      a. Attach to structures.
      b. Selection and Sizing: Provide pull-out, tension, and shear capacities as required for supported loads and building materials.
   6. Penetrations:
      a. Avoid penetrations of ducts with hanger rods.
      b. If unavoidable, provide airtight rubber grommets at penetrations.

F. Connect flexible ducts to metal ducts with adhesive and draw bands.

3.4 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.

B. Testing:
   1. Ductwork Designed for 3-Inch wg above Ambient Pressure:
      a. Pressure test minimum 25 percent of ductwork after duct cleaning but before duct insulation is applied or ductwork is concealed.
      b. Comply with SMACNA 016.
      c. Maximum Allowable Leakage: According to IECC.

3.5 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.

B. Clean duct system and force air at high velocity through duct to remove accumulated dust.

C. Protect sensitive equipment with temporary filters or bypass during cleaning.

END OF SECTION

SECTION 23 37 00 - AIR OUTLETS AND INLETS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Diffusers.

1.2 REFERENCES

A. Air Movement and Control Association International, Inc.:
   1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
   1. ASHRAE 70 - Method of Testing for Rating the Performance of Air Outlets and Inlets.

C. Sheet Metal and Air Conditioning Contractors:
   1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit sizes, finish, and type of mounting. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

C. Test Reports: Rating of air outlet and inlet performance.

1.4 QUALITY ASSURANCE

A. Test and rate diffuser, register, and grille performance in accordance with ASHRAE 70.

B. Test and rate louver performance in accordance with AMCA 500.

1.5 QUALIFICATIONS

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

1.6 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish five year manufacturer warranty for air outlets and inlets.

PART 2 PRODUCTS

2.1 RECTANGULAR CEILING DIFFUSERS

A. Type: Square, stamped, multi-louvered diffuser to discharge air in 360 degree pattern.

B. Frame: Lay-in type.

C. Fabrication: Aluminum with baked enamel white finish.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify inlet and outlet locations.

C. Verify ceiling systems are ready for installation.

3.2 INSTALLATION

A. Install diffusers to ductwork with airtight connection.

B. Install balancing dampers on duct take-off to diffusers, grilles, and registers, whether or not dampers are furnished as part of diffuser, grille, and register assembly. Refer to Section 23 33 00.

C. Paint visible portion of ductwork behind air outlets and inlets matte black. Refer to Section 09 90 00.

3.3 INTERFACE WITH OTHER PRODUCTS

A. Check location of outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

END OF SECTION

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Copper building wire rated 600 V or less.
   2. Connectors, splices, and terminations rated 600 V and less.

1.2 SUBMITTALS

A. Product Data: No submittals required when using specified materials with testing agency markings visible for inspection during construction.

B. Field quality-control reports.

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

B. Standards:
   1. Listed and labeled by a qualified testing agency, and marked for intended location and use.
   2. RoHS compliant.

C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.

D. Conductor Insulation:
   1. Type THHN and Type THWN-2: Comply with UL 83.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled by a qualified testing agency, and marked for intended location and use.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 26 05 29 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 26 05 53 "Identification for Electrical Systems."

3.6 CONDUCTOR MATERIAL APPLICATIONS

A. Branch Circuits: Copper. Solid for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections.
   1. Perform each of the following visual and electrical tests:
      a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.

b. Test bolted connections for high resistance using one of the following:
    1) A low-resistance ohmmeter.
    2) Calibrated torque wrench.
    3) Thermographic survey.
c. Inspect for correct identification.
d. Continuity test on each conductor and cable.

B. Cables will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports to record the following:
1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

2.3 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Cable-to-Cable Connectors: Compression type, copper or copper alloy.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 10 AWG and smaller, and stranded conductors for No. 8 AWG and larger unless otherwise indicated.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code.

B. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Grounding system will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

D. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.

END OF SECTION

SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Steel slotted support systems.
   2. Conduit and cable support devices.
   3. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.

1.2 SUBMITTALS

A. Product Data: For each type of product.
   1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
      a. Slotted support systems, hardware, and accessories.
      b. Clamps.
      c. Hangers.
      d. Sockets.
      e. Eye nuts.
      f. Fasteners.
      g. Anchors.
      h. Saddles.
      i. Brackets.

   2. Include rated capacities and furnished specialties and accessories.

PART 2 - PRODUCTS

A. Seismic Performance: Hangers and supports shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

   1. The term "withstand" means "the supported equipment and systems will remain in place without separation of any parts when subjected to the seismic forces specified and the supported equipment and systems will be fully operational after the seismic event."
   2. Component Importance Factor: 1.5.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
   1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened Portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
   2. Mechanical-Expansion Anchors: Insert-wedge-type, [zinc-coated] [stainless] steel, for use in hardened Portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
   3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
   4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
   5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
   6. Toggle Bolts: Stainless steel springhead type.
   7. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
   1. To Wood: Fasten with lag screws or through bolts.
   2. To New Concrete: Bolt to concrete inserts.
   3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
   4. To Existing Concrete: Expansion anchor fasteners.
   5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
   6. To Steel: Beam clamps, complying with MSS SP-69.
   7. To Light Steel: Sheet metal screws.
   8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

D. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.2 PAINTING

A. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply zinc-rich primer to comply with ASTM A 780.

END OF SECTION

SECTION 26 05 33 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits and fittings.
2. Boxes, enclosures, and cabinets.

1.2 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

PART 2 - PRODUCTS

2.1 CONDUITS AND FITTINGS

A. Metal Conduit:

1. Listing and Labeling: Listed and labeled by a qualified testing agency and marked for intended location and application.
2. Electrical Metallic Tubing (EMT): Comply with UL 797A and UL Category Control Number FJMX.
3. Galvanized Rigid Steel Conduit (GRC): Comply with ANSI C80.1 and UL 6.
4. Aluminum Rigid Conduit (ARC): Comply with ANSI C80.5 and UL 6A.
5. Intermediate Metal Conduit (IMC): Comply with ANSI C80.6 and UL 1242.

B. Metal Fittings:

1. Comply with NEMA FB 1 and UL 514B.
2. Listing and Labeling: Listed and labeled by a qualified testing agency and marked for intended location and application.
3. Fittings, General: Listed and labeled for type of conduit, location, and use.

C. Joint Compound for IMC and GRC: Approved by authorities having jurisdiction for use in conduit assemblies and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 BOXES, ENCLOSURES, AND CABINETS

A. Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.

C. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed and Subject to Physical Damage: IMC, EMT. Subject to physical damage includes the following locations:
   a. Locations less than 8 ft above finished floor.
   b. Stub-ups to above suspended ceilings.

2. Exposed and Not Subject to Physical Damage: IMC, EMT.
3. Concealed in Ceilings and Interior Walls and Partitions: IMC, EMT.
4. Damp or Wet Locations: IMC.

B. Minimum Raceway Size: 3/4-inch trade size.

C. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Complete raceway installation before starting conductor installation.

C. Arrange stub-ups so curved portions of bends are not visible above finished slab.

D. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.

E. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

F. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

G. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

H. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

I. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

3.3 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

END OF SECTION

SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Color and legend requirements.
   2. Labels.
   3. Tape.

PART 2 - PRODUCTS

2.1 COLOR AND LEGEND REQUIREMENTS

A. Conductor Color Coding for Phase Voltage-Level Identification, 600 V or Less: Use colors listed below.
   1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG.
   2. Colors for 208Y/120V Circuits:
      a. Phase A: Black.
      b. Phase B: Red.
      c. Phase C: Blue.

   3. Color for Neutral: White.

   4. Color for Insulated Equipment Grounds: Green.

2.2 LABELS

A. Self-Adhesive Labels: Thermal, transfer-printed, 3 mil thick, multicolor, weather and UV resistant, pressure-sensitive adhesive labels, configured for intended use and location.

2.3 TAPE

A. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils thick. Compounded for outdoor use.

PART 3 - EXECUTION

3.1 PREPARATION

A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.

B. Verify identity of each item before installing identification products.

C. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.

D. Apply identification devices to surfaces that require finish after completing finish work.

E. Self-Adhesive Labels:
   1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
   2. Unless otherwise indicated, provide a single line of text with 1/2-inch high letters on 1-1/2-inch high label; where two lines of text are required, use labels 2 inches high.

F. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
   1. Field-Applied, Color Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.

3.3 IDENTIFICATION SCHEDULE

A. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.

B. Instructional Signs: Self-adhesive labels, including NEC required conductor color code identification for grounded and ungrounded conductors.

END OF SECTION

SECTION 26 24 16 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Disconnecting and overcurrent protective devices.

1.2 DEFINITIONS

A. ATS: Acceptance testing specification.

B. MCCB: Molded-case circuit breaker.

C. VPR: Voltage protection rating.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of panelboard.

   1. Include materials, switching and overcurrent protective devices, and components indicated.
   2. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.

   1. Include dimensioned plans, elevations, sections, and details.
   2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
   3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
   4. Detail bus configuration, current, and voltage ratings.
   5. Short-circuit current rating of panelboards and overcurrent protective devices.
   6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
   7. Include wiring diagrams for power, signal, and control wiring.
   8. Key interlock scheme drawing and sequence of operations.

1.4 INFORMATIONAL SUBMITTALS

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: ISO 9001 or ISO 9002 certified.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.

1.7 FIELD CONDITIONS

A. Environmental Limitations:
   1. Rate equipment for continuous operation under the following conditions unless otherwise indicated:

      a. Ambient Temperature: Not exceeding minus 22 deg F to plus 104 deg F.
      b. Altitude: Not exceeding 6600 feet.

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

   1. Ambient temperatures within limits specified.
   2. Altitude not exceeding 6600 feet.

C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

   1. Notify Owner no fewer than two days in advance of proposed interruption of electric service.
   2. Do not proceed with interruption of electric service without Owner's written permission.
   3. Comply with NFPA 70E.

1.8 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.

   1. Panelboard Warranty Period: 18 months from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers:

   1. ABB, Electrification Products Division
   2. Eaton
   3. Siemens Industry, Inc., Energy Management Division
   4. Square D; Schneider Electric USA

B. MCCB: Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers:

a. Inverse time-current element for low-level overloads.
b. Instantaneous magnetic trip element for short circuits.
c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
3. Electronic Trip Circuit Breakers:

a. RMS sensing.
b. Field-replaceable rating plug or electronic trip.
c. Digital display of settings, trip targets, and indicated metering displays.
d. Multi-button keypad to access programmable functions and monitored data.
e. Ten-event, trip-history log. Each trip event shall be recorded with type, phase, and magnitude of fault that caused the trip.
f. Integral test jack for connection to portable test set or laptop computer.
g. Field-Adjustable Settings:

1) Instantaneous trip.

4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.

a. Standard frame sizes, trip ratings, and number of poles.
b. Breaker handle indicates tripped status.
c. UL listed for reverse connection without restrictive line or load ratings.
d. Lugs: Compression style, suitable for number, size, trip ratings, and conductor materials.
e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and HID lighting circuits.

