ADDENDUM NO. 1 - OUTLINE AND SUMMARY INFORMATION

Project Name: Barnard Hall Lobby Removation  
Location: Montana State University  
Owner: State of Montana  

PPA No.: 16-0131  
Date: 4/5/2017  

To: All Plan Holders of Record  

The Plans and Specification prepared by COMMA-Q ARCHITECTRE, INC dated April 8, 2017 shall be clarified and added as follow. The bidder proposes to perform all the following clarifications or changes. It is understood that the Base Bid shall include any modification of Work or Additional Work that may be required by reason of the following change or clarifications.

The Bidders are to acknowledge the receipt of this Addendum by inserting its number and date into their Bid Forms. Failure to acknowledge may subject the Bidder to disqualification and rejection of the bid. This Addendum forms part of the Contract Documents as if bound therein and modifies them as follows:

I. PRIOR APPROVALS
   A. No items

II. AMENDMENTS TO THE PROJECT MANUAL
   A. Table of Contents – Add the following Specification Sections (attached):
      Escutcheons for fire-suppression piping………………………………………………21 05 18
      Identification for fire-suppression piping and equipment…………………………21 05 53
   B. SECTION 02 21 00 Selective Demolition – At Item 1.07 SCHEUDLING DELETE item A entirely.
   C. SECTION 04 31 00 Precast Structural Concrete –at: Paragraph 2.8 Accessories ADD:
      B. Cast Iron Nosing:
         1. Leg Dimensions: ¼” x 2”
         2. Concealed integral cast anchor.
         3. Plain Surface.
         4. Basis of Design: Gratings Pacific “SuperTread C-01”
   D. SECTION 05 50 00 Metal Fabrications – At Item 2.03 STEEL FINISHES ADD the following:
      C. Loose Lintels in exterior walls to be hot dipped galvanized per ASTM A123/A123M.
   E. SECTION 06 20 00 Finish Carpentry is numbered incorrectly. CHANGE specification number to read 06 20 00.
F. SECTION 06 41 00 Architectural Wood Casework is numbered incorrectly. CHANGE specification number to read 06 41 00.

G. SECTION 06 60 00 Plastic Fabrications – At Item 2.01 MANUFACTURERS ADD the following:
   B. Other Manufacturers: Submit Substitution Requests prior to bid date in accordance with Division 1 Section "Product Requirements."

H. SECTION 08 63 00 Metal Framed Skylights – At Item 2.01-A Manufacturer ADD the following:
   2. Other Manufacturers: Submit Substitution Requests prior to bid date in accordance with Division 1 Section "Product Requirements."

I. SECTION 08 71 00 Door Hardware - REPLACE the entire section with the attached Section 08 71 00 Door Hardware

J. SECTION 09 65 00 Resilient Tile Flooring – At Item 2.02 SOLID VINYL FLOOR TILE ADD the following:
   C. Other Manufacturers: Submit Substitution Requests prior to bid date in accordance with Division 1 Section "Product Requirements."

K. SECTION 09 65 00 Resilient Tile Flooring – At Item 2.03 FLOOR TILE INSTALLATION MATERIALS ADD the following:
   F. Other Manufacturers: Submit Substitution Requests prior to bid date in accordance with Division 1 Section "Product Requirements."

L. SECTION 09 68 00 Carpeting – At Item 2.01 SECTION INCLUDES DELETE item B entirely.

M. SECTION 12 48 00 Entrance Mats and Frames – REVISE Part 2 entirely to read:
   2.01 MANUFACTURERS
      A. Replace existing floor mat with matching floor mat from same manufacturer.
         1. CS Construction Specialties “PediMat”.
   2.02 FLOOR GRIDS
      A. Replace floor mat only. Existing recessed frame to remain.
         1. Provide Heavy Duty Carpet insert.
         2. Color to be Selected from Manufacture’s Standard Colors.

N. SECTION 21 13 13 Fire Sprinkler System - ADD the entire Section 211313 Fire Sprinkler System to the project manual.

III. AMENDMENTS TO THE DRAWINGS

A. SHEET A0.1 COVER SHEET - At Project Information REVISE item titled “USER” to read:

   AGENCY
   MONTANA STATE UNIVERSITY
   BARNARD HALL 139
   BOZEMAN, MT 59715
   BILL MACKIN, PROJECT MANAGER
   (406) 991-6326
   bmackin@montana.edu
B. **SHEET AD0.1** ARCH. DEMOLITION PLANS - Floor mounted hold opens associated with HM doors in north wall of lobby to be demolished. At 1/AD0.1 Level 1 – Demolition Plan DELETE note reading:

**FLOOR MOUNTED HOLD OPEN TO REMAIN**

C. **SHEET A2.1** ARCH. FLOOR PLANS - AT 1/2.1 Level 1 – Floor Plan CHANGE note reading:

**(E) AREA OF REFUGE COMMUNICATIONS TO BE REMOVED, PATCH BRICK**

**TO READ:**

**(E) AREA OF REFUGE COMMUNICATIONS TO BE REMOVED, INSTALL COVER PLATE, SED**

D. **SHEET A2.1** ARCH. FLOOR PLANS - At Room Finish Schedule, Vestibule 101 Floor Finish CHANGE note to read:

**RF-1, REPLACE INSERTS IN WALK OF MATS**

E. **SHEET A3.1** ARCH. REFLECTED CEILING PLANS - ADD Detail 8/A3.1 per the attached SKA 002 – Additional Information at WD-1 Ceiling.

F. **SHEET A4.1** ARCH. EXTERIOR ELEVATIONS & DETAILS - REVISE Detail 3/A4.1 per the attached SKA 003 – Revision of Brick Veneer Details.

G. **SHEET A5.2** ARCH. LOBBY STAIR DETAILS - REVISE cast iron nosing profile at Details 1,5,&6 per SKA 001 - Stair Nosing Profile Revision.

H. **SHEET A5.3** ARCH. ENLARGED PLANS, INTERIOR ELEVATIONS & INTERIOR DETAILS - REVISE Detail 11/A5.3 per the attached SKA 004 – Additional Information at Acrylic Panel.

I. **SHEET A5.4** ARCH. ENLARGED PLANS, INTERIOR ELEVATIONS & INTERIOR DETAILS - At Details 15/A5.4 Head @ HM Door & 16/A5.4 Jamb @ HM Door, new HM jamb to be sized to extend ½” beyond the face of the existing wall on each side. REVISE dimension reading:

**MATCH WIDTH OF WALL**

**TO READ:**

**WIDTH OF WALL + ½”**

J. **SHEET S5.1** STRUCTURAL ENLARGED PLANS AND DETAILS Section 4 add the following note:

"Remove/Demo existing elements to provide a clean connection of the new stair stringers to the existing beam per detail 6/S5.1. Contractor to field verify connection condition and notify Engineer/Architect of any discrepancies."

K. **SHEET E0.2** ELECTRICAL SCHEDULES & DETAILS - At Luminaire Schedule, Type W1, eliminate all information and identify fixture as NOT USED.

L. **SHEET E2.1** ELECTRICAL LIGHTING PLANS - At Key Notes, REVISE Note 1 to read:

**NOT USED**

M. **SHEET E2.1** ELECTRICAL LIGHTING PLANS - At Key Notes, REVISE Note 2 to read:
BUILT-IN LIGHTING IN STUDY BAR PROVIDED BY ACRYIC PANEL MANUFACTURER – SEE ARCHITECTURAL FOR DETAILS. PROVIDE POWER AND CONTROL CONNECTION AS SHOWN.

