

ATTACHMENT H

SECTION 01210 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
- C. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.
 - 2. Division 1 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.
 - 3. Divisions 2 through 16 Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner under allowance and shall include taxes, freight, and delivery to Project site.
- B. Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner under allowance shall be included as part of the Contract Sum and not part of the allowance.

1.7 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.8 ALLOWANCES

- A. Costs of services not required by the Contract Documents are not included in the allowance.
- B. At Project closeout, credit unused amounts remaining in allowance to Owner by Change Order.

1.9 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Interior Signage for Annex Tenant Improvement. Allow \$1,500,00 credit for interior signage as specified on Cover Sheet and Code Plan, A0.1, Note 24. See Pierce County Interior Signage Guidelines 2018.

END OF SECTION 01210

ATTACHMENT I

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Transaction windows.
- B. Vertical sliding service window.

1.2 RELATED REQUIREMENTS

- A. 088000 - Glazing: for transaction windows.
- B. 123530 - Casework: For casework supporting countertops.
- C. 123600 - Countertops.

1.3 REFERENCE STANDARDS

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section in accordance with Division 01.
 - 1. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.5 SUBMITTALS

- A. Qualification Data: For manufacturer, design engineer, fabricator, and installer.
- B. Product Data: Provide product criteria, characteristics, accessories, jointing and seaming methods, and termination conditions.
- C. Shop Drawings: Indicate required flashings, sealing at openings.
- D. Manufacturer's Installation Instructions: Indicate special preparation of substrate, installation and attachment methods, and perimeter conditions requiring special attention.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- F. Maintenance Data: For user's operation and maintenance of system including:
 - 1. Methods for maintaining system's materials and finishes.
 - 2. Precautions about cleaning materials and methods that could be detrimental to components, finishes, and performance.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in the manufacture of work specified in this section with minimum 5 years of experience.
- B. Designer Qualifications: Professional structural engineer with 5 years of documented experience in design of this work and licensed in the location of the project.

C. Fabricators Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience on projects of similar size and complexity.

D. Installer Qualifications: Company specializing in performing the work of this section with minimum of 5 years of

1.7 DELIVERY, STORAGE, AND HANDLING
EXAMINATION

A. As required by the manufacturer for a warrantable installation of the installed products to meet the Performance and Design. Verify existing conditions meet the manufacturer's requirements before starting work.

1.8

A. Manufacturer warranty. All material and workmanship shall be warranted against defects for a period of one (1) year from the original date of purchase.

B. Installation Warranty: Contractor shall correct defective Work within a 2 year period after Date of Substantial Completion; remove and replace materials concealing waterproofing at no extra cost to Owner.

PART 2 - PRODUCTS

2.1 DESCRIPTION

A. Factory fabricated transaction and vertical sliding service windows with accessories and attachment devices.

2.2 MATERIALS

A. Substitution for products by manufacturers other than listed: See Appendix A - DIV 01 Forms: Submittal Product Form.

B. Transaction Window:

1. Basis of Design Product: DW Series Two Panel Manual Deluxe Sliding Service Window XX Without Screen by C.R. Laurence Co., Inc.

2. Features:

- a. Material: Aluminum.
- b. Window Glazing: see Section 088000.
- c. Frame Finish: DK BRONZE anodized.
- d. Width: 36".

2.2 ACCESSORIES

A. All accessory materials required by the manufacturer for a warrantable installation of the installed products in a manner that meets the Performance and Design Criteria.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions meet the manufacturer's requirements before starting work.

3.2 PREPARATION

- A. Prepare surfaces to receive work in accordance with manufacturer's instructions.

3.3 INSTALLATION

- A. Install window in accordance with manufacturer's printed instructions and recommendations. Repair damaged units as directed (if approved by the manufacturer and the architect) or replace with new units.

3.4 ADJUSTING

- A. Adjust and lubricate hardware for proper operation.

3.5 CLEANING

- A. Clean frame and glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.

3.6 PROTECTION

- A. Protect installed work as required by the manufacturer to maintain product performance, design criteria, and warranty.

END OF SECTION

ATTACHMENT J

SECTION 08 71 00 - FINISH HARDWARE

PART 1 GENERAL

1.1 SECTION INCLUDES

Hardware for swinging, sliding, and folding doors except special types of unique and non-matching hardware specified in other sections.

1.2 RELATED WORK

- A. Section 08 11 13 – Hollow Metal Doors and Frames
- B. Section 08 21 11 – Flush Wood Doors
- C. Section 08 43 13 – Metal Framed Storefronts
- D. Division 26 – Electrical
- E. Division 28 – Fire Alarm/Detection

1.3 REFERENCES

- A. ADA - Americans with Disabilities Act of 1990 including Accessibility Guidelines as amended by the D.O.J. September 15, 2010, as adopted by the Authority Having Jurisdiction (AHJ).
- B. ANSI A117.1 - Buildings and Facilities - Providing Accessibility and Usability for Physically Handicapped People.
- C. ANSI/BHMA A156 (.1 through .21)
- D. ANSI/DHI – A115.IG Installation Guide for Doors and Hardware.
- E. FEMA P-361 – Safe Rooms for Tornados and Hurricanes.
- F. NFPA 80 - Fire Doors and Windows.
- G. NFPA 101 – Life Safety Code
- H. IBC - International Building Code, as adopted by public Authority Having Jurisdiction (AHJ).
- I. State and local Rules and Regulations for Barrier Free Facilities, as adopted by AHJ.

1.4 DOOR HARDWARE TYPES

- A. Types of finish hardware required include, but is not necessarily limited to, the following:
 - 1. Pivot sets and intermediate pivots.
 - 2. Hinges.
 - 3. Lock cylinders.
 - 4. Keys, keying, and key control.
 - 5. Locksets, latchsets, and privacy sets.
 - 6. Exit devices.
 - 7. Closers.
 - 8. Mullions.
 - 9. Overhead, wall, and floor stops.
 - 10. Protection plates.
 - 11. Gasketing for exterior and interior doors, as required.
 - 12. Door holders.
 - 13. Door bottoms.
 - 14. Thresholds.
 - 15. Silencers.
- B. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of door hardware is indicated elsewhere in this section or in the Door Hardware Schedule at the end of this section. Refer to Part 2 Products for Manufacturer's identification and allowable substitutions.

1.5 SUBMITTALS

- A. Under provisions of Section 01 34 00, submit the following:
1. Product information: Manufacturer's published technical product data for all specified door hardware items indicating compliance with the requirements.
 2. Hardware Schedule:
 - a. Hardware schedules are intended for the Contractor's coordination of the work. Review and acceptance by the Architect or Owner does not relieve the Contractor of his exclusive responsibility to fulfill the requirements as shown and specified.
 - b. Submit hardware schedule in the manner and format as specified, complying with the actual construction progress schedule requirements for each draft. Include the following information:
 - 1) Explanation of all abbreviations, symbols, codes, at the like, including door handing.
 - 2) Type, style, function, size, and finish of each hardware item.
 - 3) Door and frame sizes and materials cross referenced to the Architect's marks in the door schedule.
 - 4) Room identification (name and number) on each side of door opening as indicated on the drawings.
 - 5) Product name, model number, description, and name of manufacturer of each item.
 - 6) Fastenings and other pertinent information.
 - 7) Locations of hardware cross referenced to architectural floor plans and door schedules.
 - 8) Mounting heights and locations of each type of hardware.
 3. Key Schedule:
 - a. Require a qualified representative of the hardware supplier to personally meet with the Owner and Architect to obtain the Owner's written key requirements.
 - b. Include a separate key schedule, showing clearly how the Owner's instructions on keying of locks has been fulfilled.
 4. Samples: Upon request, submit actual material samples of items indicated as for color selection.
 5. Templates: Hardware supplier will furnish hardware templates to the Contractor for each fabricator of doors, frames, and other work to be shop prepared or factory prepared for the installation of hardware. Upon request check shop drawings of such other work, to conform that adequate provisions are made for proper location and installation of hardware.
 6. Provide electrical operation technical sheets including product schematics, point to point diagrams, and electrical requirements of all electrified hardware. Completely coordinate with the general contractor, electrical engineer, electrician, security access subcontractor and the installer. Operational descriptions are for demonstration only – verify operational intent with the owner, architect and electrical engineer.
- B. Under provisions of Section 01 70 00, submit the following:
1. Product information.
 2. Hardware schedule.
 3. Manufacturer's published operation and maintenance data. Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
 4. Tools and extra materials as required.
 5. Manufacturer's warranties, revise to meet criteria as established within this section. Warranty periods shall commence upon acceptance of the building by the owner. Where warranties listed exceed the manufacturer's standard warranty, obtain in writing an extended warranty to meet the requirements above and as noted. If the manufacturer will not meet these requirements, and another approved manufacturer will comply, supply the alternate approved manufacturer.

1.6 QUALITY ASSURANCE

- A. Acceptable Designs:
 - 1. Items specified in this section are products which are of acceptable design.
 - 2. Do not substitute products without Architect's written prior approval per Section 01 60 00. Requests for approval shall be submitted by factory authorized distributor firms representing the products proposed for substitution. Items that are noted to allow no substitution are matching existing materials and the owner's material inventory for servicing the facility.
- B. Qualifications:
 - 1. Manufacturer: Manufacturers named in Part 2 of this section with not less than 5 years experience in manufacturing commercial door hardware of the type indicated.
 - 2. Hardware Supplier:
 - a. A recognized architectural finish hardware supplier who has been furnishing hardware in the same state as the project for a period of not less than 5 years.
 - b. Hardware supplier's organization shall include an experienced Architectural Hardware Consultant (AHC), certified by the Door and Hardware Institute (DHI), who is physically available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor. Mail or telephone correspondence is not acceptable.
 - c. Hardware supplier shall have local warehousing facilities and shall maintain an adequate parts inventory of items supplied for future service to the owner. Supplier will be a factory authorized distributor of all hardware specified.
 - 3. Installer: Company specializing in installing work of this section with not less than 5 years experience and acceptable to the manufacturers and the hardware supplier. Maintain regular work force of qualified personnel, trained, skilled, and experienced in installing door hardware and constant, competent supervision per the requirements of the General Contractor. The hardware installer shall meet with the representatives of the General Contractor and hardware supplier to jointly inventory all hardware items. Upon satisfactory inventory of products, the hardware installer accepts responsibility for all hardware items inventoried.
- C. Regulatory and Operational Requirements:
 - 1. Provide hardware for all openings, whether specified or not, in compliance with NFPA Standard No. 80, proper operation and local building code requirements. Where required provide only hardware which has been tested and listed by UL or FM for types and sizes of doors required and complies with requirements of door and door frame labels. Label hardware, as required, for compliance with pressure testing criteria as dictated in IBC.
 - 2. Provide hardware which meets or exceeds handicap accessibility per local building code requirements. Conform to the Americans with Disabilities Act (ADA) of 1990 as amended by the D.O.J. September 15, 2010, as adopted by the Authority Having Jurisdiction (AHJ).

1.7 DELIVERY, STORAGE, HANDLING, AND PROTECTION

- A. Deliver, store, handle, and protect products to project site under provisions of Section 01600 and as specified herein.
- B. Require hardware supplier to:
 - 1. Tag each item or package separately, with identification related to final hardware schedule.
 - 2. Include manufacturer's basic installation instructions with each item or package.
 - 3. As material is received by hardware supplier from various manufacturers, sort and repackage in containers with each item clearly marked with appropriate opening numbers to match the approved hardware schedule. Two or more identical items may be packed in the same container.
 - 4. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.
 - 5. Inventory hardware jointly with representatives of the General Contractor, hardware supplier and the hardware installer until each is satisfied that count is correct. Refer to paragraph 1.6-B-3.

- C. Protect hardware from theft by cataloging and storing in a secure and lockable area. Control the handling and installation of hardware items which are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses, both before and after installation. Replace lost, missing, damaged, or stolen door hardware items at no additional cost to the Owner as required to meet schedule requirements.

1.8 SEQUENCING AND SCHEDULING

- A. Coordinate work of this section with the work of other sections of work under provisions of Section 01 04 00
- B. Furnish hardware templates to each fabricator of doors, frames, and other work to be shop or factory prepared for the installation of hardware.
- C. Verify completeness and suitability of door hardware with the hardware supplier and the hardware installer.

1.9 MAINTENANCE MATERIALS

- A. Under provisions of Section 01 70 00, furnish to Owner a complete set of special wrenches and tools applicable to each different or special hardware component as needed for Owner's continued adjustment, maintenance, removal, and replacement of door hardware.
- B. Special tools and accessories shall be supplied by the hardware component manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS AND FABRICATION

- A. General:
 - 1. Provide all door hardware for complete work, in accordance with the drawings and as specified herein.
 - 2. Quantities listed, in any instance, are for the Contractor's convenience only and are not guaranteed.
 - 3. Provide items and quantities not specifically mentioned to ensure a proper and complete operational installation. Match the quality and finish of items specified.
 - 4. Provide miscellaneous hardware as listed in hardware groups.
- B. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Door schedule indicates door and frame sizes, materials, required fire ratings, and other pertinent information. Furnish each item of hardware for proper installation and operation of door movement as indicated.
- C. Manufacturer's Name Plate: Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable name plates), except in conjunction with required UL or FM labels and as otherwise acceptable to the Architect. Manufacturer's identification will be permitted on rim of lock cylinders and latch faceplates only.
- D. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI A156 series standard for each type hardware item and with ANSI A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.
- E. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self tapping sheet metal screws, except as specifically indicated.
 - 1. Screws: Furnish screws for installation, with each hardware item. Provide Phillips flat head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finishes of

such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

2. Concealed Fasteners: Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.

2.2 HINGES

- A. Manufacturer:
 1. Listed in Door Hardware Schedule: Stanley
 2. Approved Substitutions: PBB, Hager
- B. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template produced units.
- C. Screws: Furnish Phillips flat head or machine screws for installation of units, except furnish Phillips flat head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges.
- D. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 1. Steel Hinges: Steel pins.
 2. Non-ferrous Hinges: Stainless steel pins.
 3. Exterior doors: Non-removable pins.
 4. Reverse bevel interior doors (lockable): Non-removable pins.
 5. Interior doors: Non-rising pins.
- E. Pin Tips: Flat button and matching plug, finished to match leaves.
- F. Number of Hinges: Provide number of hinges indicated, but not less than 3 hinges per door leaf for doors 90" or less in height and one additional hinge for each 30" of additional height.
- G. Butt type hinges and continuous hinges are to be warranted for a period of two years. Pivots shall be warranted for a period of two years.