2.2 IDENTIFICATION

A. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.

B. Circuit Directory: Directory card inside panelboard door, mounted in metal frame with transparent protective cover.

1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.

2.3 ACCESSORY COMPONENTS AND FEATURES

A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.

B. Receive, inspect, handle, and store panelboards according to NECA 407 and NEMA PB 1.1.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Coordinate layout and installation of components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Comply with NECA 1.

C. Install accessories according to NECA 407 and NEMA PB 1.1.

D. Equipment Mounting:

E. Install overcurrent protective devices and controllers not already factory installed.
   1. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written instructions.

F. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.

G. Install filler plates in unused spaces.

H. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.

I. Mount spare fuse cabinet in accessible location.

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 26 05 53 "Identification for Electrical Systems.

B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.

C. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

D. Install warning signs complying with requirements in Section 26 05 53 "Identification for Electrical Systems" identifying source of remote circuit.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:
1. Perform the following infrared scan tests and inspections and prepare reports:

a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each panelboard 11 months after date of Substantial Completion.
c. Instruments and Equipment:

1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

D. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

B. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes. Prior to making circuit changes to achieve load balancing, inform Architect of effect on phase color coding.

1. Measure loads during period of normal facility operations.
2. Perform circuit changes to achieve load balancing outside normal facility operation schedule or at times directed by the Architect. Avoid disrupting services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After changing circuits to achieve load balancing, recheck loads during normal facility operations. Record load readings before and after changing circuits to achieve load balancing.
4. Tolerance: Maximum difference between phase loads, within a panelboard, shall not exceed 20 percent.

3.6 PROTECTION

A. Temporary Heating: Prior to energizing panelboards, apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION

SECTION 26 27 19 - MULTI-OUTLET ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Indoor service poles.

B. Related Requirements:
   1. Section 26 05 33 “Raceways and Boxes for Electrical Systems” for raceways.
   2. Section 26 27 26 "Wiring Devices" for receptacles and switches.
   3. Section 27 15 13 "Communications Copper Horizontal Cabling" for control-voltage communications outlet devices.

1.2 ACTION SUBMITTALS

A. Product Data:
   1. Indoor service poles.

PART 2 - PRODUCTS

2.1 INDOOR SERVICE POLES

A. Description: Factory-assembled and -wired, exposed raceway and fittings to route electrical wiring from connections above ceiling to outlets below ceiling.

B. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 by qualified electrical testing laboratory recognized by authorities having jurisdiction and marked for intended location and application.

C. General Characteristics:

   1. Reference Standards: UL 5 for exposed power raceway and fittings, and UL 2024 for communications raceway and fittings.
   2. Listed and labeled in accordance with NFPA 90A for installation in air-handling plenum spaces.
   3. Mounting: Ceiling trim flange with concealed bracing arranged for positive connection to above ceiling structural supports; with pole foot and carpet pad attachment.
   4. Provide barrier to separate channel for power wiring from channel for voice and data communication cabling.

D. Indoor Service Pole:

1. Manufacturers:

a. Arrow Hart, Wiring Devices; Eaton; Electrical Sector
b. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated
c. Leviton Manufacturing Co., Inc.
d. Pass & Seymour; Legrand North America, LLC

1. Options:

a. Material: Aluminum.
b. Height: As required.
c. Finish: Manufacturer's standard painted finish and trim combination.

1) Color: Per Owner.

d. Power Outlets: As required, in accordance with Section 26 27 26 "Wiring Devices."
e. Wiring: Multiple circuits as required, in accordance with Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."
f. Voice and Data Communication Outlets: blank insert with bushed cable opening complying with requirements in Section 27 15 00 "Communications Horizontal Cabling."
g. A minimum of four four-pair cables in accordance with Section 27 15 13 "Communications Copper Horizontal Cabling" for each outlet.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1 for device mounting heights, except where requirements on Drawings or in this Section are stricter.

B. Comply with NECA 101 for installation requirements for steel raceways, except where requirements on Drawings or in this Section are stricter.

C. Comply with NECA 102 for installation requirements for aluminum raceways, except where requirements on Drawings or in this Section are stricter.

D. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies.

E. Provide terminations, adapters, boxes, and other fittings required for installation.

F. Install surface raceway with a minimum 2 inch radius control at bend points.

G. Secure metallic surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inch and with no fewer than two supports per straight raceway section. Support surface raceway in accordance with manufacturer's instructions. Tape and glue are unacceptable support methods.

H. Do not install aluminum raceways or fittings in contact with concrete.

I. Secure nonmetallic surface raceway with screws or other anchor-type devices in each wiring channel at intervals not exceeding 18 inch and with no fewer than two supports per straight raceway section in each wiring channel. Support nonmetallic surface raceway in accordance with manufacturer's instructions. Tape and glue are unacceptable support methods.

J. Do not install PVC raceways where ambient temperature exceeds 122 deg F. Conductors with insulation rated higher than 75 deg C installed in PVC raceways may not be operated at a temperature greater than 75 deg C.

K. Comply with Section 26 05 26 "Grounding and Bonding for Electrical Systems."

L. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for hangers and support.

M. Comply with requirements in Section 26 05 33 “Raceways and Boxes for Electrical Systems” for raceways.

N. Coordination with Other Work:

1. Adjust locations of multi-outlet assemblies to suit arrangement of partitions and furnishings. Locate outlets to avoid blocking by supports, furnishings, and other architectural fixtures.
2. Provide outlets with special requirements, such as GFCI, AFCI, or special environmental requirements, where required by Drawings or to meet codes.

3.2 IDENTIFICATION

A. Comply with Section 26 05 53 "Identification for Electrical Systems."

END OF SECTION

SECTION 26 27 26 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. General use switches and dimmer switches
2. Standard-grade receptacles, 125 V, 20 A.
3. GFCI receptacles, 125 V, 20 A.
4. Tamper-resistant duplex straight-blade Receptacle.
5. Isolated Ground Duplex Straight-Blade Receptacle.
6. Occupancy sensors.
7. Wall plates.

1.2 DEFINITIONS

A. AFCI: Arc-fault circuit interrupter.

B. EMI: Electromagnetic interference.

C. GFCI: Ground-fault circuit interrupter.

D. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

E. RFI: Radio-frequency interference.

F. UL 1472 Type I Dimmer: Dimmer in which air-gap switch is used to energize preset lighting levels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

C. Samples: One for each type of device and wall plate specified, in each color specified.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

PART 2 - PRODUCTS

1.6 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in 2017 NFPA 70, by a qualified testing agency, and marked for intended location and use.

B. Comply with 2017 NFPA 70.

C. Comply with NEMA WD 1.

D. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with requirements in this Section.

E. Devices for Using-Agency-Furnished Equipment:

1. Receptacles: Match plug configurations.
2. Cord and Plug Sets: Match equipment requirements.

F. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect unless otherwise indicated or required by 2017 NFPA 70 or device listing.
2. Wiring Devices Connected to Essential Electrical System: Red.

G. Wall Plate Color: For plastic covers, match device color.

H. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

1.7 GENERAL-USE SWITCHES AND DIMMER SWITCHES

A. Toggle Switch:

1. Manufacturers:

a. Arrow Hart, Wiring Devices; Eaton; Electrical Sector
b. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated
c. Leviton Manufacturing Co., Inc.
d. Pass & Seymour; Legrand North America, LLC

2. Regulatory Requirements:

    a. Listed and labeled in accordance with 2017 NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

3. General Characteristics:

    a. Reference Standards: UL CCN WMUZ and UL 20.

4. Options:

    a. Device Color: As determined by Using Agency.
    b. Configuration:
        1) General-duty, 120-277 V, 20 A, single pole, three way or four way.

B. Type I Dimmer Switch:

1. Manufacturers:

    a. Arrow Hart, Wiring Devices; Eaton, Electrical Sector
    b. GE Lighting; General Electric Company
    c. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated
    d. Leviton Manufacturing Co., Inc.
    e. Lutron Electronics Co., Inc
    f. Pass & Seymour; Legrand North America, LLC

2. Regulatory Requirements:

    a. Listed and labeled in accordance with 2017 NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

3. General Characteristics:

    a. Reference Standards: UL CCN EOYX and UL 1472 Type I dimmer.

4. Options:

    a. Device Color: As determined by Using Agency.
    b. Switch Style: Toggle.
    c. Dimming Control Style: Slide.
    d. Configuration:
        1) General-duty, 120-277 V, 20 A, single pole, three way or four way.

1.8 STANDARD-GRADE RECEPTACLES, 125 V, 20 A

A. Duplex Receptacles, 125 V, 20 A :

1. Manufacturers:

a. Arrow Hart, Wiring Devices; Eaton, Electrical Sector
b. Leviton Manufacturing Co., Inc.
c. Pass & Seymour; Legrand North America, LLC
d. Wiring Device-Kellems; Hubbell Incorporated, Commercial and Industrial

2. Description: Two pole, three wire, and self-grounding.
3. Configuration: NEMA WD 6, Configuration 5-20R.
4. Standards: Comply with UL 498 and FS W-C-596.

1.9 GFCI RECEPTACLES, 125 V, 20 A

A. Duplex GFCI Receptacles, 125 V, 20 A:

1. Manufacturers:

a. Arrow Hart, Wiring Devices; Eaton, Electrical Sector
b. Leviton Manufacturing Co., Inc.
c. Pass & Seymour; Legrand North America, LLC
d. Wiring Device-Kellems; Hubbell Incorporated, Commercial and Industrial

2. Description: Integral GFCI with "Test" and "Reset" buttons and LED indicator light. Two pole, three wire, and self-grounding.
3. Configuration: NEMA WD 6, Configuration 5-20R.
4. Type: Feed through.
5. Standards: Comply with UL 498, UL 943 Class A, and FS W-C-596.

1.10 TAMPER-RESISTANT DUPLEX STRAIGHT-BLADE RECEPTACLE

A. Straight Blade Receptacle

1. Manufacturers:

a. Arrow Hart, Wiring Devices; Eaton, Electrical Sector
b. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated
c. Leviton Manufacturing Co., Inc.
d. Pass & Seymour; Legrand North America, LLC

2. Regulatory Requirements:

a. Listed and labeled in accordance with 2017 NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

3. General Characteristics:

    a. Reference Standards: UL CCN RTRT and UL 498.

4. Options:

    a. Device Color: As selected by Architect unless otherwise indicated or required by 2017 NFPA 70 or device listing.
    b. Configuration:
        1) General-duty, NEMA 5-20R

5. Accessories:

    a. Cover Plate: 0.060 inch thick, high-impact thermoplastic (nylon) with smooth finish and color matching wiring device; from same manufacturer as wiring device.
    b. Securing Screws for Cover Plate: Metal with head color matching wallplate finish.