N. SHEET E2.1 ELECTRICAL LIGHTING PLANS - At Level 1 Lighting Plan, DELETE ALL Type W1 fixtures.

IV. GENERAL INFORMATION
   A. No items

V. ATTACHMENTS
   A. Project Manual Sections:
      08 71 00 Door Hardware
      21 05 18 Escutcheons for fire-suppression piping
      21 05 53 Identification for fire-suppression piping and equipment
      21 13 13 Fire Suppression Systems
   B. SKA 001 - Stair Nosing Profile Revision
   C. SKA 002 – Additional Information at WD-1 Ceiling
   D. SKA 003 – Revision of Brick Veneer Details
   E. SKA 004 – Additional Information at Acrylic Panel
08 OPENINGS
08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY
A. Section Includes
1. Finish hardware for doors as scheduled and specified herein, including:
   a. Mechanical hardware for swinging doors.
2. Electro-mechanical devices and access control components as specified herein.
B. Related Sections
1. Provide hardware complying with division 01 section "references" as well as the following
   publications to the extent referenced within this specification.
   a. Division 06 Section: "Finish Carpentry"
   b. Division 08 Section: "Hollow Metal Doors and Frames"
   c. Division 08 Section: "Aluminum-Framed Entrances and Storefronts"
   d. Division 28 Section: "Access Control"
   e. Division 28 Section: "Fire Detection and Alarm Interfaces"

1.02 REFERENCED STANDARDS
A. Provide hardware in accordance with the following standards in addition to those specified in Division 01
   Section "References."
   1. American National Standards Institute (ANSI), A117.1: Accessible and Usable Buildings and
      Facilities, edition as adopted by local Authority Having Jurisdiction (AHJ).
   2. Builders Hardware Manufacturer’s Association (BHMA)
      a. ANSI/BHMA A156.15: Release Devices – Closer Holder, Electromagnetic, and
         Electromechanical, 2011 edition
      b. ANSI/BHMA A156.18: Materials and Finishes, 2006 edition
   3. Door and Hardware Institute (DHI)
      a. Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames,
         2004 edition
   4. National Fire Protection Association (NFPA)
      a. NFPA 80: Standard for Fire Doors and Other Opening Protectives, edition as adopted by local
         AHJ.
      b. NFPA 105: Standard for the Installation of Smoke Door Assemblies and Other Opening
         Protectives, edition as adopted by local AHJ.
         AHJ.

1.03 ADMINISTRATIVE REQUIREMENTS
A. Coordination
1. Coordinate layout, templating, and installation of work with other sections as required. Provide
   templates, product information, schedules, and diagrams required to fully coordinate the work.
   a. Coordinate blocking for wall stops and other surface-applied hardware with Division 06
      Section "Rough Carpentry."
   b. Coordinate hardware locations and templating with the appropriate Division 08 door and frame
      sections.
   c. Coordinate conduit, raceways, wiring, and connection as required for electrical and pneumatic
      hardware items with the appropriate electrical, access control, intrusion detection, and fire
      alarm sections.
   d. Fire Rated Openings: Coordinate with door and frame manufacturer to ensure that total
      opening complies with requirements for fire doors.
B. Pre-installation Meetings
1. Upon approval of hardware schedule and wiring diagram submittals and before hardware installation,
   conduct a pre-installation meeting complying with Division 01 Section "Project Management and
   Coordination."
2. Meeting attendees shall include the owner’s representative, architect, contractor, hardware supplier, hardware installer, other affected trades, and manufacturer representative(s) for locks, exit hardware, operators, and closers.

3. Discuss the installation of continuous hinges, locksets, door closers, exit devices, electromechanical finish hardware, and finish hardware. Coordinate installation between trades.
   a. Discuss special installation requirements.
   b. Inspect and discuss electrical rough-in and other preparatory work performed by other trades.
   c. Review sequence of operation for each electrified door opening.
   d. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   e. Review required testing, inspecting, and certifying procedures

4. At the meeting, distribute installation manuals, templates, wiring diagrams, and approved hardware schedule submittals to each attendee.

5. Notify participants at least five (5) working days before meeting.

C. Keying Conference

1. Upon approval of hardware schedule and before ordering locking hardware and key system, conduct a keying meeting complying with Division 01 Section “Project Management and Coordination.”

2. Meeting attendees shall include the owner, owner’s security consultant, construction manager, contractor, architect, and hardware supplier’s Architectural Hardware Consultant.

3. Discuss key system requirements and incorporate decisions made during the meeting into the keying schedule submittal.
   a. Review each locking function and determine degree of security required at each opening.
   b. Review function of building, flow of traffic, and purpose of each area.
   c. Determine degree of security at each opening.
   d. Determine requirements for future expansion.
   e. Discuss requirements for shipping and delivery of keys and cylinders/cores.
   f. Discuss requirements to interface new cylinders/cores with owner’s existing key system.

1.04 SUBMITTALS

A. General

1. Provide submittals in accordance with Division 01 Section “Submittal Procedures.”

2. Advise architect within the submittal package of incompatibility or issues which may detrimentally affect the work of this section.

3. Submittals shall be prepared by or under the supervision of Architectural Hardware Consultant. Stamp submittals with the DHI certification seal and signature of the supervising Architectural Hardware Consultant.
   a. Submittals submitted without the above certification seal shall be marked incomplete and returned.

4. Submittal sequence: Submit product data, hardware schedule, samples, and qualification data concurrently. Coordinate submission of finish hardware schedule with scheduling requirements of other work to facilitate the fabrication of other work that is critical in project construction schedule. Upon approval of first submittal package, submit wiring diagrams and key schedule.

B. Product Data

1. Submit manufacturer’s technical product data for each item of finish hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.

2. Highlight relevant product information such as model, function, trim, finish, options, electrical requirements, and accessories.

C. Hardware Schedule

1. Submit hardware schedule detailing fabrication and assembly of finish hardware, as well as procedures and diagrams. Coordinate the final finish hardware sets with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of finish hardware.

2. Check specified hardware for suitability and adaptability to details and surrounding conditions. Indicate unsuitable or incompatible items and proposed substitutions.
   a. Format schedule complying with the vertical format in DHI's "Sequence and Format for the Hardware Schedule" publication. Double space entries, and number and date each page. Use same scheduling sequence and door numbers as in the Contract Documents
   b. Include the following information:
1) Numerical door index indicating door number, heading number, and architect's specified hardware set number.
2) Identification number, location, hand, fire rating and material of each door and frame.
3) Type, style, function, size, quantity, and finish of each finish hardware item. Include description and function of each lockset and exit device.
4) Complete designations of every item required for each door or opening including name and manufacturer.
5) Fastenings and other pertinent information.
   a) Where universal-type closers are scheduled, indicate the application method to be used for installation at each door (e.g. regular arm, parallel arm, or top jamb).
6) Location of each finish hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
7) Explanation of abbreviations, symbols, and codes contained in schedule.
8) Mounting locations for finish hardware.
9) Door and frame sizes and materials.
10) Description of each electrified finish hardware function, including location, sequence of operation, and interface with other building control systems.
   a) Sequence of Operation: Include description of component functions that occur in the following situations: authorized person wants to enter; authorized person wants to exit; unauthorized person wants to enter; unauthorized person wants to exit; loss of power; fire alarm sounds.
11) List of related door devices specified in other Sections for each door and frame.

D. Keying Schedule
1. Submit keying schedule detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations complying with DHI's "Keying Systems and Nomenclature" publication.