2.3 LOCK CYLINDERS

- A. Manufacturer:
 1. Listed in Door Hardware Schedule: Medeco
 2. Substitutions: None – Facility Standard
- B. Cylinders are specified to match existing and for bidding purposes. Consult with the owner to determine the proper Medeco cylinder to match and expand the existing Medeco key system.
- C. Construct lock cylinder parts from brass/bronze, stainless steel, or nickel silver.

2.4 KEYS, KEYING, AND KEY CONTROL

- A. Keys:
 1. Material: Provide keys of nickel silver only.
 2. Quantities: These quantities are to establish a maximum allowable quantity of cut keys to service the project and may not necessarily be assigned as noted. A lesser quantity of cut keys required will not result in any credits, nor a quantity of uncut keys to be issued unless noted otherwise.
 - a. 3 change keys per each cylinder unit.
 - b. 5 master keys per master.
 - c. 2 Construction Control Keys
 - d. 2 Permanent Control Keys
 - e. 10 construction keys.
 3. Deliver keys to the Owner's representative: Send masterkeys to Owner via U.S. registered mail direct from hardware supplier.
- B. Keying:

1. Comply with Owner's written instructions for masterkeying and, except as otherwise indicated, provide individual change keys for each lock which is not designated to be keyed alike with a group of related locks.
 2. Grandmaster key all cylinder items to coordinate with the Owner's instructions. Permanently inscribe each key with the notation "DO NOT DUPLICATE".
- C. Key Control:
1. Provide a key control system including envelopes, labels, tags with self locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by the system manufacturer, with capacity for 150% of the number of locks required for the project.
 2. Provide a hinged panel type cabinet, for wall mounting, Telkee RWC-75S or equal.
 3. Provide cylinder units with concealed key control and keys with visual key control.

2.5 LOCKSETS, LATCHSETS, AND PRIVACY SETS:

- A. Manufacturer:
1. Listed in Door Hardware Schedule: Best 9K
 2. Approved Substitutions: Schlage ND, Sargent 10-Line
- B. Types: Locksets, latchsets, and privacy sets as indicated in Door Hardware Schedule.
- C. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt. Provide dust-proof strikes for foot bolts, except where not available. At these locations, provide manufacturer's standard recessed strike. Provide roller type strikes where recommended by lock, latch or bolt manufacturer. If aluminum frames are specified, confirm with the aluminum frame supplier that the standard lock strikes will function. Provide the manufacturer's standard extended lip strikes if required.
- D. Lock Throw: Provide 3/4" minimum throw of mortise type latches and deadbolts used. Cylindrical latches will be 1/2" minimum. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
- E. Locks and latches shall be warranted for a period of five years.

2.6 EXIT DEVICES AND MULLIONS

- A. Manufacturer:
1. Listed in Door Hardware Schedule: Precision 2000
 2. Approved Substitutions: Von Duprin 98, Corbin 5200
- B. Provide risers, as needed, to prevent interference with door glazing kits.
- C. Provide spacers as needed for proper application of removable mullions on narrow stop type frames.
- D. Exit devices and related hardware shall be warranted for a period of five years.

2.7 CLOSERS:

- A. Manufacturer:
1. Listed in Door Hardware Schedule: Stanley QDC1 Series
 2. Approved Substitutions: Dorma 8916, LCN 4040XP-DEL
 3. Concealed closers are as manufactured by Dorma.
- B. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending on the size of the door, exposure to weather and anticipated frequency of use.
- C. Provide manufacturer's standard through bolt attachment where door construction is not adequate for support.
- D. Arms:
1. Provide parallel arms for all overhead closers, except as otherwise indicated. Provide drop plates as needed to prevent glazing interference.

- E. Mount all closers to the maximum allowable degree of opening by the closer manufacturer's template. Where closer arms incorporate dead stop features, mount closers to the maximum degree of opening available before conflict with adjacent structures. If not apparent on the contract documents, verify the use of open space with the Architect or Owner's Representative to determine the maximum allowable degree of opening.
- F. Access Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force. Fire protection has precedence over handicap compatibility, check with local jurisdiction.
- G. Where not standard, supply the manufacturer's optional full cover (FC) for all closers.
- H. Door closers and related hardware shall be warranted for a minimum period of twenty-five years. Electronic closers shall be warranted for a period of two years.

2.8 OVERHEAD STOPS

- A. Manufacturer:
 - 1. Listed in Door Hardware Schedule: Architectural Builders Hardware
 - 2. Approved Substitutions: Rixson
- B. Mount stops to the maximum degree of opening available before conflict with adjacent structures, or, if adjacent structures are not considered, to the maximum allowable by stop manufacturer's template.
- C. If not apparent on the contract documents, verify the use of open space with the Architect or Owner's Representative to determine the maximum allowable degree of opening.
- D. Overhead stops in exterior doors must be manufactured from stainless steel, US32D finish.
- E. Overhead stops shall be warranted for a period of two years.

2.9 WALL AND FLOOR STOPS

- A. Manufacturers:
 - 1. Listed in Door Hardware Schedule: Trimco
 - 2. Approved Substitutions: Hager, Rockwood
- B. General: Except as otherwise indicated, provide stops (wall, floor or overhead) at each leaf of every swinging door leaf.

2.10 PROTECTION PLATES

- A. Manufacturers:
 - 1. Listed in Door Hardware Schedule: Trimco
 - 2. Approved Substitutions: Hager, Tice
- B. Types: Armor Plates, Kick Plates, Mop Plates
- C. Fasteners: Provide manufacturer's standard exposed Phillips head fasteners for door trim units; either machine screws or self tapping sheet metal type screws per manufacturer's recommendations for application to the specified door construction.
- D. Sizes: Fabricate protection plates (armor, kick or mop) not more than 2" less than door width on stop side and not more than 1" less than door width on pull side, x the height indicated.
- E. Metal Plates: Stainless Steel, 18 gauge (0.050) thick. Satin finish, US32D (630), beveled four edges (B4E).

2.11 GASKETS AND SWEEPS

- A. Manufacturer:
 - 1. Listed in Door Hardware Schedule: National Guard Products (NGP)
 - 2. Approved Substitutions: Reese, Pemko
- B. General: Except as otherwise indicated, provide continuous weatherstripping at each edge of every exterior door leaf. Provide type, sizes and profiles indicated as drawn or scheduled.

- C. Fasteners: Provide non-corrosive fasteners as recommended by the manufacturer for applications indicated.
- D. Replaceable seal strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by the manufacturer.
- E. Perimeter weatherstripping: Flexible, hollow neoprene bulb or loop insert, conforming to MIL R 6055, Class II, Grade 40.
- F. Weatherstripping at Door Bottoms: Provide door bottoms consisting of contact type resilient insert and metal housing of design and size indicated.
- G. Hot smoke seal, if required by IBC and subsequent UL testing procedures, will be supplied as an integral part of the door assembly by the door manufacturer.
- H. Gaskets and sweeps shall be warranted for a period of three years.

2.12 THRESHOLDS

- A. Manufacturer:
 - 1. Listed in Door Hardware Schedule: National Guard Products (NGP)
 - 2. Approved Substitutions: Reese, Pemko
- B. Except as otherwise indicated provide standard metal threshold unit of type, size and profile as detailed or scheduled.
- C. Where there is conflict between scheduled thresholds and details, details shall have precedence. Revise details only if necessary to comply with handicap accessibility requirements. Notify the Architect of such required modifications.
- D. Thresholds and related items shall be warranted for a period of three years, abrasive coatings shall be warranted for a period of ten years.

2.13 SILENCERS

- A. Manufacturers:
 - 1. Listed in Door Hardware Schedule: Trimco
 - 2. Approved Substitutions: Hager, Rockwood

2.14 FINISHES

- A. Exposed surfaces of hardware shall be satin chrome (US26D, 626, 652), unless otherwise indicated. Items specified in satin stainless steel (US32D, 630) shall be supplied in satin stainless steel with no exceptions.
- B. The designations used in the schedule and elsewhere to indicate hardware finishes are the industry recognized standard commercial finishes common to the product's manufacturer listed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Under provisions of Section 01 04 00, examine and verify that substrates and project site conditions are ready to receive work of this section.
- B. Do not begin installation until finishes indicated to be field applied have been applied to doors, frames, and similar items requiring project site finishing and are thoroughly dry and cured.
- C. Do not begin installation until unsatisfactory conditions are corrected in a manner acceptable to the installer. Beginning installation means installer accepts project site conditions and substrates as ready to receive work of this section.

3.2 INSTALLATION

- A. General: The types and approximate quantities of door hardware required for this project are indicated at the end of this section.

- B. Key Cabinet: Install in location as indicated on drawings or as directed by the Architect.
- C. Heights: Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for /standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by the Architect.
- D. Substrates: Adjust and reinforce attachment substrates as necessary for proper installation and operation of hardware.
- E. Installation:
 - 1. Install each hardware item in compliance with the manufacturer's instructions, requirements of NFPA 80, NFPA 101, IBC, ADA, State Rules and Regulations for Barrier Free Facilities and recommendations of the DHI.
 - 2. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
 - 3. Drill and countersink units which are not factory prepared for fasteners. Space fasteners and anchors in accordance with industry standards.
 - 4. Where not factory machined, machine cut for hardware per template, as required.
 - 5. Cut and fit thresholds and floor covers to profile of door frames. Join units with concealed welds. Cut smooth openings for spindles, bolts, or similar items. Screw thresholds to substrate with the manufacturer's standard flat head sleeve anchor (FHSL), 1/4-20 x 2". Fill cavities of thresholds at sound rated openings with 1 inch thick (uncompressed thickness) low density fiberglass sill sealer insulation full width and length of the threshold. In addition to fastening requirements, set thresholds for exterior doors in a full bed of butyl-rubber or polyisobutylene mastic sealant.
 - 6. Do not install hardware which is incomplete or apparently improper for application. Notify the hardware supplier immediately of any such deficiencies. Failure to comply with this requirement indicates the hardware installer's acceptance of responsibility for proper application and performance.
 - 7. Where new hardware is specified for existing installations, modify existing structures to accept new hardware as specified. If the modification voids any existing fire labels, consult with the architect and hardware consultant to establish a path to recertify the label.
- F. Cutting and Patching:

Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections.

3.3 ADJUSTING

- A. Initial Adjustment:
 - 1. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Adjust resilient faced sound stops for continuous contact with door and threshold. Adjust weatherstripping and sweeps to completely seal doors with frames and to adjacent structures.
 - 2. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.4 DEMONSTRATION

Instruct Owner's personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

3.5 CLEANING AND DEBRIS

- A. Cleaning:
 - 1. Clean work under provisions of Section 01 70 00
 - 2. Clean adjacent surfaces soiled by work of this section.
- B. Debris: Under provisions of Section 01 50 00, remove debris from project site and legally dispose of off-site.

3.6 MAINTENANCE

- A. Approximately six months after the acceptance of hardware in each area, the hardware installer shall:
 - 1. Return to the project and re-adjust every item of hardware to restore proper function of doors and hardware.
 - 2. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
 - 3. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units.
 - 4. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware and submit to the Architect.

3.7 PROTECTION

Under provisions of Section 01 50 0, protect work of this section as required so that work will be without damage or deterioration at the time of completion and acceptance by the Owner.

3.8 DOOR HARDWARE SCHEDULE

List of Manufacturers

| | | |
|----|----------------|-------------------------------|
| BE | Best | Locks, Cylinders |
| ME | Medeco | Cylinders |
| NA | National Guard | Weatherstrip |
| PR | Precision | Exit Devices, Power Supplies |
| ST | Stanley | Hinges, Closers |
| TK | Telkee | Key Cabinet |
| TR | Trimco | Stops, Push/Pulls, Flat Goods |

Finish Codes

| <u>Code</u> | <u>Description</u> |
|--------------------|---------------------------|
| 626, 652 | Satin Chrome Plated |
| 630 | Satin Stainless Steel |
| 689 | Aluminum, Painted |
| GREY | Grey |

Option List

| <u>Code</u> | <u>Description</u> |
|-------------|---|
| C | Quick Connect Wiring (Precision, Best) |
| RQE | Request to Exit (Best) |
| HC | Hurricane Code Device (Precision) |
| TS | Touchbar Monitoring Switch (Precision) |
| MLR | Motorized Latch Retraction (Precision) |
| B4E | Beveled 4 Edges - Kick and Mop Plates (Trimco) |
| CS | Counter Sinking of Kick and Mop Plates (Trimco) |
| MS/EA | Machine Screws/Expansion Anchors (NGP) |

Miscellaneous Hardware – provide the following:

| | | | |
|--------------------------|------------------|----------------|---------------|
| 5 Spare Cores | 1G-X7 | 626 | BE |
| 1 Key Cabinet | RWC-75S | | TK |

SET #1 - Office

Doors: 101A, 103A, 104A, 105A, 111A, 112A, 114A, 117A, 121A, 122A, 123A, 124A, 125A, 126A, 127A, 128A, 130A, 134A, 136A, 137A, ALT 1

| | | | |
|------------------|---------------------|------|----|
| 3 Hinges | CB179 4 1/2 X 4 1/2 | 652 | ST |
| 1 Passage Set | 9K3-0N15D | 626 | BE |
| 1 Wall Stop | 1270WV | 630 | TR |
| 3 Door Silencers | 1229A | GREY | TR |

Prepare existing frames to accept new hardware specified. Timely frames include adhesive silencers.