1.11 ISOLATED GROUND DUPLEX STRAIGHT-BLADE RECEPTACLE:

A. Straight Blade Receptacle with USB Outlet

1. Manufacturers:

    a. Arrow Hart, Wiring Devices; Eaton, Electrical Sector
    b. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated
    c. Leviton Manufacturing Co., Inc.
    d. Pass & Seymour; Legrand North America, LLC

2. Regulatory Requirements:

    a. Listed and labeled in accordance with 2017 NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

3. General Characteristics:

    a. Reference Standards: UL CCN RTRT and UL 498.

4. Options:

    a. Device Color: As selected by Architect unless otherwise indicated or required by 2017 NFPA 70 or device listing.
    b. Configuration:
        1) General-duty, NEMA 5-20R; two USB-A ports.

5. Accessories:

    a. Cover Plate: 0.060 inch thick, high-impact thermoplastic (nylon) with smooth finish and color matching wiring device; from same manufacturer as wiring device.
    b. Securing Screws for Cover Plate: Metal with head color matching wallplate finish.

1.12 OCCUPANCY SENSORS

A. Ceiling Switch Sensor Light Switch, Dual Technology:

1. Manufacturers:

a. Arrow Hart, Wiring Devices; Eaton, Electrical Sector
b. Leviton Manufacturing Co., Inc.
c. Pass & Seymour; Legrand North America, LLC
d. Wiring Device-Kellems; Hubbell Incorporated, Commercial and Industrial

2. Description: Ceiling-mounted, combination lighting-control sensor and conventional switch lighting-control unit using dual (ultrasonic and passive infrared) technology.
3. Standards: Comply with UL 20.
4. Rated 960 W at 120 V ac for tungsten lighting, 10 A at 120 V ac or 10 A at 277 V ac for fluorescent or LED lighting, and 1/4 hp at 120 V ac.
5. Adjustable time delay of 20 minutes.

1.13 WALL PLATES

A. Single Source: Obtain wall plates from same manufacturer of wiring devices.

B. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.

C. Antimicrobial Cover Plates:

1. Contact surfaces treated with a coating that kills 99.9 percent of certain common bacteria within two hours when regularly and properly cleaned.
2. Tarnish resistant.

PART 3 - EXECUTION

1.14 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes, and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.

3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall comply with 2017 NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail, or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles down.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multi-gang wall plates.

1.15 GFCI RECEPTACLES

A. Install non-feed-through GFCI receptacles where protection of downstream receptacles is not required.

1.16 IDENTIFICATION

A. Comply with Section 26 05 53 "Identification for Electrical Systems."

1.17 FIELD QUALITY CONTROL

A. Test Instruments: Use instruments that comply with UL 1436.

B. Test Instrument for Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

C. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

D. Tests for Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault-current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

E. Test straight-blade for the retention force of the grounding blade according to NFPA 99. Retention force shall be not less than 4 oz.

F. Wiring device will be considered defective if it does not pass tests and inspections.

END 26 27 26

SECTION 26 51 19 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following types of LED luminaires:
   1. Downlight.
   2. Recessed, linear.
   3. Surface mount, linear.
   4. Surface mount, nonlinear.

1.2 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

   1. Arrange in order of luminaire designation.
   2. Include data on features, accessories, and finishes.
   3. Include physical description and dimensions of luminaires.
   4. Include emergency lighting units, including batteries and chargers.
   5. Include life, output (lumens, CCT, and CRI), and energy-efficiency data.
   6. Photometric data and adjustment factors based on laboratory tests, complying with IES "Lighting Measurements Testing and Calculation Guides" for each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project IES LM-79 and IES LM-80.

      a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.

B. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Luminaires.
2. Partitions and millwork that penetrate the ceiling or extend to within 12 inches of the plane of the luminaires.
3. Structural members to which luminaires will be attached.
4. Initial access modules for acoustical tile, including size and locations.
5. Items penetrating finished ceiling, including the following:

    a. Other luminaires.
    b. Air outlets and inlets.
    c. Speakers.
    d. Sprinklers.
    e. Access panels.

6. Moldings.

B. Qualification Data: For testing laboratory providing photometric data for luminaires.

C. Seismic Qualification Data: For luminaires, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Product Certificates: For each type of luminaire.

E. Product Test Reports: For each type of luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.

F. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps: One of each type and rating installed. Furnish at least one of each type.
2. Diffusers and Lenses: One of each type and rating installed. Furnish at least one of each type.

1.7 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.

B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products, and complying with the applicable IES testing standards.

C. Provide luminaires from a single manufacturer for each luminaire type.

D. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

E. Mockups: For interior luminaires in room or module mockups, complete with power and control connections.

1. Obtain Architect's approval of luminaires in mockups before starting installations.
2. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.9 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

B. Seismic Performance: Luminaires and lamps shall be labeled vibration and shock resistant.

1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified and the luminaire will be fully operational during and after the seismic event."

C. Ambient Temperature: 41 to 104 deg F.

1. Relative Humidity: Zero to 95 percent.

D. Altitude: Sea level to 1000 feet.

2.2 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp characteristics:

a. "USE ONLY" and include specific lamp type.
b. Lamp diameter, shape, size, wattage, and coating.
c. CCT and CRI.

C. Recessed luminaires shall comply with NEMA LE 4.

D. California Title 24 compliant.

2.3 RECESSED, LINEAR.

A. Manufacturers:

1. Architectural Lighting Works
2. Axis Lighting, Inc.
3. Cooper Lighting Solutions; Signify North America Corp.
4. Current Lighting Solutions, LLC (Current, powered by GE)
5. Elite Lighting Corporation
6. Finelite
7. Focal Point LLC

8. Lithonia Lighting; Acuity Brands Lighting, Inc.
9. Lumen Pulse
10. ON-Q Lighting Systems
11. OSRAM SYLVANIA
12. RAB Lighting
13. Seelux Corporation

B. Nominal Operating Voltage: 120 V ac / 277 V ac.

C. Lamp:

1. Minimum 2000 lm.
2. Minimum allowable efficacy of 100 lm/W.
3. CRI of minimum 80. CCT of 3500K.
4. Rated lamp life of 35,000 hours to L70.
5. Internal driver.
6. User-Replaceable Lamps:

    a. Bulb shape complying with ANSI C78.79.
    b. Lamp base complying with ANSI C81.61.

7. Lens Thickness: At least 0.125-inch minimum unless otherwise indicated.

D. Housings:

1. Die formed galvanized steel housing and heat sink.
2. Gloss white enamel finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers and Globes:

1. Flat opal lens.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. UL Listing: Listed for damp location.
3. NEMA LE 4.

2.4 SURFACE MOUNT, LINEAR.

A. Manufacturers:

1. Architectural Lighting Works
2. Axis Lighting, Inc.
3. Cooper Lighting Solutions; Signify North America Corp.
4. Current Lighting Solutions, LLC (Current, powered by GE)
5. Elite Lighting Corporation
6. Finelite
7. Focal Point LLC
8. Lithonia Lighting; Acuity Brands Lighting, Inc.
9. Lumen Pulse
10. ON-Q Lighting Systems
11. OSRAM SYLVANIA
12. RAB Lighting
13. Seelux Corporation

B. Nominal Operating Voltage: 120 V ac / 277 V ac.

C. Lamp:

1. Minimum 750 lm.
2. Minimum allowable efficacy of 80 lm/W.
3. CRI of 80. CCT of 3000 K.
4. Rated lamp life of 35,000hours to L70.
5. Dimmable from 100 percent to zero percent of maximum light output.
6. Internal driver.
7. User-Replaceable Lamps:
    a. Bulb shape complying with ANSI C78.79.
    b. Lamp base complying with ANSI C81.61 or IEC 60061-1.
8. Lens Thickness: At least 0.125-inch minimum unless otherwise indicated.

D. Housings:

1. housing and heat sink.
2. White powder-coat finish.
3. With integral mounting provisions.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Components are designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Diffusers:

1. Prismatic acrylic.
2. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

3. Glass: Annealed crystal glass unless otherwise indicated.
4. Lens Thickness: At least 0.125-inch minimum unless otherwise indicated.

G. Standards:

1. ENERGY STAR certified.
2. RoHS compliant.
3. UL Listing: Listed for damp location.

2.5 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging.

B. Steel:

1. ASTM A 36/A 36M for carbon structural steel.
2. ASTM A 568/A 568M for sheet steel.

C. Galvanized Steel: ASTM A 653/A 653M.

D. Aluminum: ASTM B 209.

2.6 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.7 LUMINAIRE SUPPORT

A. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 TEMPORARY LIGHTING

A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is sufficiently complete, clean luminaires used for temporary lighting and install new lamps.

3.3 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position after cleaning and relamping.
3. Provide support for luminaire without causing deflection of ceiling or wall.
4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.

E. Flush-Mounted Luminaires:

1. Secured to outlet box.
2. Attached to ceiling structural members at four points equally spaced around circumference of luminaire.
3. Trim ring flush with finished surface.

F. Comply with requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

3.6 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting the direction of aim of luminaires to suit occupied conditions. Make up to two visits to Project during other-than-normal hours for this purpose. Some of this work may be required during hours of darkness.

1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.
2. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
3. Adjust the aim of luminaires in the presence of the Architect.

END OF SECTION

SECTION 26 52 13 - EMERGENCY AND EXIT LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Emergency lighting.
2. Exit signs.
3. Materials.
4. Luminaire support components.

1.2 DEFINITIONS

A. Correlated Color Temperature (CCT): The absolute temperature, measured in kelvins, of a blackbody whose chromaticity most nearly resembles that of the light source.

B. Color Rendering Index (CRI): Measure of the degree of color shift that objects undergo when illuminated by the light source as compared with the color of those same objects when illuminated by a reference source.

C. Emergency Lighting Unit: A lighting unit with internal or external emergency battery powered supply and the means for controlling and charging the battery and unit operation.

D. Lumen (lm): The SI derived unit of luminous flux equal to the luminous flux emitted within a unit solid angle by a unit point source (1 lm = 1 cd-sr).

1.3 ACTION SUBMITTALS

A. Product Data:

1. For each type of emergency lighting unit, exit sign, and emergency lighting support.

a. Include data on features, accessories, and finishes.
b. Include physical description of unit and dimensions.
c. Battery and charger for light units.
d. Include life, output of luminaire (lumens, CCT, and CRI), and energy-efficiency data.
e. Include photometric data and adjustment factors based on laboratory tests by, or under supervision of, qualified luminaire photometric testing laboratory, for each luminaire type.

B. Shop Drawings:

1. For nonstandard or custom luminaires.

a. Include plans, elevations, sections, and mounting and attachment details.
b. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
c. Include diagrams for power, signal, and control wiring.

C. Product Schedule:

1. For emergency lighting units. Use same designations indicated on Drawings.
2. For exit signs. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of luminaire.

B. Product Test Reports: For each luminaire for tests performed by, or under supervision of, qualified luminaire photometric testing laboratory.

C. Sample Warranty: For manufacturer's special warranty.

1.5 QUALITY ASSURANCE

A. FM Global Compliance: Luminaires for hazardous locations must be listed and labeled for indicated class and division of hazard by FM Global.