E. Shop Drawings
1. Submit details of electrified finish hardware, indicating the following:
   a. System schematic.
   b. Point-to-point wiring diagram.
   c. Riser diagram.
   d. Elevation of each door.
2. Detail interface between electrified finish hardware and fire alarm, access control, security building control system.
3. Operation Narrative: Describe the operation of doors controlled by electrified finish hardware.
4. Include specific cable requirements; indicate twisted, shielded, and plenum rated cable requirements where required by manufacture or relevant building codes and standards.

F. Manufacturer's Templates
1. After final approval of the hardware schedule, provide templates for doors, frames, and other work specified to be factory prepared for the installation of finish hardware. Check shop drawings of other work to ensure that adequate provisions are made for locating and installing finish hardware to comply with indicated requirements. Provide additional templates, template lists, hardware schedules, and product information to other trades upon request.

1.05 CLOSE OUT SUBMITTALS
A. General
1. Upon substantial completion, provide two (2) copies of the closeout submittals complying with Division 01 Section “Close Out Submittals.”

B. Operation And Maintenance Data
1. Provide operation and maintenance manuals that include the following for each hardware item:
   a. Project information including contact information for architect, contractor, supplier, installer, Architectural Hardware Consultant, and local representative of each hardware manufacturer
   b. Complete information on care, maintenance, adjustment, repair and replacement of parts, and preservation of finishes
   c. Product data, templates, installation information, service manual, and parts lists.
d. Copy of final hardware and keying schedules and wiring diagrams for each opening connected to either 120V or low voltage power. Edit schedules and diagrams to reflect “As installed” conditions.

C. Warranty Documentation
1. Provide information required for warranty service or replacement of each hardware item including:
   a. Warranty certificates from manufacturer stating warranty period and conditions, complying with warranty requirements specified herein.
   b. Copy of manufacturer’s order confirmation or original packing slip with manufacturer’s original order #, date of manufacture, and ship date.

1.06 QUALITY ASSURANCE
A. Qualifications
1. Supplier Qualifications: Supplier shall have documented experience in the supply of finish hardware for five (5) years or for three (3) prior projects similar in scope, size, and quality. Supplier shall have an Architectural Hardware Consultant, complying with the requirements specified herein, available to properly handle, detail, and service hardware in a satisfactory manner. Architectural Hardware Consultant shall be available during the course of the work to consult with contractor, architect, and owner about finish hardware and keying.
   a. Supplier shall be a certified direct distributor and be a full sales and service organization for the manufacturer(s) listed.
2. Installer Qualifications: Installer shall have documented experience in the installation of finish hardware for five (5) years or for three (3) prior projects similar in scope, size, and quality.
3. Manufacturer Sourcing Qualifications: Obtain each type of finish hardware (hinges, latch & locksets, exit devices, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.
   a. Provide electrified hardware from same manufacturer as mechanical finish hardware unless otherwise indicated. Manufacturer’s that perform electrical modifications that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction (AHJ) are acceptable.
4. Architectural Hardware Consultant Qualifications: A person who is certified by DHI as an Architectural Hardware Consultant (AHC) or Architectural Openings Consultant (AOC) and is enrolled in the DHI Continuing Education Program. Consultant shall be experienced in providing consulting services for finish hardware installations that are comparable in material, design, and extent indicated.

B. Fire Door Assemblies
1. Provide finish hardware for fire rated openings that complies with NFPA 80 and the requirements of the AHJ. Provide only items of finish hardware that are listed by a testing and inspecting agency acceptable to the AHJ for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with fire-rated door and frame labels.
   a. Where exit devices are required on fire rated doors (with supplementary marking on door label indicating “Fire Door to be Equipped with “Fire Exit Hardware”), provide label on exit device indicating “Fire Exit Hardware.”
   b. Provide proper latching hardware, non-flaming door closers, approved bearing type hinges, and required gasketing if not furnished with door or frame.

C. Smoke And Draft Control Door Assemblies
1. Where smoke and draft control door assemblies are required, provide finish hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

1.07 DELIVERY, STORAGE, AND HANDLING
A. Marking And Packaging
1. Package hardware items manufacturer’s standard packaging, clearly marked with hardware set number correlating to finish hardware schedule and architect’s door number.

B. Delivery And Acceptance
1. Coordinate with construction schedule and deliver packaged hardware items to place of installation (e.g. project site, fabrication shop). Upon delivery, inspect and inventory finish hardware. Immediately notify supplier of defective or missing items.
2. Deliver keys and cores to owner by registered mail or overnight package service. Ship keys separately from cores.
C. Storage And Handling
   1. Provide secure, dry storage area complying with Division 01 Section “Product Storage and Handling Requirements” for finish hardware delivered to the project site, but not yet installed. Store items on shelves or pallets to prevent damage.
   2. Control handling and installation of hardware items that are not immediately replaceable so that completion of work will not be delayed by hardware losses both before and after installation.

D. Packaging Waste Management
   1. Upon delivery and installation of finish hardware, discard packaging and other waste items in accord with Division 01 Section “Cleaning and Waste Management.”

1.08 EXISTING CONDITIONS
A. Where new hardware components are scheduled for application to existing construction or where modifications to existing finish hardware are required, field verify existing conditions and coordinate installation of finish hardware to suit opening conditions and to provide for proper operation.

1.09 WARRANTY
A. General Warranty
   1. Warrant finish hardware against defects in material and workmanship as set forth in Division 01 Section “Warranties.”
   2. Special warranties specified herein shall not deprive owner of other rights specified in the contract documents, but shall be in addition to, and run concurrent with, other warranty requirements.

B. Special Warranty
   1. Provide a written warranty, executed by the product manufacturer agreeing to repair or replace components of finish hardware that fail in materials or workmanship within the specified warranty period.
      a. Failures include, but are not limited to, the following:
         1) Structural failures including excessive deflection, cracking, or breakage.
         2) Faulty operation of operators and finish hardware.
         3) Deterioration of metals, metal finishes, and other materials beyond normal wear.
      b. Warranty Period: Two (2) years from date of Substantial Completion, except for:
         1) Exit Devices: Three (3) years
         2) Door Closers: Thirty (30) years
         3) Auto Operators: Two (2) years
         4) Electrified Hardware Items: One (1) year

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Substitutions submitted, no later than 10 business days prior to bid and complying with Division 01 Section “Substitutions” requirements will be reviewed for conformance to basis of design. Substitutions found in compliance will be approved by bid addendum.

2.02 MATERIALS
A. 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 for finish designations indicated.
   B. Provide hardware manufactured to conform to published templates generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.

2.03 FASTENERS
A. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Furnish stainless steel (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including “prepared for paint” surfaces to receive painted finish.
   B. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Use through bolts only as indicated in this section unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.
2.04 HINGES
A. Manufacturers that may be incorporated into the Work:
   1. Ives
   2. Stanley
   3. McKinney
B. Requirements:
   1. Screws: Provide Phillips flat-head screws complying with the following requirements:
      a. For metal doors and frames install machine screws into drilled and tapped holes.
      b. For wood doors and frames install wood screws.
      c. For fire-rated wood doors install #12 x 1-1/4-inch, threaded-to-the-head steel wood screws.
   2. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
      b. Interior Doors: Non-rising pins.
      c. Tips: Flat button and matching plug, finished to match leaves.
   3. Number of Hinges: At non-rated openings, provide two hinges for each door leaf 60 inches or less in height and one additional hinge for each 30 inches of additional height or portion thereof. At fire rated openings, provide no less than three ball bearing hinges for each door leaf 86 inches or less in height and one additional hinge for each 30 inches of additional height or portion thereof.
   4. Hinge Width: Where applied trim or closer templating require hinge widths wider than 4-1/2 inches, provide minimum width required. Otherwise, provide hinges 4-1/2 inches in width.
   5. Hinge Height: Provide hinges 5 inches in height where door leaf exceeds 3’0 in width or where door is a high-use door utilizing panic or push/pull hardware. Otherwise, provide hinges 4-1/2 inches in height.
   6. Hinge Weight: Provide heavy weight hinges where door leaf exceeds 3’0 in width, exterior doors, and at doors scheduled with swing clear hinges, panic hardware, push/pull hardware, edge guards, or armor plates. Otherwise provide standard weight hinges.