SET #2 - Office - Card Reader

Doors: 102A, 103B, 137B, 138A

| | | | |
|----------------------|---------------------------|------|----|
| 2 Hinges | CB179 4 1/2 X 4 1/2 | 652 | ST |
| *1 Electric Hinge | CECB179-12C 4 1/2 x 4 1/2 | 652 | ST |
| *1 Electro-mech Lock | 9KW3-7DEL15D C RQE SCHRC | 626 | BE |
| 1 LFIC Core | 322201 | 626 | ME |
| 1 Door Closer | QDC111 | 689 | ST |
| 1 Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 Wall Stop | 1270WV | 630 | TR |
| 3 Door Silencers | 1229A | GREY | TR |
| *1 Wire Harness | WH-6E | | ST |
| *1 Wire Harness | WH-44 | | ST |
| *1 Wire Harness | WH-192 | | ST |
| *1 Power Supply | RPSMLR2 | | PR |

Prepare existing frames to accept new hardware specified. Card reader by owner.

SET #3 - Break Room

Door: 106A

| | | | | |
|---|----------------|---------------------------|------|----|
| 3 | Hinges | CB179 4 1/2 X 4 1/2 | 652 | ST |
| 1 | Passage Set | 9K3-0N15D | 626 | BE |
| 1 | Door Closer | QDC111 | 689 | ST |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Wall Stop | 1270WV | 630 | TR |
| 3 | Door Silencers | 1229A | GREY | TR |

Prepare existing frames to accept new hardware specified.

SET #4 - Restroom

Doors: 107A, 108A

| | | | | |
|---|-------------|---------------------------|-----|----|
| 3 | Hinges | CB179 4 1/2 X 4 1/2 | 652 | ST |
| 1 | Pull Plate | 1018-3 | 630 | TR |
| 1 | Push Plate | 1001-3 | 630 | TR |
| 1 | Door Closer | QDC111 | 689 | ST |
| 1 | Mop Plate | KM050 4" x 1" LDW B4E CS | 630 | TR |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Wall Stop | 1270WV | 630 | TR |
| 1 | Gasketing | 5040 B | | NA |

Prepare existing frames to accept new hardware specified.

SET #5 - Server Room

Door: 113A

| | | | | |
|---|----------------|-------------------------|------|----|
| 3 | Hinges | CB179 4 1/2 X 4 1/2 NRP | 652 | ST |
| 1 | Lockset | 9K3-7A15D SCHRC | 626 | BE |
| 1 | LFIC Core | 322201 | 626 | ME |
| 1 | Wall Stop | 1270WV | 630 | TR |
| 3 | Door Silencers | 1229A | GREY | TR |

SET #6 - Card Access

Doors: 116A, 125B

| | | | | |
|----|-------------------|------------------------------|------|----|
| 2 | Hinges | CB179 4 1/2 X 4 1/2 NRP | 652 | ST |
| *1 | Electric Hinge | CECB179-12C 4 1/2 x 4 1/2 | 652 | ST |
| *1 | Electro-mech Lock | 9KW3-7DEL15D L/C C RQE SCHRC | 626 | BE |
| 1 | LFIC Core | 322201 | 626 | ME |
| 1 | Door Closer | QDC111 | 689 | ST |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Wall Stop | 1270WV | 630 | TR |
| 3 | Door Silencers | 1229A | GREY | TR |
| *1 | Wire Harness | WH-6E | | ST |
| *1 | Wire Harness | WH-44 | | ST |
| *1 | Wire Harness | WH-192 | | ST |
| *1 | Power Supply | RPSMLR2 | | PR |

Prepare existing frames to accept new hardware specified. Timely frames include adhesive silencers. Card reader by owner.

SET #7 - Exterior - Card Reader

Doors: 106B, 132A

| | | | | |
|----|-------------------|---------------------------|-----|----|
| 2 | Hinges | CB191 4 1/2 X 4 1/2 NRP | 630 | ST |
| *1 | Electric Hinge | CECB191-12C 4 1/2 x 4 1/2 | 630 | ST |
| *1 | Electro-mech Lock | 9KW3-7DEL15D C RQE SCHRC | 626 | BE |
| 1 | LFIC Core | 322201 | 626 | ME |
| 1 | Lock Guard | 5002 | 630 | TR |
| 1 | Closer/Stop | QDC119 | 689 | ST |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Weatherstrip | 160 SA SMS-TEKS | | NA |
| 1 | Door Sweep | 200 NA SMS-TEKS | | NA |
| 1 | Saddle Threshold | 426 E MS/EA | | NA |
| *1 | Wire Harness | WH-6E | | ST |
| *1 | Wire Harness | WH-44 | | ST |
| *1 | Wire Harness | WH-192 | | ST |
| *1 | Power Supply | RPSMLR2 | | PR |

Prepare existing frames to accept new hardware specified. Card reader by owner.

SET #8 - Open Office - Exit - Card Reader

Door: 133A

| | | | | |
|----|----------------|---------------------------|------|----|
| 2 | Hinges | CB191 4 1/2 X 4 1/2 NRP | 630 | ST |
| *1 | Electric Hinge | CECB191-12C 4 1/2 x 4 1/2 | 630 | ST |
| *1 | Exit Device | C MLR TS 2108 X 4908A | 630 | PR |
| 1 | Rim Cylinder | 320400H | 626 | ME |
| 1 | Door Closer | QDC111 | 689 | SH |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Wall Stop | 1270WV | 630 | TR |
| 3 | Door Silencers | 1229A | GREY | TR |
| *1 | Wire Harness | WH-6E | | ST |
| *1 | Wire Harness | WH-12 | | ST |
| *1 | Wire Harness | WH-192 | | ST |
| *1 | Power Supply | RPSMLR2 | | PR |

Prepare existing frames to accept new hardware specified. Card activation retracts latch momentarily and allows access. Card reader by owner.

SET #9 - Open Office

Door: 131A

| | | | | |
|---|-------------|---------------------------|-----|----|
| 3 | Hinges | CB179 4 1/2 X 4 1/2 | 652 | ST |
| 1 | Passage Set | 9K3-0N15D | 626 | BE |
| 1 | Door Closer | QDC111 | 689 | ST |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Door Stop | 1215CKU | 626 | TR |

Timely frames include adhesive silencers.

SET #10 - Open Office 3

Door: 131B

| | | | | |
|---|-------------|---------------------------|-----|----|
| 3 | Hinges | CB179 4 1/2 X 4 1/2 | 652 | ST |
| 1 | Passage Set | 9K3-0N15D | 626 | BE |
| 1 | Door Closer | QDC111 | 689 | ST |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Wall Stop | 1270WV | 630 | TR |

Timely frames include adhesive silencers.

SET #11 - Open Office - Exit - Card Reader

Door: 133B

| | | | | |
|----|-------------------|---------------------------|------|----|
| 4 | Hinges | CB179 4 1/2 X 4 1/2 NRP | 652 | ST |
| *2 | Electric Hinges | CECB179-12C 4 1/2 x 4 1/2 | 652 | ST |
| 1 | Removable Mullion | KR822 | 689 | PR |
| *2 | Exit Devices | C MLR TS 2108 X 4908A | 630 | PR |
| 3 | Rim Cylinders | 320400H | 626 | ME |
| 2 | Door Closers | QDC111 | 689 | ST |
| 2 | Kick Plates | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 2 | Wall Stops | 1270WV | 630 | TR |
| 2 | Door Silencers | 1229A | GREY | TR |
| *2 | Wire Harnesses | WH-6E | | ST |
| *2 | Wire Harnesses | WH-12 | | ST |
| *2 | Wire Harnesses | WH-192 | | ST |
| *1 | Power Supply | RPSMLR2 | | PR |

Prepare existing frames to accept new hardware specified. Card activation retracts latches momentarily and allows access. Card reader by owner.

SET #12 - Exterior Exit - Card Reader

Door: 135A

| | | | | |
|----|------------------|---------------------------|-----|----|
| 2 | Hinges | CB191 4 1/2 X 4 1/2 NRP | 630 | ST |
| *1 | Electric Hinge | CECB191-12C 4 1/2 x 4 1/2 | 630 | ST |
| *1 | Exit Device | C MLR TS 2103 X 1703C | 630 | PR |
| 1 | Rim Cylinder | 320400H | 626 | ME |
| 1 | Closer/Stop | QDC119 | 689 | ST |
| 1 | Kick Plate | K0050 10" x 2" LDW B4E CS | 630 | TR |
| 1 | Gasketing | 5040 B | | NA |
| 1 | Door Sweep | 200 NA SMS-TEKS | | NA |
| 1 | Saddle Threshold | 426 E MS/EA | | NA |
| *1 | Wire Harness | WH-6E | | ST |
| *1 | Wire Harness | WH-12 | | ST |
| *1 | Wire Harness | WH-192 | | ST |
| *1 | Power Supply | RPSMLR2 | | PR |

Prepare existing frames to accept new hardware specified. Card activation retracts latch momentarily and allows access. Card reader by owner.

* Requires electrical coordination

End of Section 08 71 00

ATTACHMENT K

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Tackable Cork.
- B. Custom digital wall covering applications.

1.2 RELATED REQUIREMENTS

- A. 018113 - Sustainable Design Requirements - Green Globes.
- B. 092116 - Gypsum Board Assemblies: for requirements of level 5 gypsum substrate.
- C. Appendix A-D: Finish Legend for products and finish types.

1.3 SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Shop Drawings: Indicate wall elevations with seaming layout.
- D. Sample: Submit two samples of wall covering, 6 x 6 inch in size illustrating color, finish, and texture.
- E. Accessory Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- F. Green Globe Submittals: submit submittal documentation in compliance with Section 018113 Sustainable Design Requirements - Green Globes.
- G. Certificate: Prior to installation of wall covering, submit written certification by flooring manufacturer and adhesive manufacturer that condition of substrate is acceptable.
- H. Manufacturer's Installation Instructions: Indicate special preparation of substrate, installation and attachment methods, and perimeter conditions requiring special attention.
- I. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- J. Maintenance Data: For users operation and maintenance of materials including:
 - 1. Methods for maintaining materials and finishes.

2. Precautions about cleaning materials and methods that could be detrimental to components, finishes, and performance.
3. Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

1.4 MAINTENANCE MATERIAL

- A. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualification: Company specializing in the manufacture of work specified in this section with minimum 5 years of experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years experience.

1.6 MOCK-UP

- A. Construct mock-up of one room of wall covering, representing finished work including internal and external corners, seaming and interruptions.
- B. Locate where directed.
- C. Mockup may remain as part of the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. As required by SMACNA Guideline Chapter 3 and Section 015721 - Indoor Air Quality Controls.
- B. As required by the manufacturer for a warrantable installation of the installed products to meet the Performance and Design Criteria.

1.8 WARRANTY

- A. Provide minimum Manufacturers Limited 5 year commercial warranty for manufacturing defects.

PART 2 - PRODUCTS

2.1 DESCRIPTION

- A. Wall coverings including cork and custom digital graphic adhered to substrate.

2.2 PERFORMANCE AND DESIGN CRITERIA

- A. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84.

- B. Chemical and Stain Resistance: No visible staining or discoloration and no damage to surface texture when tested in accordance with ASTM D1308.
- C. VOC Content: As specified in Section 018113 - Sustainable Design Requirements - Green Globes.

2.3 WALL COVERING

- A. See Appendix A-D Finish Legends for products, finish types and locations.
- B. Substitutions for products by manufacturers other than those listed: See Section 016000 - Product Requirements.
 - 1. (CRK-1):
 - a. Material: Tackable Cork.
 - b. Size: Custom sized to project.
 - c. Performance Criteria:
 - 1) Mounting: direct glue to CMU.
 - 2) Accessories: Manufacturer standard metal trim pieces.
 - 2. (WC-1): Custom digital graphic wall covering:
 - a. Substrait: CDP-202.
 - b. Size: Custom sized to project.
 - c. Performance Criteria:
 - 1) Mounting:
 - 2) Accessories: clear corner guards.

2.4 ACCESSORIES

- A. All accessory materials required by the manufacturer for a warrantable installation of the installed products in a manner that meets the Performance and Design Criteria.
- B. All accessory materials required to comply with VOC Content: As specified in Section 018113 - Sustainable Design Requirements - Green Globes.
- C. Substrate Filler:
 - 1. As recommended by adhesive and wall covering manufacturers; compatible with substrate.
- D. Primers, Adhesives, and Seaming Materials:
 - 1. Waterproof; types recommended by wall covering manufacturer.
- E. Termination Trim:
 - 1. Extruded plastic, clear.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify products have been stored, and will be installed, in accordance with project's Construction Indoor Air Quality Management Plan specified in Section 015721 - Indoor Air Quality Controls.
- B. Verify that substrate surfaces are finished to gypsum Level 5 in accordance with Section 092116, prime painted and ready to receive work, and conform to requirements of the wall covering manufacturer.
- C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply wall coverings if moisture content of substrate exceeds level recommended by wall covering manufacturer.
- D. Verify flatness tolerance of surfaces does not vary more than 1/8 inch in 10 feet nor vary at a rate greater than 1/16 inch/ft.
- E. Verify that required wall-mounted accessories are in correct location.

3.2 PREPARATION

- A. Prepare surfaces to receive work in accordance with manufacturer's instructions.
- B. Surfaces: Correct defects and clean surfaces that affect work of this section. Remove existing coatings that exhibit loose surface defects.

3.3 INSTALLATION

- A. General:
 - 1. Install all materials in accordance with manufacturer's instructions based on conditions present .
 - 2. Use wall covering in roll number sequence.
 - 3. Horizontal seams are not acceptable.
 - 4. Do not seam within 2 inches of internal corners or within 6 inches of external corners.
 - 5. Install wall covering before installation of bases and items attached to or spaced slightly from wall surface.
 - 6. Do not install wall covering more than 1/4 inch below top of resilient base.
 - 7. Cover spaces above and below windows, above doors, in pattern sequence from roll.
 - 8. Apply wall covering to electrical wall plates prior to replacing.
 - 9. Remove excess adhesive while wet from seam before proceeding to next wall covering sheet. Wipe clean with dry cloth.