B. Mockups: For interior luminaires in room or module mockups, complete with power and control connections.

1. Obtain Architect's approval of luminaires and signs in mockups before starting installations.
2. Maintain mockups during construction in an undisturbed condition as a standard for judging completed Work.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.7 WARRANTY

A. Special Installer Extended Warranty for Emergency and Exit Lighting: Installer warrants that fabricated and installed emergency luminaires and exit signs, including batteries, perform in accordance with specified requirements and agrees to repair or replace components and assemblies that fail to perform as specified within extended warranty period.

1. Extended Warranty Period: Two year(s) from date of Substantial Completion; full coverage for labor, materials, and equipment.

B. Special Manufacturer Extended Warranty for Batteries for Emergency and Exit Lighting: Manufacturer warrants that batteries for emergency luminaires and exit signs perform in accordance with specified requirements and agrees to provide repair or replacement of batteries that fail to perform as specified within extended warranty period.

1. Extended Warranty Period: Five year(s) from date of Substantial Completion; full coverage for labor, materials, and equipment.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING

A. Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70 and UL 924, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

B. Comply with NFPA 101.

C. Comply with NEMA LE 4 for recessed luminaires.

D. Comply with UL 1598 for fluorescent luminaires.

E. Internal Type Emergency Power Unit: Self-contained, modular, battery-inverter unit, factory mounted within luminaire body.

1. Emergency Connection: Operate one lamp(s) continuously at an output of 1100 lumens each upon loss of normal power. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire ballast.
2. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
3. Test Push-Button and Indicator Light: Visible and accessible without opening luminaire or entering ceiling space.

a. Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.

b. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

4. Battery: Sealed, maintenance-free, nickel-cadmium type.
5. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.
6. Remote Test: Switch in handheld remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
7. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

F. External Type Emergency Power Unit: Self-contained, modular, battery-inverter unit, suitable for powering one or more lamps, remote mounted from luminaire.

1. Emergency Connection: Operate one LED lamp continuously. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire ballast.
2. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
3. Battery: Sealed, maintenance-free, nickel-cadmium type.
4. Charger: Fully automatic, solid-state, constant-current type.
5. Housing: Type 1 enclosure listed for installation inside, on top of, or remote from luminaire. Remote assembly must be located no less than half of distance recommended by emergency power unit manufacturer, whichever is less.
6. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
7. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
8. Remote Test: Switch in handheld remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
9. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

2.2 EMERGENCY LIGHTING

A. General Characteristics: Self-contained units.

B. Emergency Luminaire:

1. Manufacturers: Refer to Luminaire Schedule on plans.

2. Options:

a. Operating at nominal voltage of 120 V(ac) or 277 V(ac)6 V(dc).
b. Internal or External emergency power unit.
c. Rated for installation in damp locations, and for sealed and gasketed luminaires in wet locations.
d. UL 94 5VA flame rating.

C. Emergency Lighting Unit:

1. Manufacturers: Refer to Luminaire Schedule on plans.
2. Options:

a. Operating at nominal voltage of 120 V(ac) or 277 V(ac).
b. Wall with universal junction box adaptor.
c. UV stable thermoplastic housing, rated for damp locations.
d. Two LED lamp heads.
e. Internal or External emergency power unit.

~~D. Remote Emergency Lighting Unit:~~

~~1. Manufacturers: Refer to Luminaire Schedule on plans.~~
~~2. Options:~~

~~a. Operating at nominal voltage of 120 V(ac) or 277 V(ac).~~
~~b. Wall with universal junction box adaptor.~~
~~c. UV stable thermoplastic housing, rated for damp locations.~~
~~d. LED lamp heads.~~
~~e. External emergency power unit.~~

2.3 EXIT SIGNS

A. General Characteristics: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.

B. Internally Lighted Sign:

1. Manufacturers: Refer to Luminaire Schedule on plans.
2. Options:

a. Operating at nominal voltage of 120 V(ac) or 277 V(ac).
b. Lamps for AC Operation:
1) LEDs; 50,000 hours minimum rated lamp life.

c. Self-Powered Exit Signs (Battery Type): Internal emergency power unit.

2.4 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components must be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging.

B. Doors, Frames, and Other Internal Access:

1. Smooth operating, free of light leakage under operating conditions.
2. Designed to permit relamping without use of tools.
3. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers and Globes:

1. Clear, UV-stabilized acrylic.
2. Acrylic: 100 percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded aluminum housing and heat sink.
2. powder coat finish.

E. Conduit: EMT, minimum metric designator 21 (trade size 3/4).

2.5 METAL FINISHES

A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast.

2.6 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Support Wires: ASTM A641/A641M, Class 3, soft temper, zinc-coated steel, 0.106 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for conditions affecting performance of luminaires.

B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.

C. Examine walls, floors, roofs, and ceilings for suitable conditions where emergency lighting luminaires will be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

B. Install lamps in each luminaire.

C. Supports:

1. Sized and rated for luminaire and emergency power unit weight.
2. Able to maintain luminaire position when testing emergency power unit.
3. Provide support for luminaire and emergency power unit without causing deflection of ceiling or wall.
4. Luminaire-mounting devices must be capable of supporting a horizontal force of 100 percent of luminaire and emergency power unit weight and vertical force of 400 percent of luminaire weight.

D. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

E. Suspended Luminaire Support:

1. Pendants and Rods: Where longer than 48 inch, brace to limit swinging.
2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
3. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

F. Ceiling Grid Mounted Luminaires:

1. Secure to outlet box, if provided.
2. Secure emergency power unit using approved fasteners in a minimum of four locations, spaced near corners of emergency power unit.
3. Use approved devices and support components to connect luminaire to ceiling grid and building structure in a minimum of four locations, spaced near corners of luminaire.

3.3 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Nonconforming Work:

1. Luminaire will be considered defective if it does not pass operation tests and inspections.
2. Remove and replace defective units and retest.

C. Prepare test and inspection reports.

3.5 SYSTEM STARTUP

A. Perform startup service:

1. Charge emergency power units and batteries minimum of one hour and depress switch to conduct short-duration test.
2. Charge emergency power units and batteries minimum of 24 hours and conduct one-hour discharge test.

3.6 ADJUSTING

A. Adjustments: Within 12 months of date of Substantial Completion, provide on-site visit to do the following:

1. Inspect luminaires. Replace lamps, emergency power units, batteries, exit signs, and luminaires that are defective.

a. Parts and supplies must be manufacturer's authorized replacement parts and supplies.

2. Conduct short-duration tests on all emergency lighting.

3.7 PROTECTION

A. Remove and replace luminaires and exit signs that are damaged or caused to be unfit for use by construction activities.

END OF SECTION

SECTION 27 00 00 - SSA LAN RACK PROJECT

PART 1 – GENERAL

1.1 SUMMARY

A. The SSA Field Office requires a LAN rack system, one (1) 2-post rack and two (2) 4-post racks will be installed in the LAN/DCR room along with a cable management system.

B. The lessor's contractor is to relocate the existing cabling and patch panels over to the new 2-post rack.

1.2 REFERENCES

A. Conform to the following:

1. FCC Regulations:
   a. Part 15 – Radio Frequency Devices & Radiation Limits.

2. National Electrical Code.

3. National, State, Local and any other binding building and fire codes.

4. Underwriter's Laboratories (UL): Applicable listing and ratings.

PART 2 – PRODUCTS

2.1 DATA

A. LAN Equipment Racks

1. Provide LAN equipment racks conforming to TIA/EIA standards with the following features and characteristics:
   a. One 19-inch wide, 2-post rack with mounting rails as per TIA/EIA pattern.

   b. Two 19-inch wide, 84-inch high, adjustable, 4-post, high strength aluminum construction, UL-listed.

   c. Loading Capacity: 1,000 pounds (455 kg) for the 2-post rack; and 1,400 pounds (635 kg) for the 4-post rack.

   d. 19" rack mounting rails with TIA/EIA hole pattern.
      i. Round punched holes in the 2-post rack vertical rails.
      ii. Square punched holes in the 4-post rack vertical rails.

   e. Floor mounting hardware.

   f. Equipment mounting hardware: 50 screws for 2-post and 50 sets of cage nuts for each 4-post rack.

g. 4, vertical cable management with front and rear access, installed in the front.

h. Horizontal cable management (2-unit), 6 total.

i. Grounding lug, bonding for telecommunication system, and comply with J-STD-607-A.

j. Single circuit, horizontal plug strip, with 20-amp receptacles, mounted to rear rail of the racks and plugged into the SSA provided UPS (Legrand J08B0B or equivalent approved by SmithGroup)

Manufacturers:

k. Chatsworth
l. Hoffman
m. Hubbell
n. Panduit

B. Cable Management and Support

1. Wire Mesh Cable Basket/Tray – May re-use existing
   a. Provide welded steel wire mesh cable tray with a 50-mm (2-inch) by 100-mm (4-inch) mesh size and a minimum wire diameter of 0.197-inches.

   b. Provide cable tray dimensions of 50-mm (2-inches) usable load depth by 300-mm (12-inches) wide.

   c. Construct units with rounded edges and smooth surfaces, hot-dipped galvanized after fabrication.

   d. Provide connector assemblies, clamp assemblies, connector plates, etc. as needed for a complete installation.

   e. Manufacturers:

      - GS Metals: Flex Tray
      - B-Line: Wire Basket
      - Cablofil: EZ Tray

C. Labels

1. Outlets and Patch Panel
   a. Provide labels for data cable termination locations, machine printable with a laser printer.
   b. Color: White

   c. Manufacturer:

      - Panduit #PLL-22-PO-1W, white.

D. Miscellaneous Components

1. Velcro Cable Ties
   a. Provide Velcro cable ties, 18-mm (¾-inch) wide with a minimum 50-mm (2-inch) overlap.

2. Manufacturers:

   - Panduit HLSP Series (Plenum rated).
   - Panduit HLS Series (Non-Plenum rated).

3. All material listed above are acceptable or equivalent will be accepted with SSA SG electrical engineer approval.

E. Patch Cables
1. Provide 50, 7' blue patch cables

PART 3 – EXECUTION

3.1 INSTALLATION

A. General
1. Install work in a neat, high quality manner and conform to applicable federal, state and local codes.

2. Repair or replace work completed by others that is defaced or destroyed.

3. Install cables in a manner to protect the cable from physical interference or damage.

4. Ground all racks to the equipment ground bus in the Technical Power panel board with a #6 AWG grounding conductor and other such components per manufacturers' requirements.

B. Cable Basket/Tray
1. Install cable tray as indicated; in accordance with recognized industry practices, to ensure that the cable tray equipment complies with requirements of NEC, and applicable portions of NFPA 70B and NECA's "Standards of Installation" pertaining to general electrical installation practices.

2. Coordinate installation with other work as necessary to properly interface with other work.

3. Provide sufficient space around cable tray to permit access for installing and maintaining cables.

3.2 RECORDS

A. Permanently mark components, such as racks and patch panels, with machine-generated labels.

3.3 PROJECT CLOSE-OUT

A. Inspection
   1. After project completion at a date and time specified by the Contracting Officer, the Government or the Government's Representative will conduct an inspection visit and testing of the completed site. The Contractor shall attend this inspection visit and be prepared to effect corrections if deficiencies are found.