2.05 CONTINUOUS HINGES
A. Manufacturers that may be incorporated into the Work:
   1. Ives
   2. Select
   3. McKinney
B. Requirements:
   1. Geared Continuous Hinges: Shall utilize a single gear section for the door leaf and a separate gear section for the frame side of the door. Provide full mortise or surface applied hinge as scheduled in each set. Geared hinges are to be UL 10C tested and approved for 90 minutes.

2.06 OPERATING DOOR TRIM
A. Door Pulls
   1. Manufacturers that may be incorporated into the Work:
      a. Ives
      b. Rockwood
      c. Trimco
   2. Requirements:
      a. Offset Pull: Provide 10 inch center to center (CTC) pull with a 4 inch offset constructed of brass, bronze, or stainless steel with a diameter of 1 inch.

2.07 CYLINDERS AND KEYING
A. Products that may be incorporated into the Work:
   1. Match existing facility standard
B. Requirements:
   1. Existing Key System: Provide cylinders of quantity and type and with the appropriate cam/tailpiece to be compatible with the locking hardware provided. Provide cylinders, housings, and/or cores as required to match and integrate into existing facility’s key system.
   2. Temporary Construction Keying: Provide each cylinder with temporary keying during the construction period. At substantial completion, accompany the owner’s representative while voiding construction keying. Provide temporary construction keying to comply with the following:
      a. Keyed Temporary Cores: Provide interchangeable core compatible cylinders and levers with keyed construction cores during the construction period. Cores will remain property of the contractor and will be returned upon installation of owner’s permanent key system.
3. Keys: Provide cylinder manufacturer’s standard keys. Keys shall be shipped separate from cores directly to owner’s representative. For estimating purposes, provide keys in the following quantities:
   a. Construction Control Keys: 2 each
   b. Construction Change Keys: 2 each
   c. Permanent Control Keys: 2 each
   d. Permanent Change Keys: 2 per core

2.08 EXIT DEVICES
   A. Products that may be incorporated into the Work:
      1. Von Duprin: 33/99 Series
      2. Facility Standard
   B. Requirements:
      1. Device Construction:
         a. Exit device(s) shall have a mechanism case constructed of extruded aluminum or wrought stainless steel, base plates constructed of cold rolled or cast steel, push pad of extruded aluminum with stainless steel covering or wrought stainless steel, and end caps with flush mounted, sloped design. At full-glass doors, provide exit devices with no exposed fasteners or rivets visible through glass. Where required by stile width, provide narrow-stile type device.
         b. Latch return springs shall be compression type.
         c. Dogging Mechanism: where dogging or latch-retraction options are not specifically scheduled for non-fire rated doors, provide device with a hex-key activated hook-type dogging mechanism constructed of steel.
         d. Plastic or nylon used for the push pad, or parts in the dogging mechanism or latchbolt mechanism are unacceptable.
         e. Sound Dampening: Device shall be provided with factory-installed sound dampening materials.
         f. Provide device type, function, and trim style as indicated in hardware schedules.
      2. Where exit device(s) are provided for fire rated door, provide with fire listing and label indicating “Fire Exit Hardware.” If device is mounted on wood doors, provide screw nuts and bolts.
      3. Provide shim kits, filler plates, and other accessories as required for each opening.
      4. Unless otherwise indicated in the sets, provide device with roller-type strike.
      5. Where scheduled, provide removable mullions by same manufacturer as provided exit devices. Provide mullion stabilizers, key removable option, strike preps, and fire rating as indicated in sets.

2.09 MECHANICAL DOOR CLOSERS
   A. General:
      1. Valves: Closers shall have separate valves for latch speed, main speed, and back check. Valves shall be staked to prevent accidental removal. Internal Pressure Relief Valves (PRVs) are prohibited. Provide closers at exterior doors with “Advanced Variable Backcheck” for further protection from wind and abuse forces.
      2. Provide the appropriate closer body, handing, and brackets to mount closer inside the building on the least-public side of the door.
         a. Where closers are to be mounted parallel arm, provide with heavy duty, fully forged arms.
         b. Where closers are to be mounted regular arm and the opening can otherwise be opened to 180 degrees, provide closer with the appropriate special templating to allow 180 degree door swing. Where a special template is not available for 180 degree swing, provide closer arm with integrated stop.
      3. Integrated Stop Closer Arms: Where a closer with integrated stop is required, provide the appropriate closer and arm as follows:
         a. Parallel arm with spring-cushioned stop arm: Provide where door is otherwise able to open to 95 degrees and requires a parallel arm mount closer.
         b. Parallel arm with dead stop arm: Provide where door is obstructed from opening to 95 degrees and requires a parallel arm mount closer.
         c. Regular arm with push side surface-mounted overhead stop: Provide where door closer should mount on pull side of door.
      4. Provide closers with any special templates, brackets, plates, or other accessories required for interface with header, door, wall, and other hardware. Provide closers with screw packs containing thru-bolts, machine screws, and wood screws.
5. Closers shall be provided with all-weather fluid and shall not require readjustment from 120 degrees F to -30 degrees F. Fluid shall be non-flaming and shall not fuel door or floor covering fires. Upon request, provide data indicating thermal properties of fluid.

6. Closers shall close and latch door when adjusted to meet accessibility requirements for door opening force: 8.5 lbs at exterior doors, 5 lbs at interior doors, and 15 lbs at labeled fire doors.

B. Heavy Duty Door Closers:
   1. Products that may be incorporated into the Work:
      a. LCN: 4040XP Series
      b. Facility Standard
   2. Requirements:
      a. Closer Construction: Closer shall have cast iron body with 1-1/2 inch steel piston, double heat treated pinion, 3/4 inch bearing journals, and full complement needle bearings. Closer shall be adjustable from sizes 1 through 6.
      b. Provide closers with spring size adjustment dial for ease of adjusting.

2.10 CLOSER RELEASE DEVICES
A. Products that may be incorporated into the Work:
   1. LCN: SEM7800 Series
   2. Facility Standard
B. Requirements:
   1. Provide 35 pound electro-magnetic hold open device constructed of die cast metal or plastic. Electromagnet shall accept 120VAC, 24VDC, and/or 12VDC power from fire alarm. Provide mounting style as scheduled.

2.11 AUTOMATIC OPERATORS (ELECTRO-HYDRAULIC)
A. Products that may be incorporated into the Work:
   1. LCN: 4600 Series
   2. Facility Standard
B. Requirements:
   1. Provide low energy automatic operator units with hydraulic closer complying with ANSI A156.19.
   2. Provide units with conventional door closer opening and closing forces unless power operator motor is activated. Provide door closer assembly with adjustable spring size, back-check, and opening and closing speed adjustment valves to control door.
      a. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
   3. Provide units with on/off switch for manual operation, motor start up delay, vestibule interface delay, electric lock delay, and door hold open delay.
   4. Provide drop plates, brackets, or adapters for arms as required for details.
   5. Provide actuator switches for operation as specified. Provide weather-resistant actuators at exterior applications.
   6. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf.
   7. Provide units with vestibule inputs that allow sequencing operation of two units, and SPDT relay for interfacing with latching or locking devices.