3.4 CLEANING

- A. Dispose of all waste material in accordance with Section 017419 - Construction Waste Management and Disposal and project's Waste Management Plan.
- B. Remove excess adhesive from floor, and wall surfaces without damage.
- C. Clean and vacuum carpet tile surfaces in accordance with manufacturer's instructions.

3.5 PROTECTION

- A. Protect installed work as required by the manufacturer to maintain product performance, design criteria and warranty.

END OF SECTION

ATTACHMENT L

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A . Phenolic Metal lockers.

1.2 RELATED REQUIREMENTS

- A . 092219 - Non-Structural Metal Framing: Blocking and nailers.

1.3 REFERENCE STANDARDS

- A . ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015, with Editorial Revision (2016).
- B . ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.4 ADMINISTRATIVE REQUIREMENTS

- A . Preinstallation Meeting: Convene one week before starting work of this section in accordance with Section 013000 - Administrative Requirements.

1.5 SUBMITTALS

- A . Product Data: Provide data on locker types, sizes, and accessories.
- B . Shop Drawings: Indicate locker plan layout, numbering plan.
- C . Samples: Submit two samples 3 x 6 inches in size, of each color scheduled; applied to specified substrate.
- D . Manufacturer's Installation Instructions: Indicate special preparation of substrate, installation and attachment methods, and perimeter conditions requiring special attention.

1.6 DELIVERY, STORAGE, AND HANDLING

- A . Protect locker finish and adjacent surfaces from damage.

1.7 WARRANTY

- A . Installation Warranty: Contractor shall correct defective Work within a 2 year period after Date of Substantial Completion; remove and replace materials concealing waterproofing at no extra cost to Owner.
- B . Manufacturer Warranty: Provide manufacturer's 10 year warranty with receipt indicating date of purchase.

PART 2 - PRODUCTS

2.1 DESCRIPTION

- A . Metal Lockers: Single and double tiered phenolic metal lockers vertically stacked with solid base. Painted factory assembled.

2.2 PERFORMANCE AND DESIGN CRITERIA

- A . Code required criteria.
 - 1. Accessibility Requirements: For lockers indicated to be accessible, comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC A117.1.

2.3 MANUFACTURERS

- A . Metal Lockers:
 - 1. Basis of Cost: Phenolic Traditional Collection by ASI Storage Solutions, Inc. or comparable products.
 - 2. Comparable Manufacturers:
 - a. Art Metal Products; www.artmetalproducts.com.
 - b. Lyon Workspace Products; www.lyonworkspace.com.
 - c. Penco Products, Inc: www.pencoproducts.com.
 - d. Republic Storage Systems Co: www.republicstorage.com.
 - e. Substitutions: See Section 016000 - Product Requirements.

2.4 MATERIALS

- A . Doors: 1/2" solid phenolic core decorative plastic laminate with multiple resin-impregnated kraft and surface sheets fused at high temperature and pressure.
- B . Side and Back Panels: 3/8" solid phenolic core with Folkstone Celesta decorative plastic laminate with multiple resin-impregnated kraft and surface sheets fused at high temperature and pressure.
- C . Tops, Bottoms, and Shelves: 1/2" solid phenolic core decorative plastic laminate with multiple resin impregnated kraft and surface sheets fused at high temperature and pressure.
- D . End Cover Panels: 1/2" solid phenolic core decorative plastic laminate with multiple resin-impregnated kraft and surface sheets fused at high temperature and pressure.
- E . Slope Top Kits, Filler Kits, and Trim Kits: 1/2" solid phenolic core decorative plastic laminate with multiple resin impregnated kraft and surface sheets fused at high temperature and pressure.

2.5 CONSTRUCTION

- A . Configuration: Single and double tier.
- B . Dimensions:
 - 1. Width: 15 inches.

2. Depth: 18 inches.
 3. Height: 72 inches.
- C. Doors shall be fitted with recessed handle, number plate, padlock hasp, and digital locking device.
1. Perimeter ventilation.
 2. Doors shall be mounted to side panel using powder coated steel piano-type hinges and machined fasteners.
 3. Door edges shall be smooth and chamfered with corners radiused.
- D. Side Panels shall be attached to all tops, bottoms, and shelves, using rust-resistant and steel fasteners. Exposed edges shall be smooth and chamfered.
- E. Tops, Bottoms, and Shelves:
1. Attached to all side panels
 2. Rust-resistant and steel fasteners.
 3. Exposed edges: smooth and chamfered.
- F. The color and texture of the finish on Phenolic Lockers determined by the selected decorative plastic laminate pattern.
1. Color selection: allowed for doors and end cover panels only.
 - a. All other components are Folkstone Celesta.

2.6 HARDWARE

- A. Doors:
1. All hinges: powder coated steel, 120° limited hinge
 2. Door latches: mounted at the mid-point of each door.
 - a. Hasps: mounted below each handle and will accept standard padlock styles.
 3. Fasteners: rust resistant door hinges and latches.
 4. Handles: mounted with rivets and/or machine screws.
 5. Hooks and number plates: mounted with rivets.
 6. End Cover Panels: mounted with stainless steel barrel screws.
 7. Locker Units:banked together will stainless steel barrel screws.
 8. Number Plates: Provide oval shaped aluminum plates. Form numbers approximately 1/2-inch-high of block font style with ADA designation, in contrasting color.
- B. Locking device:
1. DIGILOCK® KEYPAD LOCKS:
 - a. All metal lock housing with or without integral pull handle.
 - b. Standard, vertical and horizontal body orientation.
 - c. Tamper guard.
 - d. Visual and audible indicators.

- e. Powered by four premium AA or two 9-Volt batteries.

2.7 LOCKER BENCHES

- A. Provide bench units with overall assembly height of 17-1/2 inches.
 - 1. Bench Tops: Manufacturer's standard one-piece units, with rounded corners and edges.
 - a. Size: Minimum 20 inches wide, 42 inches long tops where accessible benches are required.
 - 2. Material and Color: Coordinate color and material of lockers benches with lockers they are adjacent to.
 - 3. Manufacturer's standard supports, with predrilled fastener holes for attaching bench top and anchoring to floor, complete with fasteners and anchors.
 - a. Rated for vertical or horizontal force of 250 pounds applied at any point on the seat, fastener, mounting device, or supporting structure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive locker compartments for correct height and spacing of anchorage/blocking and fixtures that may affect installation of compartments.
 - 1. Report any discrepancies to the Architect.
- B. Verify that prepared bases are in correct position and configuration.
- C. Verify bases and embedded anchors are properly sized.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install lockers plumb and square.
- C. Place and secure on prepared base.
- D. No evidence of cutting, drilling and/or patching shall be visible on the finished work.
- E. Secure lockers with anchor devices to suit substrate materials. Minimum Pullout Force: 100 lb.
- F. Bolt adjoining locker units together to provide rigid installation.
- G. Install end panels and filler panels.
- H. Install accessories.
- I. Replace components that do not operate smoothly.

3.3 CLEANING

- A. Clean locker interiors and exterior surfaces.

END OF SECTION

ATTACHMENT M



TACOMA OFFICE
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Tacoma, WA 98424
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PIERCE COUNTY ANNEX TENENT IMPROVEMENTS
BID SET
BCE PROJECT NO. 217-248.00
OCTOBER 22, 2018

Notice:

The following list of specifications and drawings represents those documents that were prepared under the provisions of the Revised Code of Washington RCW 18.43, by BCE Engineers, Inc. of Tacoma, Washington. The sealing of this specification and drawings list is provided in accordance with Washington Administrative Code WAC196-23-020.

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SECTION 26 00 00
ELECTRICAL GENERAL CONDITIONS

PART 1 - GENERAL

1.01 **GENERAL**

- A. Conform to the General Conditions, Supplementary Conditions, and related work in other Divisions for all work in Division 26 and 27. See Division 1 for sequence of work.

1.02 **WORK INCLUDED**

- A. It is the intention of this division of the specifications and the accompanying drawings to describe and provide for the furnishing, installing, testing and placing in satisfactory and successful operation all equipment, materials, devices and necessary appurtenances to provide a complete electrical system, together with such other miscellaneous installations and equipment hereinafter specified and/or shown in the plans. The work shall include all materials, appliances and apparatus not specifically mentioned herein or noted on the plans, but which are necessary to make a complete working installation of all electrical systems shown on the plans or described herein. Equipment and devices furnished and installed under other divisions of this specification (or by the Owner) shall be connected under this division. The drawings and specifications are complementary and what is called for in either is binding as if called for in both.
- B. By submitting a bid, the Contractor is acknowledging that he has made a thorough examination of the Contract Documents, existing site and building conditions, and has determined that these documents do sufficiently describe the scope of construction work required under this Contract.

1.03 **SCOPE OF BASIC BID**

- A. Included in Division 26 and 27 work is all work and related items necessary to provide all electrical installations except as specifically excluded. In general, this includes all labor, equipment, tools, etc., to complete the electrical work.

1.04 **STANDARDS AND REGULATIONS**

- A. The work shall comply with the latest edition of the applicable Standards and Codes of the following:
 - 1. ASTM American Society for Testing and Materials
 - 2. NBFU National Board of Fire Underwriters
 - 3. NEC National Electrical Code
 - 4. --- State Electrical Code
 - 5. NESC National Electrical Safety Code
 - 6. NEMA National Electrical Manufacturers Association
 - 7. NFPA National Fire Protection Association

- | | | |
|-----|-------|--|
| 8. | U.L. | Underwriters Laboratories Inc. |
| 9. | IPCEA | Insulated Power Cable Engineers Associated |
| 10. | CBM | Certified Ballasts Manufacturers |
| 11. | --- | Federal, State and Local Building Codes |
| 12. | ETL | Electrical Testing Laboratories |

- B. If any conflict occurs between Government adopted Code Rules and this specification, the codes are to govern. Nothing in these drawings and specifications shall be construed to permit work not conforming to governing codes. Also, this shall not be construed as relieving the Contractor from complying with any requirements of the plans and specifications which may be in excess of, but not in conflict with, requirements of the Governing Codes.

1.05 PERMITS & FEES

- A. The Contractor shall obtain and pay for all licenses, permits and inspections required by laws, ordinances and rules governing work specified herein. The Contractor shall arrange for inspection of work by the inspectors and shall give the inspectors all necessary assistance in their work of inspection.

1.06 DEFINITIONS

- A. When "Provide" is used, it shall be interpreted as "furnishing and installing complete in operating condition".
- B. When "Drawings" is used, it shall be interpreted as "all Contract Drawings for all Disciplines".
- C. When "Contractors" is used, it shall be interpreted as the Electrical Contractor.

1.07 INTENT OF DRAWINGS

- A. The electrical drawings are intended to serve as working drawings for general layout. The equipment layout is diagrammatic and unless specifically dimensioned or detailed, does not indicate all fittings, hardware or appurtenances required for a complete operating installation.
- B. Anything shown on the drawings but not covered in the specifications, or anything covered in the specifications but not shown on the drawings, shall be as if covered in both. In case of conflict between the drawings and specifications, the Engineer will select the method to be used. The Contractor shall be responsible for verifying all measurements before proceeding with the work.
- C. Wiring diagrams are not intended to indicate the exact course of raceways or exact location of outlets. Raceway and outlet locations are approximately correct and are subject to revision as may be necessary or desirable at the time of installation. Precise location in every case shall be subject to the Engineer's approval.

- D. The contractor shall review the manufacturer provided installation instructions for each piece of equipment prior to rough-in. Any conflict between the drawings, specifications and installation instructions shall be brought to the Engineer's attention immediately. The contractor will not be paid for any reinstallation required due to failing to comply with manufacturer's recommendations or requirements unless specifically directed by the engineer, in writing, after the conflict has been identified.

1.08 **PROTECTION**

- A. The Contractor shall store and guard all equipment before installation and shall protect same, and replace any equipment that has been damaged prior to final acceptance.

1.09 **HOUSEKEEPING**

- A. All electrical materials shall be kept stored in an orderly fashion protected from heat, cold, and the weather.
- B. All marred surfaces shall be refinished and painted after installation.
- C. All debris shall be removed from premises during work, as directed, and at completion of job.

1.10 **TEMPORARY USE**

- A. Temporary or interim use of any and all portions of the electrical system shall be under the supervision of the Electrical Contractor.
- B. Temporary power and lighting for use during construction shall be provided per the requirements of the Division 1 specifications.

1.11 **AS-BUILT DRAWINGS**

- A. The Contractor shall maintain, in addition to any reference drawings, an as-built set of prints, on which all deviations from the original design shall be drafted in a neat, legible manner with red colored pencil. This red lined set shall identify all drawing revisions including addenda items, change orders, and Contractor revisions. The Contractor is responsible to revise panel schedules and load calculations as required.
- B. Drawings shall show locations of all concealed raceway runs larger than 1", giving the number of conductors and size of raceway. Underground ducts shall be shown with cross section elevations. All pipe, raceway, manholes or lines of other trades shall be included.
- C. The Contractor shall update all references to specific products to indicate products actually installed on project. This shall include, but not be limited to, lighting fixtures, lighting controls, etc.
- D. Upon completion of the Division 26 and 27 work, the Contractor shall deliver the red lined drawings and one set of neatly drafted as-built drawings on electronic media in AutoCAD R-2013 format and full-size pdf to the Architect.

- E. See Section 27 00 00 for additional requirements of low voltage systems.