B. Removal of existing racks
   1. Contractor is responsible for offsite proper removal and disposal of all LAN cabinet equipment no longer in use once new LAN racks are installed.

3.4 POWER REQUIREMENTS

A. Provide power required in Data Communication Room (DCR), see appendix 2 for details, general contractor must coordinate with SSA IT or field office COR to confirm the final location.

B. All LAN racks require one (1) dedicated quad Technical Power (TP) (gray 5-20R), for a total of three (3), to be mounted at the bottom of each rack facing the wall. Each TP circuit requires a separate ground derived from the IG bus, which is located in the IG panel. IG receptacles need to be in a minimum ¾" EMT conduit feeding the racks and not cover the holes on the vertical rails.

C. The security rack will also require one (1) dedicated 30-amp twist lock. This too should be installed at the bottom of the rack, on the base facing the back wall.

Appendix 1 – 4-post and 2-Post LAN Rack Guidelines

This document is intended as a general guideline for LAN equipment in new sites with 4-post and 2-post LAN racks. It also provides information on requirements on the rack depth for 4-post LAN racks and mounting rails.

1. 4-Post adjustable LAN racks approved for use:

- Chatsworth CPI 15254-703 adjustable square-punched mounting holes (Vertical mounting rails)
- Hoffman E4DRS19FM45U adjustable square-punched mounting holes
- Hubbell Premise SF841929 with adjustable square-punched mounting holes
- Panduit R4PCN

2. 2-Post LAN racks approved for use with:

- Chatsworth CPI 48353-703
- Hoffman EDR19FM45U
- Hubbell Premise HPW84RR19
- Panduit R2P

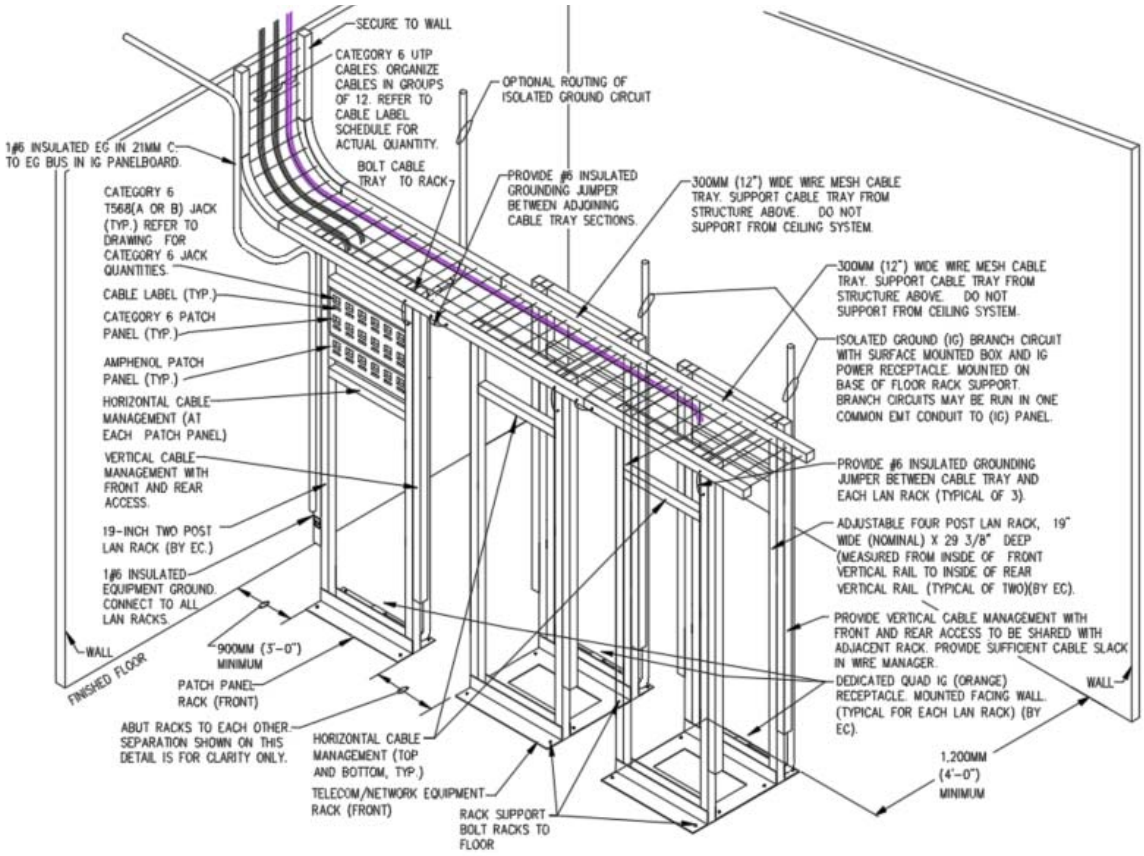
3. Depth and Rail Specs:

- Rack Depth: All 4-Post LAN racks should be set to 29 and 3/8" inches deep. The proper way of measuring is from inside of the front vertical rail to the inside of the back rail.
- The 4-Post Vertical rails should have square punched holes not round (Note: 2-Posts racks require round holes).
    - The existing Versa and Universal Dell manufactured server rails will work in both the Hubbell Premise and Chatsworth 4-post LAN racks.
    - Rapid rails by Dell will ONLY work in the Chatsworth 4-post LAN rack assuming they have square holes.
    - 50 sets of cage nuts are required and should be provided
- The 2-Post vertical rails should have round punched holes only (Patch panels, router and switch equipment).
    - 50 screws are required and should be provided

4. Equipment Placement (Router, Switch, VoIP and Server)

- *2-post rack:* Routers, switches, circuits, network/telecom equipment.
- *4-post rack (adjacent to 2-post rack):* Server equipment (KVM, KMM, tape drive, servers and UPS) and VoIP CS1000 (CS1K) server.
- *4-post rack (last 4-post rack):* Security system equipment and related wiring ONLY. No other equipment is to be installed on this rack.

Appendix 2 – One (1) 2-Post Rack and Two (2) 4-Post Rack System

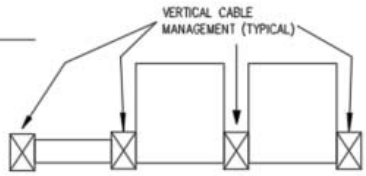


DCR LAN RACK DETAIL (ISOMETRIC)

NOT TO SCALE

NOTES:

1. PROVIDE 1, TWO-POST RACK WITH ROUND PUNCHED HOLES IN VERTICAL RAILS (PROVIDE 50 SCREWS) AND 2, FOUR-POST RACKS WITH SQUARE PUNCHED HOLES (PROVIDE 50 SETS OF CAGE NUTS/SCREWS FOR EACH RACK).
2. CABLE TRAY ARRANGEMENT SHOWN ABOVE IS DIAGRAMMATIC. REFER TO NEW WORK COMMUNICATIONS PLAN FOR ACTUAL CABLE TRAY ARRANGEMENT.



VERTICAL CABLE MANAGEMENT DETAIL

TOP VIEW

SECTION 27 05 26 - GROUNDING AND BONDING FOR COMMUNICATION SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Grounding conductors
2. Grounding connectors.
3. Grounding busbars.
4. Grounding rods.
5. Grounding labeling.

1.2 DEFINITIONS

A. BCT: Bonding conductor for telecommunications.

B. TGB: Telecommunications grounding busbar.

C. TMGB: Telecommunications main grounding busbar.

D. Service Provider: The operator of a service that provides telecommunications transmission delivered over access provider facilities.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For communications equipment room signal reference grid. Include plans, elevations, sections, details, and attachments to other work.

1.4 INFORMATIONAL SUBMITTALS

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.

1. Installation Supervision: Installation shall be under the direct supervision of ITS Technician, who shall be present at all times when Work of this Section is performed at Project site.
2. Field Inspector: Currently registered by BICSI as Technician to perform the on-site inspection.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in 2017 NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

C. Comply with TIA-607-B.

2.2 CONDUCTORS

A. Manufacturers:

1. Harger Lightning & Grounding; business of Harger, Inc.
2. Panduit Corp
3. TE Connectivity Ltd.

B. Comply with UL 486A-486B.

C. Insulated Conductors: Stranded copper wire, green or green with yellow stripe insulation, insulated for 600 V, and complying with UL 83.

1. Ground wire for custom-length equipment ground jumpers shall be No. 6 AWG, 19-strand, UL-listed, Type THHN wire.

D. Bare Copper Conductors:

1. Solid Conductors: ASTM B3.
2. Stranded Conductors: ASTM B8.
3. Tinned Conductors: ASTM B33.
4. Bonding Cable: 28 kcmils, 14 strands of No. 17 AWG conductor, and 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Tinned-copper tape, braided conductors terminated with two-hole copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.3 CONNECTORS

A. Manufacturers:

1. Burndy; brand of Hubbell Electrical Solutions; Hubbell Incorporated
2. Chatsworth Products, Inc.
3. Panduit Corp
4. TE Connectivity Ltd.

B. Irreversible connectors listed for the purpose. Listed by an NRTL as complying with 2017 NFPA 70 for specific types, sizes, and combinations of conductors and other items connected. Comply with UL 486A-486B.

C. Compression Wire Connectors: Crimp-and-compress connectors that bond to the conductor when the connector is compressed around the conductor. Comply with UL 467.

D. Electroplated tinned copper, C and H shaped.

E. Signal Reference Grid Connectors: Combination of compression wire connectors, access floor grounding clamps, bronze U-bolt grounding clamps, and copper split-bolt connectors, designed for the purpose.

F. Busbar Connectors: Cast silicon bronze, solderless compression or exothermic-type, mechanical connector; with a long barrel and two holes spaced on 5/8- or 1-inch centers for a two-bolt connection to the busbar.

G. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.4 GROUNDING BUSBARS

A. Manufacturers:

1. Chatsworth Products, Inc.
2. Harger Lightning & Grounding; business of Harger, Inc.
3. Panduit Corp

B. TMGB: Predrilled, wall-mounted, rectangular bars of hard-drawn solid copper, 1/4 by 4 inches in cross section, length as indicated on Drawings. The busbar shall be NRTL listed for use as TMGB and shall comply with TIA-607-B.

1. Predrilling shall be with holes for use with lugs specified in this Section.
2. Mounting Hardware: Stand-off brackets that provide a 4-inch clearance to access the rear of the busbar. Brackets and bolts shall be stainless steel.
3. Stand-off insulators for mounting shall be Lexan or PVC. Comply with UL 891 for use in 600-V switchboards, impulse tested at 5000 V.

C. TGB: Predrilled rectangular bars of hard-drawn solid copper, 1/4 by 2 inches in cross section, length as indicated on Drawings. The busbar shall be for wall mounting, shall be NRTL listed as complying with UL 467, and shall comply with TIA-607-B.