2.12 OVERHEAD STOPS AND HOLDERS
A. Manufacturers that may be incorporated into the Work:
   1. Glynn Johnson
   2. Rixson
B. Requirements:
   1. Provide overhead stops and holders as scheduled, sized per manufacturer’s recommendations based on door width.
   2. Provide stops with any special templates, brackets, plates, or other accessories required for interface with header, door, wall, and other hardware.

2.13 SADDLE AND PANIC THRESHOLDS
A. Manufacturers that may be incorporated into the Work:
   1. Pemko
   2. National Guard
   3. Zero
B. Requirements:
1. Provide saddle thresholds with length equal to the width of the opening.
2. Provide stainless steel machine screws and lead anchors for each threshold.

2.14 WEATHERSTRIP AND GASKET
A. General:
1. Provide weather strip and gasketing as scheduled.
2. Size weather strip and gasket to provide a continuous seal around opening and at meeting stiles.
B. Perimeter Seals
1. Manufacturers that may be incorporated into the Work:
   a. Pemko
   b. National Guard
   c. Zero
C. Astragals, Meeting Stiles, and Mullion Seals
1. Manufacturers that may be incorporated into the Work:
   a. Pemko
   b. National Guard
   c. Zero
2. Requirements
   a. Where overlapping astragals are scheduled on exterior doors, provide with thru-bolts.

2.15 ELECTRONIC ACCESSORIES
A. Power Supplies
1. Products that may be incorporated into the Work:
   a. Von Duprin: PS900 Series
   b. Facility Standard
2. Requirements:
   a. Provide power supplies, recommended and approved by the manufacturer of the electrified locking component, for the operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring a power supply.
   b. Provide the appropriate quantity of power supplies necessary for the proper operation of the electrified locking component and/or components as recommended by the manufacturer of the electrified locking components with consideration for each electrified component utilizing the power supply, the location of the power supply, and the approved wiring diagrams. Locate the power supplies as directed by the Architect.
   c. Provide a power supply that is regulated and filtered 24 VDC, or as required, and UL class 2 listed.
   d. Options: Provide the following options.
      1) Provide a power supply, where specified, with the internal capability of charging optional sealed backup batteries 24 VDC, or as required, in addition to operating the DC load.
      2) Provide sealed batteries for battery back-up at each power supply where specified.
      3) Provide keyed power supply cabinet.
      4) Provide a power supply complete requiring only 120VAC to the fused input and shall be supplied in an enclosure.
   e. Provide a power supply with emergency release terminals, where required, that allow the release of all devices upon activation of the fire alarm system complete with fire alarm input for initiating “no delay” exiting mode.
B. Electric Power Transfers
1. Products that may be incorporated into the Work:
   a. Von Duprin: EPT-10
   b. Facility Standard
2. Requirements:
   a. Provide edge-mounted electric power transfer with either two 18 gauge wires or ten 24 gauge wires.
   b. Provide transfer capable of carrying a 16 Amp current for a minimum of .3 seconds.

2.16 FINISHES
A. Match items to the manufacturer's standard color and texture finish for the latch and locksets (or push-pull units if no latch or locksets).
B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

C. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

D. The designations used in schedules and elsewhere to indicate hardware finishes are the industry-recognized standard commercial finishes, except as otherwise noted.
   1. Brushed Chrome and/or Stainless Steel Appearance
      e. Weatherstrip and Gasket: Clear Anodized Aluminum finish.

PART 3 - EXECUTION

3.01 EXAMINATION
A. Verify conditions of walls, flooring, doors, frames, and hardware are satisfactory for installation of hardware.
   1. Prior to installing doors and hardware, wash down of masonry and painting or staining of doors and frames shall be completed.
   2. Verify that walls have blocking behind wall mounted stop locations.
   3. Verify that flooring does not interfere with door or hardware operation.
   4. Ensure that frames are installed plumb, square, and true. Verify that doors and frames are properly sized and handed and are correctly prepared for hardware installation.
   5. Verify function, quantity, type, hand, and finish of hardware to be installed with the approved hardware schedule.
   6. Verify that electrical rough-in is complete and correctly located for each door.
B. Conditions that do not allow proper installation of hardware shall be corrected before proceeding.

3.02 INSTALLATION
A. General
   1. Install door hardware as detailed in the approved hardware schedule using only approved fasteners and in accordance with manufacturer’s recommended procedures and methods.
   2. Install hardware and signage at fire rated openings in accordance with NFPA 80 requirements.
B. Hardware Mounting Heights
   1. Mount door hardware units at heights indicated, as follows, unless otherwise indicated or required to comply with governing regulations.
      b. Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames."
C. Clearances
   1. Install doors, both rated and non-rated, in accordance with NFPA 80 requirements for door clearances as follows:
      a. 1/8 inch between door and frame head and jambs for wood doors
      b. 3/8 inch between door and frame head and jambs for metal doors
      c. 1/8 inch at meeting stiles of pairs of doors.
      d. 3/4 inch undercut maximum.
D. Surface Mounted Door Closers
   1. Install surface mounted door closers on room side of openings, except where prohibited by scheduled hardware. Use appropriate arms, spacers, brackets, and accessories to properly install surface mounted door closers. Adjust spring power to the appropriate setting to ensure the doors reliably close under normal operating conditions.
E. Gasketing
1. Install gasketing to provide a continuous seal around the perimeter of the opening. Install soffit mounted hardware using the proper brackets, spacers, and accessories to allow proper installation without cutting or notching gasketing material or mounting channels.

F. Thresholds And Saddles
1. Trim, cut, and notch thresholds and saddles neatly to minimally fit the profile of the door frame. Thresholds and saddles shall be set in full bed of butyl-rubber or polyisobutylene mastic sealant.

3.03 FIELD QUALITY CONTROL
A. Architectural Hardware Consultant: Architect will engage a qualified Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
B. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.04 ADJUSTING
A. After building HVAC system is balanced and adjusted, conduct final adjustment of door closers. Verify spring power of the surface mounted door closer is properly adjusted to close and latch the door and to comply with the opening force requirements of ANSI A117.1 as follows:
   1. Doors with Closers shall take five (5) seconds to close from 90 degrees to 12 degrees.
   2. Interior, non-fire rated swinging doors shall open with a maximum of 5 lbs of pressure.
   3. Exterior doors and fire rated doors shall open with the minimum amount of pressure required to positively close and latch the door.

3.05 CLEANING AND PROTECTION
A. Clean adjacent surfaces soiled by door hardware installation.
B. Clean operating items as necessary to restore proper function and finish.
C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

3.06 SCHEDULE
A. The following schedule of hardware sets shall be considered a guide and the supplier is cautioned to refer to general conditions, special conditions, and the full requirements of this section. It shall be the hardware supplier's responsibility to furnish all required hardware.
B. Where items of hardware are not definitely or correctly specified and are required for completion of the Work, a written statement of such omission, error, conflict, or other discrepancy shall be sent to the Architect, prior to date specified for receipt of bids, for clarification by addendum.
C. Adjustments to the Contract Sum will not be allowed for omissions or items of hardware not clarified prior to bid opening.
Hardware Group No. 01
For use on mark/door #(#s):
102AE

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OPERATIONAL DESCRIPTION
1. DOORS ARE NORMALLY HELD OPEN ON MAGNETIC HOLD OPENS.
2. UPON LOSS OF POWER OR SIGNAL FROM FIRE ALARM; MAGNETIC HOLD OPENS RELEASE DOORS, ALLOWING DOORS TO CLOSE AND LATCH.
Hardware Group No. AL-01
For use on mark/door # (s):
101C/101D