1.12 WARRANTY

- A. Provide a written warranty that the Division 26 and 27 work is free from mechanical and electrical defects. Contractor shall replace and repair, to the satisfaction of the Engineer, any parts of the installation which may fail within a period of 12 months after the certificate of final acceptance, provided that such failure is due to defects in material or workmanship, or failure to follow the specifications and drawings.
- B. See Section 27 00 00 for additional requirements of low voltage systems.

1.13 INSTRUCTIONS AND MANUALS

- A. Manuals shall contain shop drawings, wiring diagrams, operating and maintenance instructions, replacement parts lists, and equipment nameplate data for all equipment and systems installed under the project. Signal equipment submittals shall contain step-by-step circuit description information designed to acquaint maintenance personnel with equipment operation in each mode of operation. Manuals shall contain original brochures supplied by manufacturers. Xerox copies of originals will not be accepted.
- B. Each type of device provided shall be identified in the O & M Manual using the same identification as shown on the drawings and specifications. The information included must be the exact equipment installed not the complete "line" of the Manufacturer. Where sheets show the equipment installed and other equipment, the installed equipment shall be neatly and clearly identified on such sheets. Parts lists shall give full ordering information assigned by the original parts manufacturer. Relabeled and/or renumbered parts information as reassigned by equipment supplier is not acceptable. The following information shall be provided for each device:
 - 1. Manufacturer's name, address and phone number.
 - 2. Local supplier's name, address and phone number.
 - 3. Complete parts lists including quantities and manufacturer's part numbers.
 - 4. Installation instructions.
 - 5. Recommended maintenance items including maintenance procedure and recommended interval of maintenance listed in hours of operation, calendar unity or other similar time unit.
- C. Wiring Diagrams for each system shall be complete for the specific system installed under the Contract. "Typical" Line Diagrams will not be acceptable unless properly marked to indicate the exact field installation.

1.14 WORK NOT INCLUDED

- A. Indicated motors, controls, and equipment as described in other divisions shall be furnished by other trades, but shall be moved, set and wired to electrical controls and power supply by the Electrical Contractor.

1. A separate PDF file shall be submitted for each Division including All submittal items for that Division as outlined below:
 - a. Division 26 – Electrical
 - b. Division 27 – Telecommunications
2. The contractor shall provide either a digital or hardware method of transporting the electronic submittal to the Architect. Files larger than 10Megabytes shall not be sent via email and shall be transferred via an FTP or similar file transfer protocol, PC compatible CD or PC compatible Thumb Drive. Divisions shall not be broken up into separate files for transfer via email.
3. Each Specification PDF shall be submitted with the following format and salient attributes:
 - a. Cover page including:
 - i. Project Title as indicated on the plans
 - ii. Project Location including Address, City, State, Country
 - iii. Prime Contractor name, phone number, and email address
 - iv. Sub-Contractor name, phone number, and email address
 - v. Specification Division Number and Title
 - b. Index Page outlining each specification section included in the submittal. This list shall be linked to a corresponding Specification Section Divider for each section. This link shall enable the reviewer to jump to a specification section by clicking the item in the list.
 - c. Specification Section Divider: Shop Drawings shall be divided by specification section and each section shall begin with a Divider Page outlining the Specification Number, Title, and a list of Submittal Items for the section. In the upper right-hand corner of the divider page, a Link shall be provided returning the reviewer to the Index Page.
 - d. Each Submittal Item listed on the Specification Section Divider shall be linked to the specific item being submitted. Each Submittal Item shall be hi-lighted Yellow with a Note Reference to the specific paragraph giving the submittal requirements.
 - e. Each page of the submittal shall be numbered in the Bottom Right corner of the page. Page numbering shall be Roman Numerals for all pages before the First Specification Section. Each Specification Section page shall be numbered with the Specification Section number, a dash, and the page number in the Specification Section.
 - f. Specification items shall be specifically hi-lighted as they apply to the project rather than hi-lighting an entire product family. Items that do not apply to this project shall be crossed out with a Red X.

- g. The PDF file shall be not be protected to prevent printing, selecting of text within the document, or extracting of pages from the document.
- C. Shop drawings shall be submitted complete, at one time and each item indexed with dividers and separated per specification section and shall be, but not limited to the items of equipment listed below:
 - 1. All panelboards, showing breaker arrangement with circuit numbers, relays, and panel skirts.
 - 2. Motor starters and controls designating where items are intended to be used and equipment being controlled.
 - 3. Disconnect Switches
 - 4. Fuses and spare fuse cabinet
 - 5. Wiring Devices
 - 6. Back Boxes
 - 7. Coverplates
 - 8. Raceways and Connectors
 - 9. **All Specialty Systems not listed above**
 - 10. Any other items requested by Engineer.

*See Section 27 00 00 for further requirements.
- D. Within 10 working days after the date of the letter rejecting any items of equipment, lighting fixtures, or materials as not in accordance with the specifications, Contractor shall submit a new list of items he proposes to furnish and install in place of those items rejected. If the Contractor fails to submit this new list within the above specified time, or if any items on this second list are rejected as not being in accordance with these specifications, the Engineer may select the items which the Contractor shall furnish and install without change in Contract price or time of completion.
- E. The acceptance of a manufacturer's name or product by the Engineer does not relieve the Contractor of the responsibility for providing materials and equipment which comply in all details with the requirements of the Contract Documents. The Contractor shall be solely responsible for submitting materials at such a time to allow a minimum of two weeks for Engineer's review.
- F. Electrical Drawings for the project have been developed by the Engineer using AutoCAD™ Revision 2013 software. These drawing files will be made available to the Contractor for development of shop drawings and/or "As-Builts" with a signed waiver of responsibility.

1.17 **SCHEDULE OF VALUES**

- A. Provide Schedule of Values per Division 1 and related project requirements.
- B. Division 26 and 27 Breakdown: Provide schedule of values for the following categories (as a minimum):
 - 1. Electrical Mobilization
 - 2. Electrical Submittals

3. Electrical General Project Management, General Design, General Coordination
 4. Branch Circuit Materials Rough-in
 5. Branch Circuit Materials Rough in – Labor
 6. Branch Circuit Trim – Materials
 7. Branch Circuit Trim – Labor
 8. Service Materials
 9. Service Materials – Labor
 10. Feeder Materials
 11. Feeder Materials - Labor
 12. Panelgear, Disconnects, Starters
 13. Panelgear, Disconnects, Starters – Labor
 14. Light Fixtures – Labor
 15. Fire Alarm System
 16. Data System
 17. Systems Equipment – Labor
 18. Electrical Punchlist, Closeout, and Owner Training
- C. The dollar value for "Electrical Punchlist, and Closeout shall in no case be less than 2% of the total dollar value of the Division 26 and 27 work (or as indicated in Division 1, whichever is higher).
- D. The Contractor is advised that in addition to payments held out for retainage and project final completion (i.e. "Electrical Punchlist, Closeout, and Owner Training"), as specified above and in Division 1, the Owner reserves the right to withhold 10% of the funds for any of the above categories until the systems (of that category) have been proven to operate as specified and have been completely tested and adjusted.

PART 2 - PRODUCTS

2.01 **COMPETITIVE PRODUCTS**

- A. Any reference in the specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. The Contractor, in such cases, may at his option use any article, device, product, material, fixture, form or type of construction which in the judgment of the Engineer, expressed in writing, is equal to that specified. However, any manufacturer not listed as an accepted bidder for a specific item must be submitted for acceptance in writing and with descriptive data verifying equal quality and performance at least ten (10) working days prior to the bid date for approval.

2.02 MANUFACTURER/EQUIPMENT PRIOR APPROVALS

- A. Any manufacturer/equipment not listed as an approved substitute for a specified item must be submitted for acceptance with detailed information to include:
 - 1. Manufacturer's Catalog Data
 - 2. Complete Physical and Technical Data
 - 3. Wiring Diagrams
 - 4. Detailed reference (written or highlighted) noting compliance with the appropriate Specification Section and all applicable Specification item numbers within that Section
 - 5. Complete type written index cross referencing all proposed substitutes and specified items
 - 6. Detailed reference to specified items (written or highlighted) noting equal quality and performance of proposed substitute equipment
 - 7. Other descriptive data, as required by the Engineer
- B. If substitute material is determined to be acceptable by the Engineer, it will be included in a subsequent Addenda prior to bidding. The acceptance of a manufacturer's name or product by the Engineer does not relieve the Contractor of the responsibility for providing materials and equipment which comply in all details with the requirements of the Contract Documents.
- C. Only materials which are specified or published in addenda as acceptable shall be used.

2.03 MATERIALS

- A. All materials must be of the quality herein specified. All materials shall be new, of the best quality and free from defects. They shall be designed to ensure satisfactory operation and operational life in the environmental conditions which will prevail where they are being installed.
- B. Each type of material shall be of the same make and quality. The materials furnished shall be standard products of the manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design.
- C. All materials shall be U.L. or E.T.L. listed for the purpose for which they are used.
- D. Equipment in compliance with U.L. standards but not bearing their label is not acceptable. If the manufacturer cannot arrange for labeling of an assembled unit at the factory the unit shall be field evaluated per the Washington State Administrative Code (WAC) and the electrical inspector's requirements.

2.04 **COMPLETE SYSTEM**

- A. All the systems mentioned shall be complete and operational in every detail except where specifically noted otherwise. Mention of certain materials in these specifications shall not be construed as releasing the Contractor from furnishing such additional materials and performing all labor required to provide a complete and operable system.

2.05 **NAMEPLATES**

- A. Provide nameplates constructed of plastic (black on white) laminated material engraved through black surface material to white sublayer (attach with screws on NEMA 1 enclosures).
1. Panelboard Labels: Refer to Section 26 24 16
 2. Switch and Receptacle Labels: Refer to Section 26 27 26
 3. Motor Starter and Disconnect Labels: Refer to Section 26 28 16
 4. Special Equipment/Outlet Labels: Refer to Appropriate Sections.

PART 3 - EXECUTION

3.01 **GENERAL**

- A. Careful consideration shall be given to clearances under and over beams, pipes and ducts, to provide proper headroom in all cases. Check drawings to determine heights of all suspended ceilings and size of pipe shafts where raceway and wire-ways shall run. Coordinate installation of Division 26 and 27 wiring and equipment with Division 23 and other trades. Where insufficient room for proper installation appears, obtain clarification from Engineer before any installation is begun.
- B. Cutting and Patching:
1. Obtain permission from the Architect and/or Owner's Representative prior to cutting. Locate cuttings so they will not weaken structural components. Cut carefully and only the minimum amount necessary. Cut concrete with diamond core drills except where space limitations prevent the use of such drills.
 2. All construction materials damaged or cut into during the installation of this work must be repaired or replaced with materials of like kind and quality as original materials by skilled labor experienced in that particular building trade.

3.02 COORDINATION

- A. The Contractor is responsible for accomplishing Division 26 and 27. The work shall coordinate with that of the other Contractors and/or other trades doing work in the building and shall examine all Drawings, including the several Divisions of Mechanical, Structural, and Architectural for Construction Details and necessary coordination. Specific locations of construction features and equipment shall be obtained from the Contract Documents, field measurements, and/or from the trade providing the material or equipment. No extra costs will be allowed for failure to obtain this information.
- B. All conflicts shall be reported to the Engineer in writing before installation for decision and correction. Special attention is called to the following items:
 - 1. Door swings to the end that switches will be located on "Strike" side of the door.
 - 2. Location of grilles, pipes, sprinkler heads, ducts and other mechanical equipment so that all electrical outlets, lighting fixtures and other electrical outlets and equipment are clear from and in proper relation to these items.
 - 3. Location of cabinets, counters and doors so that electrical outlets, lighting fixtures and equipment are clear from and in proper relation to these items.
 - 4. Type and height of ceiling.
 - 5. All device measurements referenced on drawings or specifications are to be centered of device unless noted otherwise.
- C. The Contractor will not be paid for work requiring reinstallation due to lack of coordination or interference with other Contractors or trades. This includes, but is not limited to, removing, replacing, relocating, cutting, patching, and finishing.
- D. The Contractor shall review the installation manual for each device to be installed. If a conflict appears to occur between the manufacturer's recommended installation practices and the plans or specifications, notify the Engineer immediately. Final determination shall be by the Engineer. The Contractor will not be paid for reinstallation due to failure to comply with manufacturer instructions or design documents.
- E. Device and fixture locations may be changed within 15 feet without extra charge if so desired by the Engineer, before installation.

3.03 REQUESTS FOR INFORMATION (RFI)

- A. It is our intent to provide a timely response for RFIs regarding Division 26 and 27 work. To further expedite this process, where a suggestion can be determined or derived at by the initiator of the RFI, it is required this suggestion be supplied with the submitted RFI. If no suggestion is given where one is possible, the RFI will be returned as incomplete.

3.04 CLEANING AND PAINTING

- A. All equipment, whether exposed to the weather or stored indoors shall be covered to protect it from water, dust and dirt.
- B. After installing, all metal finishes shall be cleaned and polished, cleaned of all dirt, rust, cement, plaster, grease and paint.
- C. All equipment with a primer coat of paint shall be given two (2) or more coats of a finish enamel and scratched surfaces be refinished to look like new. Markings, identification and nameplates shall be replaced.

3.05 EQUIPMENT IDENTIFICATION

- A. Provide identifying engraved bakelite nameplate on all equipment, including pull boxes, to clearly indicate its use, area served, circuit identification, voltage, and any other useful data.
- B. Each auxiliary system, including communications, shall be clearly labeled to indicate its function.

3.06 DEVIATION

- A. Deviation from the shop drawings in construction or installation of equipment shall not be made unless Shop Drawings showing proposed deviations are submitted to and approved by the Engineer. If any equipment is furnished under this or other divisions with current, voltage or phase ratings that differ from those shown on the drawings, the Contractor shall notify the Engineer in writing immediately and shall not connect said equipment until instructed as to required changes by the Architect. No extension of time will be granted as a result of such changes.