1. Predrilling shall be with holes for use with lugs specified in this Section.
2. Mounting Hardware: Stand-off brackets that provide at least a 2-inch clearance to access the rear of the busbar. Brackets and bolts shall be stainless steel.
3. Stand-off insulators for mounting shall be Lexan or PVC. Comply with UL 891 for use in 600-V switchboards, impulse tested at 5000 V.

2.5 GROUND RODS

A. Manufacturers:

1. nVent ERICO
2. Harger Lightning & Grounding; business of Harger, Inc.
3. TE Connectivity Ltd.

B. Ground Rods: Copper-cladsteel; 3/4 inch by 10 feet in diameter.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the ac grounding electrode system and equipment grounding for compliance with requirements for maximum ground-resistance level and other conditions affecting performance of grounding and bonding of the electrical system.

B. Inspect the test results of the ac grounding system measured at the point of BCT connection.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with connection of the BCT only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Bonding shall include the ac utility power service entrance, the communications cable entrance, and the grounding electrode system. The bonding of these elements shall form a loop so that each element is connected to at least two others.

B. Comply with NECA 1.

C. Comply with TIA-607-B.

3.3 APPLICATION

A. Conductors: Install solid conductor for No. 8 AWG and smaller and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

1. The bonding conductors between the TGB and structural steel of steel-frame buildings shall not be smaller than No. 6 AWG.
2. The bonding conductors between the TMGB and structural steel of steel-frame buildings shall not be smaller than No. 6 AWG.

B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2 AWG minimum.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

D. Conductor Support:

1. Secure grounding and bonding conductors at intervals of not less than 36 inches.

E. Grounding and Bonding Conductors:

1. Install in the straightest and shortest route between the origination and termination point, and no longer than required. The bend radius shall not be smaller than eight times the diameter of the conductor. No one bend may exceed 90 degrees.
2. Install without splices.
3. Support at not more than 36-inch intervals.
4. Install grounding and bonding conductors in 3/4-inch PVC conduit until conduit enters a telecommunications room. The grounding and bonding conductor pathway through a plenum shall be in EMT. Conductors shall not be installed in EMT unless otherwise indicated.
5. If a grounding and bonding conductor is installed in ferrous metallic conduit, bond the conductor to the conduit using a grounding bushing, ~~that complies with requirements in Section 27 05 28 "Pathways for Communications Systems,"~~ and bond both ends of the conduit to a TGB.

3.4 GROUNDING ELECTRODE SYSTEM

A. The BCT between the TMGB and the ac service equipment ground shall not be smaller than No. 1/0 AWG.

3.5 GROUNDING BUSBARS

A. Indicate locations of grounding busbars on Drawings. Install busbars horizontally, on insulated spacers 2 inches minimum from wall, 12 inches above finished floor unless otherwise indicated.

B. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.

3.6 CONNECTIONS

A. Bond metallic equipment in a telecommunications equipment room to the grounding busbar in that room, using equipment grounding conductors not smaller than No. 6 AWG.

B. Stacking of conductors under a single bolt is not permitted when connecting to busbars.

C. Assemble the wire connector to the conductor, complying with manufacturer's written instructions and as follows:

1. Use crimping tool and the die specific to the connector.
2. Pretwist the conductor.
3. Apply an antioxidant compound to all bolted and compression connections.

D. Primary Protector: Bond to the TMGB with insulated bonding conductor.

E. Interconnections: Interconnect all TGBs with the TMGB with the telecommunications backbone conductor. If more than one TMGB is installed, interconnect TMGBs using the grounding equalizer conductor. The telecommunications backbone conductor and grounding equalizer conductor size shall not be less than 2 kcmils/linear foot of conductor length, up to a maximum size of No. 3/0 AWG unless otherwise indicated.

F. Telecommunications Enclosures and Equipment Racks: Bond metallic components of enclosures to the telecommunications bonding and grounding system. Install top-mounted rack grounding busbar unless the enclosure and rack are manufactured with the busbar. Bond the equipment grounding busbar to the TGB No. 2 AWG bonding conductors.

G. Structural Steel: Where the structural steel of a steel frame building is readily accessible within the room or space, bond each TGB and TMGB to the vertical steel of the building frame.

H. Electrical Power Panelboards: Where an electrical panelboard for telecommunications equipment is located in the same room or space, bond each TGB to the ground bar of the panelboard.

I. Shielded Cable: Bond the shield of shielded cable to the TGB in communications rooms and spaces. Comply with TIA-568-C.1 and TIA-568-C.2 when grounding shielded balanced twisted-pair cables.

3.7 IDENTIFICATION

A. Labels shall be preprinted or computer-printed type.

1. Label TMGB(s) with "fs-TMGB," where "fs" is the telecommunications space identifier for the space containing the TMGB.
2. Label TGB(s) with "fs-TGB," where "fs" is the telecommunications space identifier for the space containing the TGB.
3. Label the BCT and each telecommunications backbone conductor at its attachment point: "WARNING! TELECOMMUNICATIONS BONDING CONDUCTOR. DO NOT REMOVE OR DISCONNECT!"

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
2. Test the bonding connections of the system using an ac earth ground-resistance tester, taking two-point bonding measurements in each telecommunications equipment room containing a TMGB and a TGB and using the process recommended by BICSI TDMM. Conduct tests with the facility in operation.

    a. Measure the resistance between the busbar and the nearest available grounding electrode. The maximum acceptable value of this bonding resistance is 100 milliohms.
3. Test for ground loop currents using a digital clamp-on ammeter, with a full-scale of not more than 10 A, displaying current in increments of 0.01 A at an accuracy of plus/minus 2.0 percent.

    a. With the grounding infrastructure completed and the communications system electronics operating, measure the current in every conductor connected to the TMGB. Maximum acceptable ac current level is 1 A.

C. Excessive Ground Resistance: If resistance to ground at the BCT exceeds 5 ohms, notify Architect promptly and include recommendations to reduce ground resistance.

D. Grounding system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END 27 05 26

SECTION 27 15 13 - COMMUNICATIONS COPPER HORIZONTAL CABLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Category 6 twisted pair cable.
2. Twisted pair cable hardware, including plugs and jacks.
3. Multiuser telecommunications outlet assembly.
4. Cable management system.
5. Cabling identification products.
6. Grounding provisions for twisted pair cable.
7. Conformance with source quality control requirements for twisted pair cable.

1.2 DEFINITIONS

A. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.

B. EMI: Electromagnetic interference.

C. FTP: Shielded twisted pair.

D. F/FTP: Overall foil screened cable with foil screened twisted pair.

E. F/UTP: Overall foil screened cable with unscreened twisted pair.

F. IDC: Insulation displacement connector.

G. LAN: Local area network.

H. Jack: Also commonly called an "outlet," it is the fixed, female connector.

I. Plug: Also commonly called a "connector," it is the removable, male telecommunications connector.

J. RCDD: Registered Communications Distribution Designer.

K. Screen: A metallic layer, either a foil or braid, placed around a pair or group of conductors.

L. Shield: A metallic layer, either a foil or braid, placed around a pair or group of conductors.

M. S/FTP: Overall braid screened cable with foil screened twisted pair.

N. S/UTP: Overall braid screened cable with unscreened twisted pairs.

O. UTP: Unscreened (unshielded) twisted pair.

1.3 COPPER HORIZONTAL CABLING DESCRIPTION

A. Horizontal cable cabling system shall provide interconnections between Distributor A, Distributor B, or Distributor C, and the equipment outlet, otherwise known as "Cabling Subsystem 1," in the telecommunications cabling system structure. Cabling system consists of horizontal cables, intermediate and main cross-connects, mechanical terminations, and patch cords or jumpers used for horizontal-to-horizontal cross-connection.

1. TIA-568-C.1 requires that a minimum of two equipment outlets be installed for each work area.
2. Horizontal cabling shall contain no more than one transition point or consolidation point between the horizontal cross-connect and the telecommunications equipment outlet.
3. Bridged taps and splices shall not be installed in the horizontal cabling.

B. A work area is approximately 100 sq. ft., and includes the components that extend from the equipment outlets to the station equipment.

C. The maximum allowable horizontal cable length is 295 feet. This maximum allowable length does not include an allowance for the length of 16 feet to the workstation equipment or in the horizontal cross-connect.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Reviewed and stamped by RCDD.

1. System Labeling Schedules: Electronic copy of labeling schedules that are part of the cabling and asset identification system of the software.
2. Cabling administration Drawings and printouts.
3. Wiring diagrams and installation details of telecommunications equipment, to show location and layout of telecommunications equipment, including the following:

    a. Mechanical, electrical, and plumbing systems.

C. Twisted pair cable testing plan.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, installation supervisor, and field inspector.

B. Product Certificates: For each type of product.

C. Source quality-control reports.

D. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For splices and connectors to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.

1. Layout Responsibility: Preparation of Shop Drawings by an RCDD.
2. Installation Supervision: Installation shall be under the direct supervision of Technician, who shall be present at all times when Work of this Section is performed at Project site.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Test cables upon receipt at Project site.

1. Test each pair of twisted pair cable for open and short circuits.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install cables and connecting materials until wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.10 COORDINATION

A. Coordinate layout and installation of telecommunications pathways and cabling with Using Agency’s telecommunications and LAN equipment and service suppliers.

1.11 SOFTWARE SERVICE AGREEMENT

A. Technical Support: Beginning with Substantial Completion, provide software support for two years.

B. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.

1. Provide 30 days' notice to Using Agency to allow scheduling and access to system and to allow Using Agency to upgrade computer equipment if necessary.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Horizontal cabling system shall comply with transmission standards in TIA-568-C.1, when tested according to test procedures of this standard.

B. Telecommunications Pathways and Spaces: Comply with TIA-569-D.

C. Grounding: Comply with TIA-607-B.

2.2 GENERAL CABLE CHARACTERISTICS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with the applicable standard and NFPA 70 for the following types:

1. Communications, Plenum Rated: Type CMP complying with UL 1685.
2. Communications, Plenum Rated: Type CM, Type CMG, Type CMP, Type CMR, or Type CMX in metallic conduit installed according to NFPA 70, Article 300.22, "Wiring in Ducts, Plenums, and Other Air-Handling Spaces."
3. Communications, Non-plenum: Type CMR complying with UL 1666.
4. Communications, Non-plenum: Type CMP or Type CMR in listed plenum or riser communications raceway.
5. Communications, Non-plenum: Type CMP or Type CMR in metallic conduit installed according to NFPA 70, Article 300.22, "Wiring in Ducts, Plenums, and Other Air-Handling Spaces."

B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 50 or less.

C. RoHS compliant.

2.3 CATEGORY 6 TWISTED PAIR CABLE

A. Description: Four-pair, balanced-twisted pair cable, certified to meet transmission characteristics of Category 6 cable at frequencies up to 100 MHz.