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**OPERATIONAL DESCRIPTION**

1. FREE EGRESS AT ALL TIMES.
2. DOOR CAN BE PLACED IN UNLOCKED MODE FOR PUSH/PULL OPERATION VIA MECHANICAL HEX KEY DOGGING.
3. WHEN DOOR IS LOCKED, KEY IN OUTSIDE TRIM RETRACTS LATCH FOR ENTRY ONLY. DOOR RE-SECURES WHEN KEY IS REMOVED.
4. OUTER ACTUATOR IS DISABLED BY LX SWITCH (INTEGRAL TO LOCKING HARDWARE). WHEN DOORS ARE LATCHED, ACTUATOR IS DISABLED.
5. INNER ACTUATOR IS ALWAYS ENABLED.
6. IF DOOR IS LATCHED WHEN ENABLED ACTUATOR IS DEPRESSED, OPERATOR RETRACTS LATCHES PRIOR TO OPENING.
7. ON LOSS OF POWER, ELECTRIFIED HARDWARE IS DISABLED. DOOR IS LATCHED. TRIM REMAINS SECURE.
## Hardware Group No. AL-02

For use on mark/door #(#s):
101A/101B

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## Hardware Group No. AL-03

For use on mark/door #(#s):
102AC/102AD

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**OPERATIONAL DESCRIPTION**

1. ACTUATORS ARE ALWAYS ENABLED.
2. PRESSING EITHER ACTUATOR SIGNALS AUTO OPERATOR TO OPEN DOOR.
Hardware Group No. AL-04  
For use on mark/door #(s):  
102AA/102AB

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END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Escutcheons.
   2. Floor plates.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 ESCUTCHEONS

A. One-Piece, Cast-Brass Type: With polished, chrome-plated and rough-brass finish and setscrew fastener.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with chrome-plated finish and spring-clip fasteners.

C. One-Piece, Stamped-Steel Type: With chrome-plated finish and spring-clip fasteners.

2.2 FLOOR PLATES

A. One-Piece Floor Plates: Cast-iron flange.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install escutcheons for piping penetrations of walls, ceilings, and finished floors.

B. Install escutcheons with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

1. Escutcheons for New Piping:
   a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
b. Chrome-Plated Piping: One-piece, cast-brass type with polished, chrome-plated finish.

c. Insulated Piping: One-piece, stamped-steel type.

d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished, chrome-plated finish.

e. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.

f. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, cast-brass type with polished, chrome-plated finish.

g. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, stamped-steel type.

h. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with polished, chrome-plated finish.

i. Bare Piping in Unfinished Service Spaces: One-piece, stamped-steel type.

j. Bare Piping in Equipment Rooms: One-piece, cast-brass type with rough-brass finish.

k. Bare Piping in Equipment Rooms: One-piece, stamped-steel type.

C. Install floor plates for piping penetrations of equipment-room floors.

D. Install floor plates with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

   1. New Piping: One-piece, floor-plate type.

3.2 FIELD QUALITY CONTROL

A. Replace broken and damaged escutcheons and floor plates using new materials.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Equipment labels.
   2. Warning signs and labels.
   3. Pipe labels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Equipment-Label Schedule: Include a listing of all equipment to be labeled and the proposed content for each label.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

A. Plastic Labels for Equipment:
   1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, with predrilled holes for attachment hardware.
   2. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
   3. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
   5. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), and the Specification Section number and title where equipment is specified.

C. Equipment-Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules) and the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.
2.2 WARNING SIGNS AND LABELS

A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, with predrilled holes for attachment hardware.

B. Letter Color: Red.

C. Background Color: Yellow.

D. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

E. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

F. Fasteners: Stainless-steel rivets or self-tapping screws.

G. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

H. Label Content: Include caution and warning information, plus emergency notification instructions.

2.3 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service and showing flow direction.

B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full circumference of pipe and to attach to pipe without fasteners or adhesive.

C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

D. Pipe-Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings; pipe size; and an arrow indicating flow direction.
   1. Flow-Direction Arrows: Integral with piping-system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
   2. Lettering Size: At least 1-1/2 inches high.
PART 3 - EXECUTION

3.1 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 LABEL INSTALLATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install or permanently fasten labels on each major item of mechanical equipment.

D. Locate equipment labels where accessible and visible.

E. Pipe-Label Locations: Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:

1. Near each valve and control device.
2. Near each branch connection excluding short takeoffs. Where flow pattern is not obvious, mark each pipe at branch.
3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Pipes, fittings, and specialties.
   2. Sprinklers.

1.2 SYSTEM DESCRIPTIONS

A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply through alarm valve. Water discharges immediately from sprinklers when they are opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose connections are included if indicated.

1.3 PERFORMANCE REQUIREMENTS

A. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.

B. Delegated Design: Design sprinkler system(s), including comprehensive engineering analysis by a NICET Level III designer, using performance requirements and design criteria indicated.

   1. Available fire-hydrant flow test records indicate the following conditions:

      a. See drawings.

C. FIRE-SUPPRESSION STANDPIPE DESIGN SHALL BE APPROVED BY AUTHORITIES HAVING JURISDICTION. PROVIDE APPROVAL LETTER FROM THE AUTHORITIES HAVING JURISDICTION TO THE ENGINEER PRIOR TO INSTALLATION.

   1. Margin of Safety for Available Water Flow and Pressure: 10 percent, including losses through water-service piping, valves, and backflow preventers.
   2. Sprinkler Occupancy Hazard Classifications (for areas not listed on the drawings, use the following):

      a. See drawings.
      b. Automobile Parking Areas: Ordinary Hazard, Group 1.
      c. Building Service Areas: Ordinary Hazard, Group 1.
      d. Churches: Light Hazard.
      e. Electrical Equipment Rooms: Ordinary Hazard, Group 1.
      f. Dry Cleaners: Ordinary Hazard, Group 2.
Division 21 – Fire Suppression
21 13 13
Wet-Pipe Sprinkler Systems

3. Minimum Density for Automatic-Sprinkler Piping Design:

   a. Residential (Dwelling) Occupancy: 0.05 gpm over 400-sq. ft. area.
   b. Light-Hazard Occupancy: 0.10 gpm over 1500-sq. ft. area.
   c. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1500-sq. ft. area.
   d. Ordinary-Hazard, Group 2 Occupancy: 0.20 gpm over 1500-sq. ft. area.
   e. Extra-Hazard, Group 1 Occupancy: 0.30 gpm over 2500-sq. ft. area.
   f. Extra-Hazard, Group 2 Occupancy: 0.40 gpm over 2500-sq. ft. area.
   g. Special Occupancy Hazard: As determined by authorities having jurisdiction.

4. Maximum Protection Area per Sprinkler: Per UL listing.

5. Maximum Protection Area per Sprinkler:

   a. Residential Areas: 400 sq. ft.
   b. Office Spaces: 120 sq. ft.
   c. Storage Areas: 130 sq. ft.
   d. Mechanical Equipment Rooms: 130 sq. ft.
   e. Electrical Equipment Rooms: 130 sq. ft.
   f. Other Areas: According to NFPA 13 recommendations unless otherwise indicated.

6. Total Combined Hose-Stream Demand Requirement: According to NFPA 13 unless otherwise indicated:

   a. Light-Hazard Occupancies: 100 gpm for 30 minutes.
   b. Ordinary-Hazard Occupancies: 250 gpm for 60 to 90 minutes.
   c. Extra-Hazard Occupancies: 500 gpm for 90 to 120 minutes.