3.07 WIRING METHODS

- A. All low voltage wiring shall be in Raceway with Junction Boxes and Fittings, when concealed in walls and above un-accessible ceilings.
- B. All branch circuit wiring shall be installed in raceway with junction boxes and fittings.
- C. Provide access panels as needed for pull boxes and equipment located above ceiling or behind walls.
- D. Multiple feeder runs shall be rod hung, using a strut type channel with individual one-hole clamps, back plates and machine screws.
- E. Any low voltage cables that are not terminated at both ends shall be tagged and labeled per code.
- F. See Section 27 00 00 for additional requirements of low voltage systems.

3.08 PENETRATIONS OF FIRE RATED ELEMENTS

- A. Must be made such as to retain that rating.

3.09 **HANGERS AND SUPPORTS**

- A. Provide hangers, brackets, and suspension rods and supplementary steel to support equipment.
- B. Hangers provided under other divisions shall not be used for support of Division 26 and 27 equipment unless permitted by Architect/Engineer.

3.10 **PAINTING**

- A. Painting in general will be covered under another division of this specification, except items furnished under Division 26 and 27 that are scratched, marred in shipment or installation, shall be refinished by the Division 26 and 27 Contractor.

3.11 **WORKMANSHIP AND OBSERVATION**

- A. Workmanship shall be of the best quality and none but competent workers shall be employed under the supervision of a competent foreman. All completed work shall represent a neat and workmanship like appearance.
- B. All work and materials shall be subject to observation at any and all times by representatives of the Engineer.

3.12 **MISCELLANEOUS**

- A. Provide complete seismic anchorage and bracing for the lateral and vertical support of conduit and electrical equipment, as required by the International Building Code.
- B. Conduits that cross seismic separations shall be installed with flexible connection suitable to accommodate conditions. Secure raceways on each side of a separation and provide a minimum of 36" length of flexible conduit to span separation.

END OF SECTION

SECTION 26 00 05
ELECTRICAL – EXISTING SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Portions of the existing electrical lighting, power and signal systems are to be removed as detailed on the drawings.

1.02 RELATED DOCUMENTS

- A. Section 26 00 00 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 EXISTING MATERIALS

- A. Existing materials which are a part of the building shall remain the property of the Owner.

2.02 EXISTING MATERIALS RE-INSTALLED

- A. Existing materials and equipment that are removed as a part of the work or stored in surplus may be re-installed as a part of the new system subject to approval of condition suitability by the Architect/Engineer. The requirements of the specifications (i.e. installation, warranty, testing, etc.) shall apply as if the materials were new, supplied by the Contractor.

2.03 EXISTING MATERIALS NOT TO BE RE-INSTALLED

- A. In coordination with the Architect/Engineer, these materials shall be made available for his inspection and decision as to whether the Owner will retain possession. Items selected for retention shall be delivered to a location on the premises selected by the Owner and turned over to him. Take reasonable care to avoid damage to this material. If the Contractor fails to conform to this requirement, he shall purchase and turn over to the Owner replacement materials of like kind and quality.
- B. All material not selected for retention by the Owner and debris shall be disposed of by the Contractor. This shall include, but not be limited to, removal of PCB type ballasts and fluorescent lamps which shall be disposed of in accordance with EPA requirements.

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

- A. Examine the structure, building, and conditions under which Division 26 work is to be installed for conditions detrimental to proper and timely completion of the work. Do not proceed with work until deficiencies encountered in installation have been corrected. Report any delay or difficulties encountered in installation of Division 26 work which might be unsuitable to connect with work by other divisions of this specification. Failure to report conditions shall constitute acceptance of other work as being fit and proper for the installation of Division 26 work.
- B. Maintain continuity of existing circuits of equipment to remain. Existing circuits of equipment shall remain energized. Circuits which are to remain but were disturbed during demolition shall have circuits, wiring, and power restored back to original condition.

3.02 DEMOLITION

- A. Switchboards, panelboards, signaling systems, other electrical equipment free standing (or surface mounted), raceway (exposed) and conductors no longer in service as a result of this Contract shall be removed. Unused raceways or sleeves shall be cut flush at floor and filled with grout. Unused raceways or sleeves above finished floor shall be removed.

3.03 EXISTING PANELBOARD

- A. Any modifications made to existing panels must be incorporated into the existing circuit index on the panel. If more than three circuits are modified a new typewritten index incorporating the changes to the existing index shall be installed in the existing panel.
- B. Listing shall match circuit breaker arrangements, typically with odd numbers on the left and even numbers on the right. Room numbers used shall be final room numbers used in the building as verified with the Owner.

END OF SECTION

SECTION 26 05 19
WIRES AND CABLES

PART 1 - GENERAL

1.01 **WORK INCLUDED**

- A. Provide all wire, cable, and terminations complete.

1.02 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 **WIRE AND CABLE (COPPER, 600-VOLT)**

- A. Interior and Above Grade: All wires to be Type THW or RHW. Type THWN/THHN or XHHW wire may be utilized at Contractors option, subject to code requirements. Wire and cables shall be brought to project in original containers bearing the underwriters label. Provide Type AVA wire where conductors are subject to temperature above 167 Degrees F.
- B. Underground: All conductors to be type USE. Increase Raceway size when necessary to accommodate conductors per code. Exception: Underground conductors completely contained in code recognized Raceway and boxes may be Type THW, THWN or XHHW.

2.02 **SPLICES**

- A. Above Grade: Solderless type only. Preinsulated "twist-on" type (limited to size #10 and smaller). Bolt on compression type with application of preformed insulated cover, heat shrinkable tubing or plastic insulated tape acceptable for all sizes.
- B. Below Grade: Splices below grade shall be in handholes and shall be made watertight with epoxy resin type splicing kits similar to Scotchcast.

2.03 **TERMINATIONS**

- A. Compression set, bolted or screw terminal.
- B. Conductors #12 and smaller shall utilize eye or forked tongue type compression set terminator when termination is to a bolted or screw set type terminal block or terminal cabinet.

2.04 **PLASTIC CABLE TIES**

- A. Nylon or Equivalent, locking type.

PART 3 - EXECUTION

3.01 **GENERAL**

- A. Install all wiring in Raceway unless shown or specifically authorized otherwise.

3.02 **WIRE SIZE**

- A. No. 12 AWG minimum for power and lighting circuits.
- B. Provide solid wire for No. 10 AWG and smaller, and stranded conductors for No. 8 AWG and larger (600) volts.

3.03 **TESTS**

- A. All circuits both in and out of the building shall test out free of grounds, short circuits and other defects.
- B. Feeders shall be checked to ensure all phases are energized before connecting to their respective motors.
- C. Provide certification of torque values for feeder and service entrance conductors per equipment manufacturer's recommendation.

3.04 **CONDUCTOR SIZES, REFERENCED ON PLANS**

- A. Copper, type THW or RHW unless noted.

3.05 **PULLING**

- A. Use no mechanical means for pulling No. 8 AWG conductors and smaller. Powdered soap stone or approved spray cream shall be the only lubricant used.

3.06 **STRIPPING INSULATION**

- A. Do not ring the cable, always pare or pencil.

3.07 **TAPING**

- A. If used shall be half lapped synthetic tape.

3.08 **CONDUCTORS IN PANELS AND SWITCHBOARDS**

- A. Conductors in panels, switchboards, and terminal cabinets shall be neatly grouped and formed in a manner to "Fan" into terminals with regular spacing.

3.09 **CABLE SUPPORTS**

- A. Provide conductor support devices as required by code in vertical cable runs.

3.10 **RACEWAY SIZES REFERENCED ON DRAWINGS**

- A. Raceways are sized for copper, type THW, unless otherwise noted. Size all Raceways per code unless specifically noted to be larger on the drawings.

END OF SECTION

SECTION 26 05 26
GROUNDING AND BONDING

PART 1 - GENERAL

1.01 **WORK INCLUDED**

- A. A grounding system shall be provided for neutral ground and equipment ground as required by code.

1.02 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 **GROUNDING CONDUCTORS**

- A. Copper, code size, with physical protection where subject to damage. Bare or green insulated.

PART 3 - EXECUTION

3.01 **GENERAL**

- A. Provide all grounding for electrical systems and equipment as required by codes and as specified herein.

3.02 **SIZE OF GROUND WIRE**

- A. As required by code. Where ground wire is exposed to physical damage or is used outside of building, protect with conduit.

3.03 **CONNECTION TO THE GROUND BUS**

- A. Provide connections in accordance with the codes; including but not limited to raceway systems, switchboard/panelboard frames, service neutral, separately derived systems, electrically operated equipment and devices. No device or equipment shall be connected for electrical service which has a neutral conductor connected to a grounding conductor or to the frame within the device or equipment.

3.04 **METHOD OF CONNECTION**

- A. Make all ground connections and ground cable splices by thermal welding. Grounding lugs, where provided as standard Manufacturer's items on equipment furnished, may be used.

3.05 **FLEXIBLE RACEWAY**

- A. Shall not be used for grounding. Install separate ground conductor in all flexible raceway.

3.06 **PVC RACEWAY**

- A. Install separate ground conductor in all PVC raceway as required per code.

END OF SECTION

SECTION 26 05 32
OUTLET AND PULL BOXES

PART 1 - GENERAL

1.01 **WORK INCLUDED**

- A. Provide outlet and pull boxes to enclose devices, permit the pulling of conductors and for wire splices and branches.

1.02 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 **INTERIOR WIRING**

- A. General: Outlet and pull boxes shall be pressed drawn steel, zinc coated with plaster ring where applicable. Welded boxes not allowed. Four-inch size minimum. Large pull boxes shall be fabricated sheet steel, zinc coated or baked enamel finish, with return flange and screw retained cover.
- B. Surface Metal Raceway: Boxes of same Manufacture and to match Raceway. Boxes to accommodate standard devices and device plate.
- C. Install pull boxes so as to be accessible after completion of building construction.
- D. Ceiling outlet boxes shall be galvanized octagonal 4 inch, 1-1/2-inch-deep (without fixture stud), 2-1/8 inches deep (with fixture stud).

PART 3 - EXECUTION

3.01 **ANCHORING**

- A. All boxes shall be firmly anchored directly or with concealed bracing to building studs or joints. Boxes must be so attached so that they will not "Rock" or "Shift" when devices are operated.

3.02 **FLUSH MOUNTING**

- A. Except for surface mounted boxes or boxes above accessible ceilings, all boxes shall have front edge (box or plaster ring) even with the finished surface of the wall or ceiling.

3.03 ELECTRICAL OUTLETS

- A. General: Coordinate the work of this section with the work of other sections and trades. Study all Drawings that form a part of this Contract and confer with various trades involved to eliminate conflicts between the work of this section and the work of other trades. Check and verify outlet locations indicated on Architectural Drawings, door swings, installation details, layouts of suspended ceilings and locations of all plumbing, heating and ventilating equipment.
- B. Centered on Built-In Work: In the case of doors, cabinets, recessed or similar features, or where outlets are centered between such features, such as between a door jamb and a cabinet, make these outlet locations exact. Relocate any outlets which are located off center.
- C. Vertical and Horizontal Relationships: Where more than one outlet is shown or specified to be at the same elevation or one above the other, align them exactly on centerlines horizontally or vertically. Relocate as directed all such outlets (including lighting, receptacle, power signal and thermostat outlets) which are not so installed, at no additional cost to Owner.
- D. Device Outlet Height: Measure from the finished floor.
- | | |
|-------------------------------------|---|
| *Switches | 4 Feet, Set Vertically, to Top of Box |
| *Receptacles, Telecommunications | 18 Inches, Set Vertically to Centerline |
| Other | As Noted or as Directed by Architect |
- * Heights may vary. See Drawings for additional information
- E. Ceiling Location: For acoustical material locate outlet either at the corner joint or in the center of a panel, whichever is closer to the normal spacing. Locate all outlets in the same room in the same panel location.

3.04 ELECTRICAL WORK IN COUNTERBACKS, MILLWORK AND CASEWORK

- A. Provide as shown and/or specified. Provide templates, where required, to other trades for drilling and cutting to insure accurate location of electrical fixtures (outlets and devices) as verified with the Architect. Provide all wiring, devices, plates and connections required by said fixture.

3.05 CONNECTION TO EQUIPMENT

- A. For equipment furnished under this or other Divisions of the Specifications, or by others. Provide outlet boxes of sizes and at locations necessary to serve such equipment. An outlet box is required if the equipment has pigtail wires for external connection, does not have space to accommodate circuit wiring used. Study equipment details to assure proper coordination.

3.06 **BLANK COVERS**

- A. Provide blank covers or plates over all boxes not covered by equipment.

3.07 **JUNCTION OR PULL BOXES**

- A. Pull and junction boxes shall be installed as shown, and to facilitate pulling of wire and to limit the number of bends within code requirements. Boxes shall be permanently accessible and shall be placed only at locations approved by the Architect.
- B. In suspended ceiling spaces, boxes shall be supported from the structure independently from ceiling suspension system.
- C. The Drawings do not necessarily show every pull or Junction Box required. The Contractor is permitted to provide boxes deemed necessary by him for his work when installed in accordance with these Specifications.

3.08 **NAMEPLATES**

- A. For all line voltage junction boxes, provide black legible writing indicating circuit numbering of all wiring in junction box.

END OF SECTION

SECTION 26 05 33
RACEWAY

PART 1 - GENERAL

1.01 **WORK INCLUDED**

- A. Provide Raceway System complete.

1.02 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

PART 2 - PRODUCTS

2.01 **GALVANIZED RIGID STEEL CONDUIT (GRS)**

- A. General: Hot dipped galvanized.
- B. Fittings: Galvanized malleable iron or noncorrosive alloy compatible with galvanized conduit. Erickson couplings, watertight split couplings (O.Z. type or equivalent) permitted. Running thread or set screw type fittings not approved.

2.02 **INTERMEDIATE METAL CONDUIT (IMC)**

- A. General: Hot Dipped galvanized.
- B. Fittings: Galvanized malleable iron or noncorrosive alloy compatible with galvanized conduit. Erickson couplings, watertight split couplings (O.Z. type or equivalent) permitted. Running thread or set screw type fittings not approved.