B. Acceptable Manufacturers:

1. AMP NETCONNECT; a TE Connectivity Ltd. Company
2. Belden Inc
3. Berk-Tek Leviton; a Nexans/Leviton alliance
4. CommScope, Inc
5. General Cable; Prysmian Group North America
6. Hitachi Cable America Inc.
7. Mohawk; a division of Belden Networking, Inc.

8. SYSTIMAX Solutions; a CommScope Inc. brand
9. West Penn Wire

C. Standard: Comply with ICEA S-90-661, NEMA WC 63.1, and TIA-568-C.2 for Category 6 cables.

D. Conductors: 100-ohm, 24 AWG solid copper.

E. Shielding/Screening: Unshielded twisted pairs (UTP)

F. Cable Rating: Plenum.

G. Jacket: White thermoplastic.

2.4 CABLE MANAGEMENT SYSTEM

A. Description: Computer-based cable management system, with integrated database and graphic capabilities.

B. Acceptable Manufacturers:

1. iTRACS Corporation
2. Telsoft Solutions
3. Panduit

C. Information shall be presented in database view.

D. System shall interface with the following testing and recording devices:

1. Direct upload tests from circuit testing instrument into the personal computer.
2. Direct download circuit labeling into labeling printer.

2.5 IDENTIFICATION PRODUCTS

A. Comply with TIA-606-B and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

2.6 GROUNDING

A. Comply with TIA-607-B.

2.7 SOURCE QUALITY CONTROL

A. Factory test cables on reels according to TIA-568-C.1.

B. Factory test twisted pair cables according to TIA-568-C.2.

C. Cable will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 WIRING METHODS

A. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

B. Wiring within Enclosures: Bundle, lace, and train cables within enclosures. Connect to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools. Install conductors parallel with or at right angles to sides and back of enclosure.

3.2 INSTALLATION OF PATHWAYS

A. Drawings indicate general arrangement of pathways and fittings.

3.3 INSTALLATION OF TWISTED-PAIR HORIZONTAL CABLES

A. Comply with NECA 1 and NECA/BICSI 568.

B. General Requirements for Cabling:

1. Comply with TIA-568-C.0, TIA-568-C.1, and TIA-568-C.2.
2. Comply with BICSI's "Information Transport Systems Installation Methods Manual (ITSIMM), Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section.
3. Install 110-style IDC termination hardware unless otherwise indicated.
4. Do not untwist twisted pair cables more than 1/2 inch from the point of termination to maintain cable geometry.
5. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
6. MUTOA shall not be used as a cross-connect point.
7. Consolidation points may be used only for making a direct connection to equipment outlets:

    a. Do not use consolidation point as a cross-connect point, as a patch connection, or for direct connection to workstation equipment.
    b. Locate consolidation points for twisted-pair cables at least 49 feet from communications equipment room.

8. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
9. Install lacing bars to restrain cables, prevent straining connections, and prevent bending cables to smaller radii than minimums recommended by manufacturer.

10. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI Information Transport Systems Installation Methods Manual , Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section. Use lacing bars and distribution spools.
11. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation, and replace it with new cable.
12. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
13. In the communications equipment room, install a 10-foot- long service loop on each end of cable.
14. Pulling Cable: Comply with BICSI Information Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Pulling and Installing Cable" Section. Monitor cable pull tensions.

C. Open-Cable Installation:

1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
2. Suspend twisted pair cabling, not in a wireway or pathway, a minimum of 8 inches above ceilings by cable supports not more than 60 inches apart.
3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.

D. Group connecting hardware for cables into separate logical fields.

E. Separation from EMI Sources:

1. Comply with recommendations from BICSI's "Telecommunications Distribution Methods Manual" and TIA-569-D for separating unshielded copper communication cable from potential EMI sources, including electrical power lines and equipment.
2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:

    a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
    b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
    c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.

3. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:

    a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2.
    b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
    c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.

4. Separation between communications cables in grounded metallic raceways, power lines, and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:

    a. Electrical Equipment Rating Less Than 2 kVA: No requirement.
    b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
    c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.

5. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
6. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 5 inches.

3.4 GROUNDING

A. Comply with requirements in Section 27 05 26 "Grounding and Bonding for Communications Systems" for grounding conductors and connectors.

B. Install grounding according to the "Grounding, Bonding, and Electrical Protection" chapter in BICSI's "Telecommunications Distribution Methods Manual."

C. Comply with TIA-607-B and NECA/BICSI-607.

D. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall, allowing at least a 2-inch clearance behind the grounding bus bar. Connect grounding bus bar to suitable electrical building ground, using a minimum No. 4 AWG grounding electrode conductor.

E. Bond metallic equipment to the grounding bus bar, using not smaller than a No. 6 AWG equipment grounding conductor.

3.5 IDENTIFICATION

A. Paint and label colors for equipment identification shall comply with TIA-606-B for Class 2, Class 3, Class 4 level of administration, including optional identification requirements of this standard.

B. Cable Schedule: Install in a prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.

C. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors.

D. Cable and Wire Identification:

1. Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
2. Each wire connected to building-mounted devices is not required to be numbered at the device if wire color is consistent with associated wire connected and numbered within panel or cabinet.
3. Exposed Cables and Cables in Cable Trays and Wire Troughs: Label each cable at intervals not exceeding 15 feet.
4. Label each terminal strip, and screw terminal in each cabinet, rack, or panel.

    a. Individually number wiring conductors connected to terminal strips, and identify each cable or wiring group, extended from a panel or cabinet to a building-mounted device, with the name and number of a particular device.
    b. Label each unit and field within distribution racks and frames.

5. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and -connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.

E. Labels shall be preprinted or computer-printed type, with a printing area and font color that contrast with cable jacket color but still comply with TIA-606-B requirements for the following:
    1. Cables use flexible vinyl or polyester that flexes as cables are bent.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Visually inspect jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA-568-C.1.
2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
3. Test twisted pair cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross-connection.

    a. Test instruments shall meet or exceed applicable requirements in TIA-568-C.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.

C. Data for each measurement shall be documented. Data for submittals shall be printed in a summary report that is formatted similarly to Table 10.1 in BICSI's "Telecommunications Distribution Methods Manual," or shall be transferred from the instrument to the computer, saved as text files, printed, and submitted.

D. Remove and replace cabling where test results indicate that they do not comply with specified requirements.

E. End-to-end cabling will be considered defective if it does not pass tests and inspections.

F. Prepare test and inspection reports.

3.7 SOFTWARE SERVICE AGREEMENT

A. Technical Support: Beginning with Substantial Completion, provide software support for two years.

B. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.

1. Provide 30 days' notice to Using Agency to allow scheduling and access to system and to allow Using Agency to upgrade computer equipment if necessary.

END 27 15 13

SECTION 28 15 00 - ACCESS CONTROL HARDWARE DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Card readers, credential cards, and keypads
2. Transformers

1.3 DEFINITIONS

A. Credential: Data assigned to an entity and used to identify that entity.

B. Identifier: A credential card; keypad personal identification number; or code, biometric characteristic, or other unique identification entered as data into the entry-control database for the purpose of identifying an individual. Where this term is presented with an initial capital letter, this definition applies.

C. Location: A Location on the network having a PC-to-controller communications link, with additional controllers at the Location connected to the PC-to-controller link with a TIA 485-A communications loop. Where this term is presented with an initial capital letter, this definition applies.

D. PC: Personal computer. Applies to the central station, workstations, and file servers.

E. RAS: Remote access services.

F. RF: Radio frequency.

G. ROM: Read-only memory. ROM data are maintained through losses of power.

H. TCP/IP: Transport control protocol/Internet protocol.

I. Wiegand: Patented magnetic principle that uses specially treated wires embedded in the credential card.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Reference each product to a location on Drawings. Test and evaluation data presented in Product Data shall comply with SIA BIO-01.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Diagrams for cable management system.

C. Product Schedules.

D. Samples: For workstation outlets, jacks, jack assemblies, and faceplates. For each exposed product and for each color and texture specified.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For security system to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 01 78 23 "Operation and Maintenance Data," include the following:

1. Hard copies of manufacturer's specification sheets, operating specifications, design guides, user's guides for software and hardware, and PDF files on USB media of the hard-copy submittal.
2. System installation and setup guides with data forms to plan and record options and setup decisions.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Credential card blanks, ready for printing. Include enough credential cards for all personnel to be enrolled at the site plus an extra 50 percent for future use.
2. Fuses of all kinds, power and electronic, equal to 10 percent of amount installed for each size used, but no fewer than three units.

1.8 QUALITY ASSURANCE

A. Source Limitations: Obtain central station, workstations, controllers, Identifier readers, and all software through one source from single manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Store in temperature- and humidity-controlled environment in original manufacturer's sealed containers. Maintain ambient temperature between 50 and 85 deg F, and not more than 80 percent relative humidity, noncondensing.

B. Open each container; verify contents against packing list; and file copy of packing list, complete with container identification, for inclusion in operation and maintenance data.

C. Mark packing list with the same designations assigned to materials and equipment for recording in the system labeling schedules that are generated by software specified in "Cable and Asset Management Software" Article.

D. Save original manufacturer's containers and packing materials and deliver as directed under provisions covering extra materials.

1.10 PROJECT CONDITIONS

A. Environmental Conditions: System shall be capable of withstanding the following environmental conditions without mechanical or electrical damage or degradation of operating capability:

1. Control Station: Rated for continuous operation in ambient conditions of 60 to 85 deg F and a relative humidity of 20 to 80 percent, noncondensing.
2. Indoor, Controlled Environment: NEMA 250, Type 1 enclosure. System components, except the central-station control unit, installed in temperature-controlled indoor environments shall be rated for continuous operation in ambient conditions of 36 to 122 deg F dry bulb and 20 to 90 percent relative humidity, noncondensing.
3. Indoor, Uncontrolled Environment: NEMA 250, enclosures. System components installed in non-temperature-controlled indoor environments shall be rated for continuous operation in ambient conditions of 0 to 122 deg F dry bulb and 20 to 90 percent relative humidity, noncondensing.

PART 2 - PRODUCTS

2.1 OPERATION

A. Security access system hardware shall use a single database for access-control and credential-creation functions.

2.2 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70, "National Electrical Code."

C. Comply with SIA DC-01 and SIA DC-03 and SIA DC-07.

2.3 CARD READERS, CREDENTIAL CARDS, AND KEYPADS

A. Manufacturers:

1. Allegion Locknetics
2. Midwest Security Products
3. Sargent, Assa Abloy
4. Approved Equal

B. Card-Reader Power: Powered from its associated controller, including its standby power source, and shall not dissipate more than 5 W.

C. Response Time: Card reader shall respond to passage requests by generating a signal that is sent to the controller. Response time shall be 800 ms or less, from the time the card reader finishes reading the credential card until a response signal is generated.

D. Enclosure: Suitable for surface, semi-flush, pedestal, or weatherproof mounting. Mounting types shall additionally be suitable for installation in the following locations:

1. Indoors, controlled environment.
2. Indoors, uncontrolled environment.
3. Outdoors, with built-in heaters or other cold-weather equipment to extend the operating temperature range as needed for operation at the site.