D. Seismic Performance: Sprinkler piping shall withstand the effects of earthquake motions determined according to NFPA 13 and ASCE/SEI 7.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Shop Drawings: For wet-pipe sprinkler systems. Include plans, elevations, sections, details, and attachments to other work.
   1. Wiring Diagrams: For power, signal, and control wiring.

C. Delegated-Design Submittal: For sprinkler systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

D. Qualification Data: For qualified Installer.

E. Approved Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, that have been approved by authorities having jurisdiction, including hydraulic calculations if applicable.

F. Welding certificates.

G. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping."

H. Field quality-control reports.

I. Operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Installer's responsibilities include designing, fabricating, and installing sprinkler systems and providing professional engineering services needed to assume engineering responsibility. Base calculations on results of fire-hydrant flow test.
      a. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by a qualified professional engineer.

B. Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. NFPA Standards: Sprinkler system equipment, specialties, accessories, installation, and testing shall comply with the following:
   1. NFPA 13, "Installation of Sprinkler Systems."
   2. NFPA 13R, "Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height."
3. NFPA 24, "Installation of Private Fire Service Mains and Their Appurtenances."

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

2.2 STEEL PIPE AND FITTINGS

A. Standard Weight, Galvanized- and Black-Steel Pipe: ASTM A 53/A 53M, Type E, Grade B. Pipe ends may be factory or field formed to match joining method.

B. Schedule 30, Galvanized- and Black-Steel Pipe: ASTM A 135; ASTM A 795/A 795M, Type E; or ASME B36.10M, wrought steel; with wall thickness not less than Schedule 30 and not more than Schedule 40. Pipe ends may be factory or field formed to match joining method.

C. Thinwall Galvanized- and Black-Steel Pipe: ASTM A 135 or ASTM A 795/A 795M, threadable, with wall thickness less than Schedule 30 and equal to or greater than Schedule 10. Pipe ends may be factory or field formed to match joining method.

D. Schedule 5 Steel Pipe: ASTM A 135 or ASTM A 795/A 795M, lightwall, with plain ends.


F. Galvanized and Uncoated, Steel Couplings: ASTM A 865, threaded.


H. Malleable- or Ductile-Iron Unions: UL 860.


J. Steel Flanges and Flanged Fittings: ASME B16.5, Class 150.


L. Grooved-Joint, Steel-Pipe Appurtenances:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Anvil International, Inc.
b. Corcoran Piping System Co.
c. National Fittings, Inc.
d. Shurjoint Piping Products.
e. Tyco Fire & Building Products LP.
f. Victaulic Company.

2. Pressure Rating: 175 psig minimum.
4. Grooved-End-Pipe Couplings for Steel Piping: AWWA C606 and UL 213, rigid pattern, unless otherwise indicated, for steel-pipe dimensions. Include ferrous housing sections, EPDM-rubber gasket, and bolts and nuts.

M. Steel Pressure-Seal Fittings: UL 213, FM-approved, 175-psig pressure rating with steel housing, rubber O-rings, and pipe stop; for use with fitting manufacturers’ pressure-seal tools.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Victaulic Company.
   b. Anvil Company.

2.3 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free.

1. Class 125, Cast-Iron Flat-Face Flanges: Full-face gaskets.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.4 SPRINKLER SPECIALTY PIPE FITTINGS

A. Flow Detection and Test Assemblies:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. AGF Manufacturing Inc.
   b. Reliable Automatic Sprinkler Co., Inc.
   c. Tyco Fire & Building Products LP.
d. Victaulic Company.

4. Body Material: Cast- or ductile-iron housing with orifice, sight glass, and integral test valve.
5. Size: Same as connected piping.
6. Inlet and Outlet: Threaded.

B. Sprinkler Inspector's Test Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. AGF Manufacturing Inc.
   b. Triple R Specialty.
   c. Tyco Fire & Building Products LP.
   d. Victaulic Company.
   e. Viking Corporation.

4. Body Material: Cast- or ductile-iron housing with sight glass.
5. Size: Same as connected piping.
6. Inlet and Outlet: Threaded.

C. Flexible, Sprinkler Hose Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Fivalco Inc.
   b. FlexHead Industries, Inc.
   c. Gateway Tubing, Inc.

3. Type: Flexible hose for connection to sprinkler, and with bracket for connection to ceiling grid.
5. Size: Same as connected piping, for sprinkler.

2.5 SPRINKLERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

2. Reliable Automatic Sprinkler Co., Inc.
3. Tyco Fire & Building Products LP.
4. Victaulic Company.
5. Viking Corporation.

B. General Requirements:

4. Pressure Rating for High-Pressure Automatic Sprinklers: 250 psig minimum.

C. Automatic Sprinklers with Heat-Responsive Element:

2. Nonresidential Applications: UL 199.
3. Residential Applications: UL 1626.
4. Characteristics: Nominal 1/2-inch orifice with Discharge Coefficient K of 5.6, and for "Ordinary" temperature classification rating unless otherwise indicated or required by application.

D. Sprinkler Finishes:

1. Chrome plated.
2. Bronze.
3. Painted.

E. Special Coatings:

1. Wax.
2. Lead.
3. Corrosion-resistant paint.

F. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for concealed, flush, and recessed-type sprinklers are specified with sprinklers.

1. Ceiling Mounting: Chrome-plated steel, two piece, with 1-inch vertical adjustment.
2. Sidewall Mounting: Chrome-plated steel, one piece, flat.

G. Sprinkler Guards:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Reliable Automatic Sprinkler Co., Inc.
   b. Tyco Fire & Building Products LP.
   c. Victaulic Company.
PART 3 - EXECUTION

3.1 PIPING INSTALLATION

A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping. Install piping as indicated, as far as practical.

1. Deviations from approved working plans for piping require written approval from authorities having jurisdiction. File written approval with Architect before deviating from approved working plans.

B. Piping Standard: Comply with requirements for installation of sprinkler piping in NFPA 13.

C. Install seismic restraints on piping. Comply with requirements for seismic-restraint device materials and installation in NFPA 13.

D. Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

E. Install unions adjacent to each valve in pipes NPS 2 and smaller.

F. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

G. Install "Inspector's Test Connections" in sprinkler system piping, complete with shutoff valve, and sized and located according to NFPA 13.

H. Install sprinkler piping with drains for complete system drainage.

I. Install sprinkler control valves, test assemblies, and drain risers adjacent to standpipes when sprinkler piping is connected to standpipes.

J. Install automatic (ball drip) drain valve at each check valve for fire-department connection, to drain piping between fire-department connection and check valve. Install drain piping to and spill over floor drain or to outside building.

K. Install alarm devices in piping systems.

L. Install hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13.
M. Install pressure gages on riser or feed main, at each sprinkler test connection, and at top of each standpipe. Include pressure gages with connection not less than NPS 1/4 and with soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and install where they will not be subject to freezing.

N. Fill sprinkler system piping with water.

O. Install sleeves for piping penetrations of walls, ceilings, and floors.

P. Install sleeve seals for piping penetrations of concrete walls and slabs.

Q. Install escutcheons for piping penetrations of walls, ceilings, and floors.

3.2 JOINT CONSTRUCTION

A. Install couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system’s pressure rating for aboveground applications unless otherwise indicated.

B. Install unions adjacent to each valve in pipes NPS 2 and smaller.

C. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

D. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

E. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

F. Flanged Joints: Select appropriate gasket material in size, type, and thickness suitable for water service. Join flanges with gasket and bolts according to ASME B31.9.

G. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.

2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

H. Steel-Piping, Pressure-Sealed Joints: Join lightwall steel pipe and steel pressure-seal fittings with tools recommended by fitting manufacturer.

I. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators according to "Quality Assurance" Article.