2.03 **ELECTRICAL METALLIC TUBING (EMT)**

- A. General: Hot dipped galvanized.
- B. Fittings: Raintight; steel or malleable iron type using a split corrugated compression ring and tightening nut or stainless-steel locking disc. Steel set screw fittings are acceptable for dry locations. Indenter, drive-on and pressure cast or die cast type set screw are not acceptable.

2.04 **FLEXIBLE METAL CONDUIT (FMC, LFMC)**

- A. Dry Locations:
 - 1. General: Galvanized flexible steel for dry locations only.
 - 2. Fittings: Malleable iron or steel, Thomas and Betts "squeeze" type or equal.
- B. Damp and Wet Locations:
 - 1. Liquid Tight: Polyvinyl chloride (PVC) weatherproof cover over flexible steel conduit.

2. Fittings: Thomas and Betts "liquid tight" or equal.

2.05 **SURFACE METAL RACEWAY**

- A. Formed steel or aluminum type. Standard factory finish. Where color choice is available, consult Architect/Engineer for selection prior to ordering.

2.06 **RIGID NON-METALLIC CONDUIT (PVC)**

- A. Schedule 40 rigid polyvinyl chloride type unless otherwise noted.

2.07 **RIGID ALUMINUM CONDUIT**

- A. Permitted only in specified locations.
B. Fittings copper free cast aluminum.

2.08 **STEEL TELE-POWER POLES**

- A. General: Steel, baked enamel
B. Fittings: A full complement of fittings for the power pole shall be available including, but not limited to, entrance end fitting for top of the electrical channel, ceiling trim plate, pole-mounting bracket, Velcro carpet gripper pad, and adhesive pad.

PART 3 - EXECUTION

3.01 **GENERAL**

- A. Install Raceway concealed in construction unless noted otherwise on the Drawings or specifically approved in writing by the Architect/Engineer.
B. Cut Raceway ends square, ream and extend maximum distance into all couplings and connectors.
C. Provide and install manufactured end caps on all Raceway ends during construction to prevent the entrance of water or dirt. Tape, as a cover, not permitted.
D. Swab out all Raceways before pulling wires.
E. All elbows for GRS and PVC Raceway shall be factory radius bends. For all other Raceway, use factory radius bends of 1-1/4" and larger diameter.
F. Raceway shall not penetrate sheet metal ducts unless permission is granted by Architect/Engineer. All sleeves shall be provided for Raceway installation.
G. Provide 2 - 3/4" C.O. stub into accessible ceiling space from all recessed panelboards or systems terminal boxes.

3.02 **GALVANIZED RIGID STEEL CONDUIT**

- A. All Connections shall be watertight. Install for all Raceways in concrete or where subject to damage.

3.03 INTERMEDIATE METAL CONDUIT

- A. Intermediate metal conduit is permitted as a substitute for galvanized rigid steel conduit except where GRS is required by code.

3.04 ELECTRICAL METALLIC TUBING

- A. Install for wiring in masonry, frame construction, furred ceilings and above suspended ceilings. May be used for exposed work in unfinished areas where not subject to damage. Where construction involves masonry work, surface cut masonry units wherever such masonry units are to remain unplastered or uncovered in complete construction.

3.05 RIGID ALUMINUM CONDUIT

- A. May be used in lieu of galvanized rigid steel conduit where Raceway is run above grade or inside of buildings; rigid aluminum conduit not permitted where Raceways are encased in or attached to concrete or are below grade.

3.06 SEALING OF RACEWAYS

- A. Seal interior of all Raceways which pass through buildings roofs, floors or through outside walls of the building, above or below grade. Seal on the end inside the building using duct sealing mastic, non-hardening compound type, specially designed for such service to maintain the integrity of the seal of the wall, floor or roof. Pack around the wires in the Raceways.

3.07 HANGERS FOR RACEWAYS

- A. In suspended ceiling spaces Contractor may, at his option, attach 1/2" or 3/4" EMT Raceways to the ceiling suspension system where such system is structurally suitable on independent wire secured at both ends; in which case, provide clips manufactured for the purpose.
- B. When more than two Raceways will use the same routing, group together on a patented channel support system (such as Unistrut).

3.08 SURFACE METAL RACEWAY

- A. Install parallel to building surface (i.e., wall, ceiling, floor). Fasten to surface as recommended by Manufacturer. Mount so Raceway is in the least obvious location. Shall be used in lieu of conduit in finished areas.

3.09 FLEXIBLE CONDUIT

- A. Flexible conduit shall be used **only** for connection to motors and equipment subject to vibration with 90 degrees loop minimum to allow for isolation and for lay-in fluorescent fixtures above T-Bar ceilings. For fixture installations, one end of flex must terminate in rough-in junction box. Flex conduit shall not be installed over 6' long or used to connect from fixture to fixture. Use liquid tight for pumps, equipment which is regularly washed down, and equipment in damp locations. Provide ground wire.

3.10 TELE-POWER POLE

- A. This specification covers tele-steel power pole systems used to extend branch circuit wiring and/or data network, voice, video, and other communication cabling to points of use as shown on the building plans. The tele-power pole system shall consist of the tele-power pole multi-outlet assembly, appropriate fittings and accessories to complete the installation per the electrical and/or communication drawings.
- B. The Tele-Power Pole Systems specified herein for extension of power branch circuit wiring and/or communication cabling services is based around The Wiremold Company. Alternate manufacturers will be considered approved equal with the written approval of the engineer that they meet all the performance standards specified herein.
- C. The tele-power pole channel shall be steel, ivory baked enamel finish with cross section of 30TP-4V — 3" x 2.75" with two separate compartments:
 - 1. One compartment is to be used for power conductors and able to fit NEMA 5-20R grounding type specification grade receptacles.
 - 2. The second compartment is to be for field installation of telephone or data network cabling. A 12" removable cover section in this compartment must be provided to assemble and mount communications connectors. This section must be removable without dismantling or removing the tele-power pole after installation. The cover section is to have four knockouts for modular voice-data jacks (RJ-type) and a 1.375" x 2.7" rectangular knockout for a modular furniture outlet. "Mouse hole" knockout with furnished grommet is to be included for straight through communication cable access.
- D. The tele-power pole shall be 10'-5" long.
- E. The tele-power poles must be UL Listed for field modifications, changes and additions of receptacles, devices and circuits. Field installed device plates shall be available to add duplex, single 1.40" and 1.59" dia., and rectangular-type receptacles. These plates must be ivory in color to match the tele-power pole.
 - 1. Add-on communication covers must be available to mount workstation device faceplates, inserts, and specialty mounting bezels. The tele-power pole manufacturer will provide a complete line of connectivity outlets and multi-media modular inserts for UTP, fiber optic, coaxial, and other cabling types.
 - 2. UTP inserts shall feature a unique recessed area for port labeling and shall be able to accommodate designation icon buttons or icon labels. Custom label capabilities shall be available using templates that can be downloaded from the Internet.

3.11 **PULL CORDS**

- A. Nylon type shall be included in all installed empty Raceway.

END OF SECTION

SECTION 26 05 34
METAL CLAD CABLE (TYPE MC) AND FITTINGS

PART 1 - GENERAL

1.01 **WORK INCLUDED**

- A. Provide Metal Clad (Type MC) Cable for power, control and lighting systems.
- B. Provide wiring connections and terminations.

1.02 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

1.03 **REGULATORY REQUIREMENTS**

- A. UL 1569. Products shall be tested, approved and labeled/listed by Underwriters Laboratories, Inc.

1.04 **USES PERMITTED**

- A. MC Cable is permitted to be used for 20amp lighting and power circuits where routing is above grade, concealed and the installation meets the requirements of NEC 330.
- B. MC Cable shall NOT be used for homerun circuits from the fixture, receptacle, or equipment to the panelboard. Hard conduit must be used from the panelboard to the nearest accessible ceiling space to the panelboard.

PART 2 - PRODUCTS

2.01 **CABLE ASSEMBLY**

- A. Metal clad cable assemblies shall consist of 2, 3 or 4 current carrying conductors and an equipment ground conductor.
- B. Conductors: Solid Copper conductor, No. 12 AWG minimum or No. 10 AWG maximum. Installation methods shall be as specified under Part 3 - Execution.
- C. Insulation: Conductor insulation shall be rated 600-volt, Type THHN, 90°C dry.
- D. Fillers: Fillers shall be non-hygroscopic and non-wicking.
- E. Binder: Core binder shall be corrugated polyester.
- F. Sheath: The metal sheath shall be galvanized steel or aluminum. The metal sheath shall be extruded onto the cable or applied longitudinally, then wrapped and welded. The sheath shall then be corrugated for greater flexibility.

- G. Jacketing: When PVC jacketing is required, the jacket shall be flame-retardant PVC with a temperature range of -40°C to 90°C.
- H. Equipment Grounding Conductor: The equipment ground wire shall be of the same construction as specified in 2.02.A and 2.02.B and be at a minimum the same size as the current carrying conductors. The insulation color shall be green.

2.02 FITTINGS

- A. Fittings shall be UL listed and identified for such use with metal clad continuous corrugated sheath cable, with or without PVC jacketing, as is appropriate for the installation.
- B. Connectors shall be of steel or malleable iron and shall be a squeeze type clamp connector with a locknut for non-jacketed metal clad cable. Compression gland type connectors shall be used for jacketed metal clad cable.

PART 3 - EXECUTION

3.01 INSTALLATION – POWER AND LIGHTING SYSTEMS WIRING

- A. All wiring shall be installed in compliance with the latest version of the National Electrical Code and all other applicable codes and standards as indicated elsewhere in these specifications.
- B. Use of metal clad cable shall be permitted only for lighting, equipment and receptacle branch circuits.
- C. Metal clad cable shall only be installed concealed within walls and above ceiling interstitial spaces. Where there is no ceiling interstitial space, metal clad cable may not be used.
- D. Bends in corrugated sheath metal clad cable shall be made so that the cable will not be damaged. The radius of the curve of the inner edge of any bend shall not be less than seven (7) times the diameter of the metallic sheath.
- E. Metal clad cable is not permitted to connect branch circuits to fume hoods, gas storage cabinets, or chemical storage cabinets.
- F. No metal clad cable shall be installed in ventilation ducts or plenums.
- G. Conductors in Enclosures: Provide neat and workmanlike installation with conductors tied with T&B Ty-Rap, Virginia Plastics, or equal, nylon wire ties in terminal cabinets, gutters and similar locations.

3.02 FITTINGS

- A. Fittings used for connecting metal clad cable to boxes, light fixtures or other equipment shall be UL listed and identified for such use.

- B. Cable preparation for installation of fittings shall follow manufacturer's instructions. The manufacturer's specialized tools shall be used for preparing cable ends for installation of fittings.
- C. The cable end shall be cut square to ensure flush seating of the cable into the fitting. Fitting securement screws shall be properly torqued. Cable ends shall be fitted with insulating bushings intended for the type of metal clad cable being installed.
- D. For jacketed metal clad cable, the outer jacket shall be removed to the length specified by the fitting manufacturer's instructions. Remove oils or solvent by-products from the outer jacket of the cable. The cable end shall be cut square to ensure flush seating of the cable into the fitting. The fitting gland nut shall be properly torqued to the manufacturer's specifications.

3.03 ARRANGEMENT AND SUPPORT

- A. Metal clad cables shall be run parallel with walls or structural elements. Vertical runs shall be plumb; horizontal runs level and parallel with structure, as appropriate. Groups shall be racked together neatly with both straight runs and bends parallel and uniformly spaced.
- B. Metal clad cables shall be securely fastened in place at intervals of not more than six feet, with suitable clamps or fasteners of approved type, and all vertical conduits shall be properly supported to present a mechanically rigid and secure installation.
- C. Metal clad cable installed parallel to framing members, such as studs, joist, or rafters, shall be supported so that the nearest outside surface of the cable is not less than 1-1/4 inches from the nearest edge of the framing member. Where this distance cannot be maintained, the cable shall be protected by a steel plate, sleeve, or equivalent that is at least 1/16-inch thick.
- D. Maintain at least 6-inch clearance between metal clad cables and other piping systems. Maintain 12-inch clearance between metal clad cables and heat sources such as flues, steam pipes, and heating appliances.
- E. No metal clad cable shall be fastened to other conduits or pipes or installed so as to prevent the ready removal of other pipes or ducts for repairs.
- F. Individual metal clad cables hung from roof structure or structural ceiling shall be supported by split-ring hangers and wrought-iron hanger rods. Where three (3) or more metal clad cables are suspended from the ceiling in parallel runs, use steel channels, Kindorf, Unistrut or equal, hung from 1/2-inch rods to support the conduits. The conduit on these channels shall be held in place with metal clad cable clamps designed for the particular channel that is used.

- G. Secure metal clad cable support racks to concrete walls and ceilings by means of cast-in-place anchors; die-cast, rustproof alloy expansion shields; or cast flush anchors. Wooden plugs, plastic inserts, or gunpowder driven inserts shall not be used as a base to secure conduit supports.
- H. Metal clad cable shall be supported immediately on each side of a bend and not more than one (1) foot from an enclosure where a run of metal clad cable ends.
- I. Use of cable tray:
 - 1. The sum of the cross-sectional areas of all cables shall not exceed the maximum allowable cable fill area allowed by NEC Tables 392.9, 392.9(E) and 392.9(F).
 - 2. Cables shall be installed in a single layer with a maintained spacing of not less than one cable diameter between cables.
 - 3. Ampacity of cables installed in cable tray shall meet the requirements of NEC 392.11.

3.04 INSPECTION AND TESTS

- A. General: The electrical installation shall be inspected and tested to ensure safety to building occupants and operating personnel and conformity to Code
- B. Measure and record insulation resistance of all power and control wiring including insulation resistance of all equipment:
 - 1. The insulation resistance of each circuit phase-to-phase and phase-to-ground shall be measured. For circuits rated less than 600 volts, the resistance shall not be less than 2 megohms.

