SINCLAIR hille architects

Addendum #2

Project Name:	Nebraska History Museum Renovation 131 Centennial Mall N. Lincoln, NE 68508
Project No.:	13059-05
Documents Issued:	August 20, 2014
Bid Date:	2:00pm (CST), September 18, 2014
Bid Opening:	Department of Administrative Services (DAS) / State Building Division
Location:	1526 Building, Suite 200 1526 K Street Lincoln, NE 68508

This Addendum is issued to all known bidders before receipt of proposals. This Addendum is to authorize the use of the following information in preparing proposals for the above named project. The bidder **must** enter the number of this Addendum on the **Proposal Sheet.**

GENERAL INFORMATION

ADD 2-1. Asbestos Abatement Coordination: The following information has been provided to clarify work associated with the concurrent abatement project.

1. The Owner has identified the scope of work associated with floor abatement and has released those documents out for bid. Attached is a copy of the abatement plans (being bid under separate contract) for use in clarifying the areas where coordination between the contracts will be required. Refer to **Attachments 1 of 6, 3 of 6 & 5 of 6.**

2. Water and electricity shall be available for the abatement contractor, even if it requires the abatement contractor to extend a hose from another floor through one of the stairwells. The General Contractor shall ensure that both utilities are available throughout the duration of the abatement process.

3. The majority of abatement work is indicated on Third Level. It would be preferable to allow the abatement work to begin on Third and move down from there. General Contractor to coordinate accordingly.

4. Stair railings should NOT be removed until the abatement contractor has completed their scope of work.

5. The abatement contractor will require openings in the exterior walls on Second and Third Levels for access to fresh air. General Contractor to provide required openings. Openings should be located where scheduled openings 201C and 301C are shown. Contractor's option to cut smaller required opening as needed for abatement or to cut entire opening as required for final door installation.

6. Abatement Contractor will furnish fall protection as required for areas associated with their work as well as their own porta-potties unless the existing restrooms are functioning and accessible for contractors use.

7. The Abatement Contractor will remove all flooring throughout the building regardless of whether-or-not there is asbestos tile shown beneath to ensure that any potential asbestos mastic residue below is removed. All mastic, whether it is shown to contain asbestos or not, will be removed by the Abatement Contractor.

8. General Contractor shall remove walls above flooring prior to abatement work commencing on each Floor Level.

9. Bid date for abatement work is 9/17/14.

MODIFICATIONS TO THE DRAWINGS

ADD 2-2. Refer to Sheet AD101 – Ground Level Demolition Plan;

1. Sheet Specific Note 4 shall be changed to read as follows:

   NOTE 4 EXISTING CARPETING AND ASSOCIATED MASTIC TO BE REMOVED BY ABATEMENT CONTRACTOR UNDER SEPARATE CONTRACT. GENERAL CONTRACTOR REQUIRED TO PROVIDE ANY NECESSARY FLOOR PREP (LEVELING) AS REQUIRED FOR PROPER INSTALLATION OF NEW FLOOR FINISHES.

2. Sheet Specific Note 38 shall be changed to read as follows:

   NOTE 38 EXISITNG VCT AND RUBBER FLOORING AND ASSOCIATED MASTIC TO BE REMOVED BY ABATEMENT CONTRACTOR UNDER SEPARATE CONTRACT. GENERAL CONTRACTOR REQUIRED TO PROVIDE ANY NECESSARY FLOOR PREP (LEVELING) AS REQUIRED FOR PROPER INSTALLATION OF NEW FLOOR FINISHES. GENERAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVAL OF WALL BASE.

ADD 2-3. Refer to Sheet AD102 – Second Level Demolition Plan;

1. Sheet Specific Note 12 shall be changed to read as follows:

   NOTE 12 EXISTING CARPETING AND ASSOCIATED MASTIC TO BE REMOVED BY ABATEMENT CONTRACTOR UNDER SEPARATE CONTRACT. GENERAL CONTRACTOR REQUIRED TO PROVIDE ANY NECESSARY FLOOR PREP (LEVELING) AS REQUIRED FOR PROPER INSTALLATION OF NEW FLOOR FINISHES.

2. Sheet Specific Note 20 shall be changed to read as follows:

   NOTE 20 EXISITNG VCT AND RUBBER FLOORING AND ASSOCIATED MASTIC TO BE REMOVED BY ABATEMENT CONTRACTOR UNDER SEPARATE CONTRACT. GENERAL CONTRACTOR REQUIRED TO PROVIDE ANY NECESSARY FLOOR PREP (LEVELING) AS REQUIRED FOR PROPER INSTALLATION OF NEW FLOOR FINISHES. GENERAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVAL OF WALL BASE.

ADD 2-4. Refer to Sheet AD103 – Third Level Demolition Plan;

1. Sheet Specific Note 8 shall be changed to read as follows:

   NOTE 8 EXISTING CARPETING AND ASSOCIATED MASTIC TO BE REMOVED BY ABATEMENT CONTRACTOR UNDER SEPARATE CONTRACT. GENERAL CONTRACTOR REQUIRED TO PROVIDE ANY NECESSARY FLOOR PREP (LEVELING) AS REQUIRED FOR PROPER INSTALLATION OF NEW FLOOR FINISHES.