1. Shop weld pipe joints where welded piping is indicated. Do not use welded joints for galvanized-steel pipe.
J. Steel-Piping, Cut-Grooved Joints: Cut square-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe joints.

K. Steel-Piping, Roll-Grooved Joints: Roll rounded-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe grooved joints.

L. Steel-Piping, Pressure-Sealed Joints: Join Schedule 5 steel pipe and steel pressure-seal fittings with tools recommended by fitting manufacturer.

M. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

3.3 VALVE AND SPECIALTIES INSTALLATION

A. Install listed fire-protection valves, trim and drain valves, specialty valves and trim, controls, and specialties according to NFPA 13 and authorities having jurisdiction.

B. Install listed fire-protection shutoff valves supervised open, located to control sources of water supply except from fire-department connections. Install permanent identification signs indicating portion of system controlled by each valve.

C. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water-supply sources.

D. Specialty Valves:
   1. General Requirements: Install in vertical position for proper direction of flow, in main supply to system.

3.4 SPRINKLER INSTALLATION

A. Install sprinklers in suspended ceilings in center of narrow dimension of acoustical ceiling panels.

B. Install dry-type sprinklers with water supply from heated space. Do not install pendent or sidewall, wet-type sprinklers in areas subject to freezing.

3.5 FLEX HOSE INSTALLATION

A. Install sprinklers into flexible, sprinkler hose fittings and install hose into bracket on ceiling grid.
3.6 IDENTIFICATION

A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

B. Identify system components, wiring, cabling, and terminals.

C. Install sprinklers into flexible, sprinkler hose fittings and install hose into bracket on ceiling grid.

3.7 IDENTIFICATION

A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

B. Identify system components, wiring, cabling, and terminals.

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
3. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
4. Energize circuits to electrical equipment and devices.
5. Coordinate with fire-alarm tests. Operate as required.
6. Coordinate with fire-pump tests. Operate as required.
7. Verify that equipment hose threads are same as local fire-department equipment.

C. Sprinkler piping system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.9 CLEANING

A. Clean dirt and debris from sprinklers.

B. Remove and replace sprinklers with paint other than factory finish.
3.10 PIPING SCHEDULE

A. Piping between Fire-Department Connections and Check Valves: Galvanized, standard-weight steel pipe with threaded ends; cast-iron threaded fittings; and threaded joints.

B. Sprinkler specialty fittings may be used, downstream of control valves, instead of specified fittings.

C. CPVC pipe; Schedule 40 CPVC fittings; and solvent-cemented joints may be used for light-hazard and residential occupancies AND WHERE APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

D. Wet-pipe sprinkler system, NPS 2 and smaller, shall be one of the following:
   1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.
   2. Standard-weight, black-steel pipe with cut- or roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.
   3. Standard-weight, black-steel pipe with plain ends; steel welding fittings; and welded joints.
   4. Thinwall black-steel pipe with roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.
   5. Thinwall black-steel pipe with plain ends; welding fittings; and welded joints.
   6. Schedule 5 steel pipe; steel pressure-seal fittings; and pressure-sealed joints.

E. Standard-pressure, wet-pipe sprinkler system, NPS 2-1/2 to NPS 6, shall be one of the following:
   1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.
   2. Standard-weight, black-steel pipe with cut- or roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.
   3. Thinwall black-steel pipe with roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.
   4. Thinwall black-steel pipe with plain ends; welding fittings; and welded joints.

3.11 SPRINKLER SCHEDULE

A. Use sprinkler types in subparagraphs below for the following applications:
   1. Rooms without Ceilings: Upright sprinklers.
   2. Rooms with Suspended Ceilings: Concealed sprinklers.
   4. Spaces Subject to Freezing: Sidewall, dry sprinklers or Upright, pendent, dry sprinklers; and sideline, dry sprinklers as indicated.
5. **Special Applications:** Extended-coverage, flow-control, and quick-response sprinklers where indicated Insert type.

B. **Provide sprinkler types in subparagraphs below with finishes indicated.**

1. **Concealed Sprinklers:** Rough brass, with factory-painted white cover plate.
2. **Flush Sprinklers:** Bright chrome, with painted white escutcheon.
3. **Recessed Sprinklers:** Bright chrome, with bright chrome escutcheon.
4. **Upright Pendent and Sidewall Sprinklers:** Chrome plated in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view; wax coated where exposed to acids, chemicals, or other corrosive fumes.

**END OF SECTION**
Revisions of 6/A5.2 - Base of Stair @ Lobby

Stair

3" = 1'-0"
Revision of 2/A3.1 Level 2 RCP

1/8" = 1'-0"

MTL CLG FRAMING
09 21 16

GWB
09 21 16

WD-1, FASTENED TO 3/4" PLYWD BACKING
06 20 00
FABRICATE 24" PANELS,
LENGTH VARIES, SEE RCP,
INSTALL PANELS WITH Z-CLIPS
@ EA END @ 24" O.C.

RETURN INTEGRAL TO
PANEL

SURFACE MOUNTED LIGHT FIXTURE, SED

New Detail 8/A3.1 Detail 'C' @ WD-1 CLG
3" = 1'-0"

Additional Information at WD-1 Ceiling
SKA 002

PROJECT #:
16-12
Addendum
1.0
DATE:
04/05/2017

MONTANA STATE UNIVERSITY BARNARD HALL LOBBY REMODEL
BOZEMAN, MONTANA

No. Description Date
1 Addendum 1 4/5/17
REPLACE & REINSTALL RIGID INSULATION TO ACCOMMODATE THROUGH-WALL FLASHING

THROUGH-WALL FLASHING, SEAL TO (e) CMU WALL

REMOVE & REINSTALL BRICK VENEER AS REQUIRED TO ACCOMMODATE THROUGH WALL FLASHING

PROVIDE WEEPHOLES @ 24" O.C.

THROUGH-WALL FLASHING, SEAL TO DRIP EDGE

SS DRIP EDGE
SET IN CONT SEALANT

LOOSE LINTEL W/ CONT. 1 1/2" STL PLATE LEG, PNT'D; SSD 05 50 00

SEALANT & BACKER ROD
EA SIDE

ALUM STOREFRONT
08 43 13

Revision of 3/A4.1 Head @ New Opening
3" = 1'-0"

1

MONTANA STATE UNIVERSITY BARNARD HALL LOBBY REMODEL
BOZEMAN, MONTANA

MONTANA STATE UNIVERSITY

No. Description Date
1 Addendum 1 4/5/17

PROJECT #:
16-12
Addendum 1.0
DATE:
04/05/2017

Revision of Brick Veneer Details
SKA 003

ORIGINAL DRAWING
SIZE: 8.5" x 11"
ACRYLIC PANEL
06 60 00
ADHERED TO SUBSTRATE
1/8" CHAMFER ON BACK SIDE
OF ACRYLIC PANEL, TYP U.NO.

1/2" PLYWOOD
06 10 00

GWB
09 21 16
3 5/8" MTL FRAMING
09 21 16
8"

EDGES OF ACRYLIC PANEL TO
BE FLUSH WITH F.O. WALL
FINISH BEYOND

1" WD-1 CLOSURE STRIP,
ADHERED IN PLACE W/ DABS
OF SILICONE

WD-1, FASTENED TO 3/4"
PLYWD BACKING
06 20 00
FABRICATE IN 24" x 96" PANELS

Z-CLIP @ TOP AND BOTTOM
OF EACH PANEL @ 24" O.C.

GWB
09 21 16

3 5/8" MTL FRAMING
09 21 16

Revision of 11/A5.3 Counter Detail 'A' @
Study Bar
3" = 1'-0"