END OF SECTION

SECTION 26 24 16
PANELBOARDS

PART 1 - GENERAL

1.01 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

1.02 **WORK INCLUDED**

- A. Provide all panelboard equipment, complete; dead front type.

PART 2 - PRODUCTS

2.01 **PANELBOARD TYPE**

- A. Panelboards shall be rated at proper voltage and current for intended use with busbars of copper or aluminum. Panels shall be 3-phase, 4-wire, 100% neutral, unless noted otherwise. Where aluminum is utilized, all lugs shall be of an approved compression type. Provide multiple lugs where conductors in parallel or "feed through" are shown on the Drawings.
- B. Conductor Connectors shall be bolted to busbars using Grade 5 bolts and Belleville washers. Feeder conductor connectors shall be rated for 75 Degree C. wire when 75 Degree C. wire is indicated. Where aluminum conductors are utilized for feeders or branch circuits the connectors shall conform with Section 26 05 19.
- C. Panelboards shall have a separate ground bus bonded to the panelboard frame.
- D. Where 120-Volt, 15- or 20-Amp breakers are intended for switching loads they shall be of type rated for switching duty labeled "SWD."

2.02 **ACCEPTABLE MANUFACTURERS**

- A. General Electric
- B. Square-D
- C. Siemens
- D. Cutler-Hammer

2.03 **CIRCUIT BREAKERS**

- A. The following interrupting capacity, 10,000 AIC Symmetrical shall be considered minimum. Other ratings shall be as specified on panel schedules shown on the Drawings. Series rating of breakers is not allowed.
- B. Mount breakers in all panelboards so that breaker handles operate in a horizontal plane. Bolt in type only. Provide common trip on all multiple pole breakers.

- C. Where noted, provide spare breakers, complete for future connection of wiring circuits. Where "Space" is indicated for breakers, provide all bussing and breaker mounting hardware in the panelboard, provide steel knockouts in dead front metal closure of unused part of panel. If any steel knockouts are removed, provide breakers in such spaces or approved coverplates. Open spaces are not permitted.
- D. For multi-wire branch circuits, provide approved breaker handle ties where required by NEC 210.4.

2.04 CABINET FOR EACH PANELBOARD

- A. Flush or surface, as indicated; tight closing doors without play, when latched. Where two cabinets are located adjacent to each other in finished areas, provide matching trim of the same height. Where a remote-controlled switch or contactor is mounted in any panelboard, mount on same frame as panelboard interior with screw retained access door in dead front shield; common door over circuit breakers and remote-controlled device. Where flush mounted, provide (2) 3/4" conduits to accessible ceiling space for future expansion.
- B. All conduits for future expansion shall stub into a junction box, where located above grade, and shall be sealed in the panel.
- C. Provide cabinets of sufficient dimensions to allow for future expansion and addition of circuit breakers within the panelboards as indicated on panel schedules.
- D. Provide lock for each cabinet door. All Electrical Distribution Equipment Locks shall be keyed identically. Key system shall match existing. Supply Owner with minimum six keys.
- E. Fasten panelboard front with machine screws with oval counter-sunk heads, finish hardware quality, with escutcheons or approved trim clamps. Clamps accessible only when dead front door is open are acceptable. Surface mounted panelboards with fronts greater than 48 inches vertical dimension shall be hinged at right side in addition to hinged door over dead front.
- F. Finish: Provide factory prime coat for cabinets to be located in finished areas. Where cabinets are located in unfinished areas, standard lacquer or enamel finish, gray or blue-gray color, shall be substituted for factory prime coat.

2.05 SYSTEM OF NUMBERING AND BUS ARRANGEMENT

- A. Shall be as shown on the Panel Schedules on the Drawings.

2.06 PANELBOARD NAMEPLATE

- A. Provide engraved and filled (or color layer - engraved through outer layer) plastic nameplate with ½-inch high characters (for panel name); attached with screws to each NEMA 1 panelboard front. White on black, include voltage, phases, wires and minimum A.I.C. Rating in 3/8-inch characters.
- B. Nameplate color shall be:
 - 1. Normal System: White letters on black

PART 3 - EXECUTION

3.01 MOUNTING

- A. Secure in place with top of cabinet at 6'-0", unless otherwise noted. Top of cabinet and trim shall be level. Firmly anchor cabinets directly or with concealed bracing to Building Structure. When panels are not located in or directly on a wall, provide a support frame of formed steel channel which is anchored to the floor and Ceiling Structure. Interiors shall not be installed until Structure is totally enclosed. Where panels are mounted adjacent to each other, the top edges shall be at the same height.

3.02 CIRCUIT INDEX

- A. For each branch circuit panelboard provide a typewritten index listing each circuit in the panelboard by number with its proper load designation. Mount with a transparent protective cover inside cabinet door. Listing shall match circuit breaker arrangements, typically with odd numbers on the left and even numbers on the right. Room numbers used shall be final room numbers used in the building as verified with the Owner, and not room number assigned on Plans.

3.03 CABINET PAINTING

- A. Cabinets furnished as prime painting shall be field painted to match color of adjacent wall. (See Division - Painting).

3.04 SPACE

- A. Verify space available with equipment sizes and Code Required Working Clearances prior to Submittal of Shop Drawings.

3.05 GROUNDING

- A. Provide separate ground busbar for all panels supplying isolated ground circuits.

3.06 FEED THROUGH AND DOUBLE LUGS

- A. Provide feed through or double lugs with amperage equal to the incoming feeder amperage unless shown as larger.

END OF SECTION

SECTION 26 27 26
SWITCHES AND RECEPTACLES

PART 1 - GENERAL

1.01 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

1.02 **WORK INCLUDED**

- A. Provide all wiring devices and plates.
- B. No push-in, friction, spring type terminals allowed.
- C. All devices color shall be white, unless otherwise noted.

PART 2 - PRODUCTS

2.01 **ACCEPTABLE MANUFACTURERS**

- A. Hubbell
- B. Pass & Seymour
- C. Leviton
- D. Cooper

2.02 **SWITCHES**

- A. "Industrial Specification Grade", quiet type, rated 277-volt, 20 amp, unless noted, with plastic handle. Single pole, double pole, 3-way, or locking type as required. Meets Fed. Spec. WS-896 Provide matching styles and colors in other devices as required for the conditions of installation. Hubbell CS1221, Cooper CSB120, Leviton 1221, and P&S 20AC1
- B. Interchangeable type shall be rated same as above.
- C. Motor rated switches: Switches serving as motor disconnecting means shall be horsepower rated with overload relays and meet requirements as stated above. See manual starters in Section 26 24 19, 'Motor Controllers'.
- D. Device plates shall be Hubbell and Cooper Type 302 stainless steel.

2.03 **RECEPTACLES**

- A. "Industrial Specification Grade", Duplex NEMA 5-20R configuration (20-Amp, 120-Volt) unless shown otherwise. Must have "rivetless ground" contact manufactured as an integral component of the external ground screw terminal. Meets Fed Spec. WC-596 Hubbell HBL5362, Cooper 5362, P&S 5362A, and Leviton 5362.

- B. Ground-Fault Circuit-Interrupter Duplex Receptacles: NEMA 5-20R. Hubbell GF20ILA, and Cooper VGF20, for 20 Amp, 125-Volt AC. Provide GFI receptacles where required by code.
- C. Weather Resistant (WR) / Ground Fault Circuit-Interrupter (GFCI) Outdoor Duplex Receptacles: NEMA 5-20R. Hubbell GFTR201 or equal, for 20 Amp, 125-Volt AC.
- D. Special Purpose Receptacles: For special purpose receptacles, see drawings for voltage, amperage, and phase. Provide with matching plug delivered to the Owner.

2.04 **DEVICE PLATES**

- A. Interior: Plates for receptacles other than NEMA 5-20R shall have ampere rating, voltage and phase engraved in the plate. Plates for recessed boxes shall be Hubbell and Cooper Type 302 stainless steel. Attachment screws shall match finish of plate. Plates for surface mounted boxes shall be of pressed stainless steel with size to fit exactly the box used.
- B. Exterior: Intermatic # WP1010MC, for vertical mount and # WP1010HMC for horizontal mount, or equivalent for receptacles. Metal cover shall be raintight while-in-use.

2.05 **MULTIOUTLET ASSEMBLY (WHEN SHOWN)**

- A. Provide assemblies complete, including necessary fittings and hardware with circuits as indicated on Plans and outlet spacing as indicated. All assemblies shall contain ground wire. Wiremold or equal.

PART 3 - EXECUTION

3.01 **MOUNTING**

- A. Rigidly fasten each device to the outlet box at proper position with the wall to bring receptacle flush with plate or switch handle the proper distance through the plate.

3.02 **ORIENTATION**

- A. Set Switches vertical with handle operating vertically, up position "ON".
- B. Set Receptacles vertical with ground slot down.

3.03 **DEVICE PLATES**

- A. Shall be stainless steel for each new wiring device and for each telephone and signal equipment outlet, except where equipment mounted thereon covers the outlet box completely.
- B. Provide new covers on existing outlet boxes being reused.

3.04 **RECEPTACLE GROUNDING**

- A. Provide bare bonding wire between receptacle grounding terminal and box. Plaster ear screws connecting frame to the box will not be acceptable for grounding.
- B. Provide green insulated grounding conductor in all branch circuits supplying isolated ground and ground-fault circuit-interrupter type receptacles.

3.05 **AMERICANS WITH DISABILITY ACCESS**

- A. Comply with all requirements of Washington State Americans with Disability and NEC 2014 codes.

END OF SECTION

SECTION 26 28 13
FUSES

PART 1 - GENERAL

1.01 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

1.02 **WORK INCLUDED**

- A. Provide all fuses as required. Provide three (3) spare of each size and type required. Fuses shall not be installed until equipment is ready to be energized. This measure prevents fuse damage during shipment of the equipment from the manufacturer to the jobsite or from water that may contact the fuse before the equipment is installed. Final tests and inspections shall be made prior to energization of the equipment. This shall include a thorough cleaning, tightening, and review of all electrical connections and inspection of all grounding conductors. All fuses shall be furnished by the Electrical Contractor. All fuses shall be of the same manufacturer.

PART 2 - PRODUCTS

2.01 **MAINS, FEEDERS, AND BRANCH CIRCUITS**

- A. Circuits 0 to 600 amperes shall be protected by current limiting BUSSMANN LOW-PEAK Dual-Element Fuses LPN-RK (250 volts) or LPS-RK (600 volts). All dual-element fuses shall have separate overload and short-circuit elements. Fuse shall incorporate a spring activated thermal overload element having a 284°F. melting point alloy and shall be independent of the short-circuit clearing chamber. The fuse must hold 500% of rated current for a minimum of 10 seconds and be listed by Underwriters Laboratories, Inc., with an interrupting rating of 200,000 amperes r.m.s. symmetrical. The fuses shall be UL Class RK1 to maintain the Engineered protection of the system components.
- B. Motor Circuits: All individual motor circuits with full load amperes ratings (FLA) of 480 amperes or less shall be protected by BUSSMANN LOW-PEAK Dual-Element Fuses LPN-RK (250 volts) or LPS-RK (600 volts). Larger H.P. motors shall be protected by BUSSMANN Type KRP-C Low-Peak Time-Delay Fuses of the ratings shown on the drawings. All other motors, (such as 1.0 service factor motors) shall be protected by BUSSMANN LOW-PEAK Dual-Element Fuses LPN-RK (250 volts) or LPS-RK (600 volts) installed in ratings of approximately 115% of the motor full load current except as noted above. The fuses shall be UL Class RK1 Dual Element Time Delay or Class L.

2.02 **ACCEPTABLE MANUFACTURERS**

- A. Bussman
- B. Little Fuse

PART 3 - EXECUTION

3.01 **FUSES**

- A. Install in all fusible devices provided under this Contract.

END OF SECTION

SECTION 26 28 16
DISCONNECTS AND FUSED SWITCHES

PART 1 - GENERAL

1.01 **RELATED DOCUMENTS**

- A. Section 26 00 00 – Electrical General Conditions

1.02 **WORK INCLUDED**

- A. Provided all disconnects, fused and unfused, required by code for equipment furnished under this and other divisions of these specifications and as shown on the drawings.

PART 2 - PRODUCTS

2.01 **ACCEPTABLE MANUFACTURERS**

- A. General Electric
- B. Square-D
- C. Siemens
- D. Cutler-Hammer

2.02 **DISCONNECTS**

- A. Switch shall be heavy-duty type, shall be quick-break and shall be horsepower rated. Switch shall have blades as required to open all ungrounded conductors and shall be single throw unless noted.
- B. Enclosure shall have interlocking cover to prevent opening door when switch is closed. Door interlock shall include a defeating scheme, shall be padlockable in the "Off" position.
- C. Enclosure shall be suitable for environment in which mounted. All exterior enclosures shall have a minimum raintight rating.

2.03 **FUSED SWITCHES (OR FUSED DISCONNECTS)**

- A. Shall be as above with addition of fuse space and clips to accept only fuses as noted in Section 26 28 13.
- B. Fuses shall be sized in accordance with manufacturer's requirements of protected equipment.

2.04 **NAMEPLATES**

- A. Provide nameplates on all enclosures and include the following information: Load served, voltage, phase, panel and circuit number. Construct and attach in accordance with Section 26 00 00, Paragraph 2.05.

PART 3 - EXECUTION

3.01 **SUPPORTS**

- A. Secure solidly to wall or approved mounting frame. Disconnects supported only by Raceway are not acceptable.

3.02 **SPLICES**

- A. Wiring space within enclosure shall not be used as a junction box.

3.03 **INSTALLATION**

- A. All material installation shall be in accordance with manufacturers' recommendations and the provisions of applicable codes.
- B. Fuses shall not be installed until equipment is ready to be energized.

END OF SECTION