E. Display: Digital visual indicator shall provide visible and audible status indications and user prompts. Indicate power on or off, whether user passage requests have been accepted or rejected, and whether the door is locked or unlocked.

F. Stripe Swipe Readers: Bidirectional, reading cards swiped in both directions, powered by the controller. Reader shall be set up for ABA Track.

1. ABA Track: Magnetic stripe that is encoded on track 2, at 75-bpi density in binary-coded decimal format; for example, 5-bit, 16-character set.
2. Readers for outdoors shall be in a polymeric plastic enclosure with all electronics potted in plastic. Rated for operation in ambient conditions of minus 40 to plus 160 deg F in a humidity range of 10 to 90 percent.

G. Wiegand Swipe Reader: Set up for 26-bit data cards. Comply with SIA AC-01.

H. Wiegand Key-Insert Reader: Set up for 26-bit data cards.

I. Bar-Code Reader: Set up for Code 39.

J. Insert Readers: Requiring the card to be inserted from the side, powered by the controller.

K. Touch-Plate and Proximity Readers:
1. Passive-detection proximity card readers shall use a swept-frequency, RF field generator to read the resonant frequencies of tuned circuits laminated into compatible credential cards. The resonant frequencies read shall constitute a unique identification code number.
2. The card reader shall read proximity cards in a range from direct contact to at least 6 inches from the reader.

L. Keypads:

1. Entry-control keypads shall use a unique combination of alphanumeric and other symbols as an Identifier.
2. Keypads shall contain an integral alphanumeric/special symbols keyboard with symbols arranged in random scrambled order.
3. Communication protocol shall be compatible with the local processor.

M. Keypad Display:

1. Keypads shall include a digital visual indicator and shall provide visible status indications and user prompts.
2. Display shall indicate power on or off and whether user passage requests have been accepted or rejected.
3. Design of the keypad display or keypad enclosure shall limit viewing angles of the keypad as follows:

    a. Maximum Horizontal Viewing Angle: Plus or minus 5 degrees or less off a vertical plane perpendicular to the plane of the face of the keypad display.
    b. Maximum Vertical Viewing Angle: Plus or minus 15 degrees or less off a horizontal plane perpendicular to the plane of the face of the keypad display.

N. Keypad Response Time:

1. The keypad shall respond to passage requests by generating a signal to the local processor. The response time shall be 800 ms or less from the time the last alphanumeric symbol is entered until a response signal is generated.

O. Keypad Power:

1. The keypad shall be powered from the source as shown and shall not dissipate more than 150 W.

P. Keypad Mounting Method:

1. Keypads shall be suitable for surface, semi-flush, pedestal, or weatherproof mounting as required.

Q. Keypad Duress Codes:

1. Keypads shall provide a means for users to indicate a duress situation by entering a special code.

R. Keypad and Wiegand-Swipe-Reader Combination: Designed to require an entry on the keypad before presenting the credential card.

1. Keypad: Allow the entry of four numeric digits that are associated with a specific credential. Keypads shall contain an integral alphanumeric/special symbol keyboard with symbols arranged in random scrambled order. Keypad display or enclosure shall limit viewing angles of the keypad as follows:

a. Maximum Horizontal Viewing Angle: Plus or minus 5 degrees or less off a vertical plane perpendicular to the plane of the face of the keypad display.
b. Maximum Vertical Viewing Angle: Plus or minus 15 degrees or less off a horizontal plane perpendicular to the plane of the face of the keypad display.

2. Wiegand Swipe Reader: Set up for 26-bit data cards to generate a unique card identification code. Comply with SIA AC-01.

S. Communication Protocol: Compatible with local processor.

T. Touch-Plate and Contactless Card Reader: The reader shall have "flash" download capability to accommodate card format changes. The card reader shall have capability of transmitting data to security control panel and shall comply with ISO/IEC 7816.

U. Credential Card Modification: Entry-control cards shall be able to be modified by lamination direct print process during the enrollment process without reduction of readability. The design of the credential cards shall allow for the addition of at least one slot or hole to accommodate the attachment of a clip for affixing the credential card to the badge holder used at the site.

V. Card Size and Dimensional Stability: Credential cards shall be 2-1/8 by 3-3/8 inches. The credential card material shall be dimensionally stable so that an undamaged card with deformations resulting from normal use shall be readable by the card reader.

W. Card Material: Abrasion resistant, nonflammable, nontoxic, and impervious to solar radiation and effects of ultraviolet light.

X. Card Construction:

1. Core and laminate or monolithic construction.
2. Lettering, logos, and other markings shall be hot stamped into the credential material or direct printed.
3. Incorporate phosphorous ink as a security enhancement.
4. Furnish equipment for on-site assembly and lamination of credential cards.

2.4 PUSH-BUTTON SWITCHES

A. Manufacturers:

1. Allegion Locknetics
2. Midwest Security Products
3. Sargent, Assa Abloy
4. Approved Equal

B. Push-Button Switches: Momentary-contact back-lighted push buttons with stainless steel switch enclosures.

C. Electrical Ratings:

1. Minimum continuous current rating of 10 A at 120-V ac or 5 A at 240-V ac.
2. Contacts that will make 720 VA at 60 A and that will break at 720 VA at 10 A.

D. Enclosures: Flush or surface mounting. Push buttons shall be suitable for flush mounting in the switch enclosures.

E. Enclosures shall additionally be suitable for installation in the following locations:

1. Indoors, controlled environment.

F. Power: Push-button switches shall be powered from their associated controller, using dc control.

2.5 TRANSFORMERS

A. NFPA 70, Class II control transformers, NRTL listed. Transformers for security access-control system shall not be shared with any other system.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine pathway elements intended for cables. Check raceways, cable trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation.

B. Examine roughing-in for LAN and control cable conduit systems to PCs, controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Comply with recommendations in SIA CP-01.

B. Comply with TIA 606-B, "Administration Standard for Commercial Telecommunications Infrastructure."

C. Product Schedules: Obtain detailed product schedules from manufacturer of access-control system or develop product schedules to suit Project. Fill in all data available from Project plans and specifications and publish as Product Schedules for review and approval.

D. In meetings with Architect and Owner, present Product Schedules and review, adjust, and prepare final setup documents. Use approved, final Product Schedules to set up system software.

3.3 CABLING

A. Comply with NECA 1, "Good Workmanship in Electrical Construction."

B. Install cables and wiring according to requirements in Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."

C. Wiring Method: Install wiring in raceway and cable tray except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use NRTL-listed plenum cable in environmental airspaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.

D. Boxes and enclosures containing security-system components or cabling, and which are easily accessible to employees or to the public, shall be provided with a lock. Boxes above ceiling level in occupied areas of the building shall not be considered accessible. Junction boxes and small device enclosures below ceiling level and easily accessible to employees or the public shall be covered with a suitable cover plate and secured with tamperproof screws.

E. Install end-of-line resistors at the field device location and not at the controller or panel location.

3.4 CABLE APPLICATION

A. Comply with TIA 569-D, "Commercial Building Standard for Telecommunications Pathways and Spaces."

B. Cable application requirements are minimum requirements and shall be exceeded if recommended or required by manufacturer of system hardware.

C. TIA 232-F Cabling: Install at a maximum distance of 50 ft. between terminations.

D. TIA 485-A Cabling: Install at a maximum distance of 4000 ft. between terminations.

E. Card Readers and Keypads:

1. Install number of conductor pairs recommended by manufacturer for the functions specified.
2. Unless manufacturer recommends larger conductors, install No. 22 AWG wire if maximum distance from controller to the reader is 250 ft., and install No. 20 AWG wire if maximum distance is 500 ft..
3. For greater distances, install "extender" or "repeater" modules recommended by manufacturer of the controller.
4. Install minimum No. 18 AWG shielded cable to readers and keypads that draw 50 mA or more.

F. Install minimum No. 16 AWG cable from controller to electrically powered locks. Do not exceed 250 ft. between terminations.

G. Install minimum No. 18 AWG ac power wire from transformer to controller, with a maximum distance of 25 ft. between terminations.

3.5 GROUNDING

A. Comply with Section 27 05 26 "Grounding and Bonding for Communications Systems."

B. Comply with IEEE 1100, "Recommended Practice for Power and Grounding Electronic Equipment."

C. Ground cable shields, drain conductors, and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

D. Bond shields and drain conductors to ground at only one point in each circuit.

E. Signal Ground:

1. Terminal: Locate in each equipment room and wiring closet; isolate from power system and equipment grounding.
2. Bus: Mount on wall of main equipment room with standoff insulators.
3. Backbone Cable: Extend from signal ground bus to signal ground terminal in each equipment room and wiring closet.

3.6 INSTALLATION

A. Install card readers, keypads, push buttons, and biometric readers.

3.7 IDENTIFICATION

A. In addition to requirements in this article, comply with applicable requirements in Section 270553 "Identification for Communications Systems" and with TIA 606-B.

B. Using software specified in "Cable and Asset Management Software" Article, develop cable administration drawings for system identification, testing, and management. Use unique, alphanumeric designation for each cable, and label cable and jacks, connectors, and terminals to which it connects with the same designation. Use logical and systematic designations for facility's architectural arrangement.

C. Label each terminal strip and screw terminal in each cabinet, rack, or panel.

1. All wiring conductors connected to terminal strips shall be individually numbered, and each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with the name and number of the particular device as shown.
2. Each wire connected to building-mounted devices is not required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

D. At completion, cable and asset management software shall reflect as-built conditions.

3.8 SYSTEM SOFTWARE AND HARDWARE

A. Develop, install, and test software and hardware, and perform database tests for the complete and proper operation of systems involved. Assign software license to Owner.

3.9 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. LAN Cable Procedures: Inspect for physical damage and test each conductor signal path for continuity and shorts. Use tester approved for type and kind of installed cable. Test for faulty connectors, splices, and terminations. Test according to TIA 568-C.1, "Commercial Building Telecommunications Cabling Standards - Part 1: General Requirements." Link performance for balanced twisted-pair cables must comply with minimum criteria in TIA 568-C.1.
2. Test each circuit and component of each system. Tests shall include, but are not limited to, measurements of power-supply output under maximum load, signal loop resistance, and leakage to ground where applicable. System components with battery backup shall be operated on battery power for a period of not less than 10 percent of the calculated battery operating time. Provide special equipment and software if testing requires special or dedicated equipment.
3. Operational Test: After installation of cables and connectors, demonstrate product capability and compliance with requirements. Test each signal path for end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.

C. Devices and circuits will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.10 STARTUP SERVICE

A. Engage a factory-authorized service representative to supervise and assist with startup service.

1. Complete installation and startup checks according to approved procedures that were developed in "Preparation" Article and with manufacturer's written instructions.
2. Enroll and prepare badges and access cards for Owner's operators, management, and security personnel.

3.11 DEMONSTRATION

A. Develop separate training modules for the following:
1. Security personnel.
2. Hardware maintenance personnel.
3. Corporate management.

END OF SECTION