2. Sheet Specific Note 13 shall be changed to read as follows:

   NOTE 13 EXISITNG VCT AND RUBBER FLOORING AND ASSOCIATED MASTIC TO BE REMOVED BY ABATEMENT CONTRACTOR UNDER SEPARATE CONTRACT. GENERAL CONTRACTOR REQUIRED TO PROVIDE ANY NECESSARY FLOOR PREP (LEVELING) AS REQUIRED FOR PROPER INSTALLATION OF NEW FLOOR FINISHES. GENERAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVAL OF WALL BASE.

3. Refer to Note 17 found between Grids 7 and 10, south of Grid H; Change this note to Note 8.

4. Refer to Sheet Specific Notes in Legend. Delete Note 17 in its entirety. Replace the text with “NOT USED”.

5. Sheet Specific Note 18 shall be changed to read as follows:

   NOTE 18 EXISTING CARPETING AND ASSOCIATED MASTIC TO BE REMOVED BY ABATEMENT CONTRACTOR UNDER SEPARATE CONTRACT. GENERAL CONTRACTOR REQUIRED TO PROVIDE ANY NECESSARY FLOOR PREP (LEVELING) AS REQUIRED FOR PROPER INSTALLATION OF NEW FLOOR FINISHES. GENERAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR REMOVAL OF WALL BASE.

ADD 2-5. Refer to Sheet A107, Room Finish Schedule. As a result of Owner acquired Flooring Abatement Documents, make the following modifications to the Room Finish Schedule. :

No.	Name	Floor Finish	Base	Notes
103	STORAGE	VCT	VWB	-
104	RECEIVING	VCT	VWB	6
104B	CORRIDOR	VCT	VWB	8
106B	STORAGE	VCT	VWB	-
106D	VEST.	CPT-1		
106E	SERVER	CPT-1		
107	CORR.	CPT-1		
107B	STOR.	CPT-1		
108	RECEPTION	CPT-1		

108A	CORR.	CPT-1		
108B	COPY	CPT-1		
108C	STORAGE	CPT-1		
108D	OFFICE	CPT-1		
108E	OFFICE	CPT-1		
108F	OFFICE	CPT-1		
108G	OFFICE	CPT-1		
109	KITCHEN	VCT	VWB	
109A	STAFF	CPT-1		
202	CORRIDOR	VCT	VWB	-
203	CORR.	CPT-1	VWB	
203A	WORKSPACE	CPT-1	VWB	
203B	FILE STOR	CPT-1	VWB	
205	FILE STORAGE	CPT-1	VWB	28
206	WORKSPACE	EXTG CMT / VCT (*49) / CONC (*29)		10, 29, 30, 31, 49
208	CORRIDOR	VCT	VWB	-
302	CORRIDOR	VCT	VWB	-
303	EXHIBIT WORKSHOP	EXTG CMT / VCT (*49) / CONC (*29)		10, 29, 49
304A	OFFICE	CPT-1		
305	OFFICE	CPT-1		
305A	OFFICE	CPT-1		
306	WOODSHOP	EXTG CONC		
307	CORRIDOR	VCT		

ADD 2-6. Refer to Sheet A107, Room Finish Schedule Notes; Make the following modifications:

1. Note 27; Change Note to read as follows:

   27. NOT USED

2. Add the following note:

49. PROVIDE NEW VCT AND TRANSITION STRIPS AS REQUIRED, AT LOCATIONS WHERE VAT WAS REMOVED AS PART OF FLOORING ABATEMENT PROJECT.

ADD 2-7. Refer to Sheet A500, Detail A6, Door Schedule.

1. At the hardware set for opening 002A, replace "(none)" with "32"
2. At the hardware set for opening 015, replace "(none)" with "33"
3. At the hardware set for opening ST01.7, replace "(none)" with "34"

ADD 2-8. Refer to Sheet M200 – Ground Level Floor Plan, Plumbing

1. General Note #7 shall be amended to read, "… REQUIRED TO MAKE FINAL CONNECTIONS. EXISTING DOUBLE-CHECK BACKFLOW PREVENTER SHALL BE TESTED AND CONFIRMED TO BE OPERATIONAL."

MODIFICATIONS TO THE SPECIFICATIONS

ADD 2-9. Refer to Section 000101 "Table of Contents"; Add the following:

SHA	140120.10	ELECTRIC TRACTION PASSENGER ELEVATOR MODERNIZATION	8

ADD 2-10. Replace Section 004113 "Bid Form – Stipulated Sum (Single-Prime Contract)". This section has been replaced in order to add Alternate No. Eight to the form. Refer to **Attached Section 004113**

ADD 2-11. Refer to Section 012300 "Alternates", Article 3.1 Schedule of Alternates; Add the following Alternate:

H. Alternate No. Eight: Passenger Elevator Modernization.

1. Base Bid: Passenger elevators are to be replaced with new MRL elevators as specified in Section 142100 "Electric Machine Room Less Traction Elevators". The existing machine room would be converted to a storage room with a new elevator equipment control closet built within as shown on Sheet A100.

2. Alternate: The existing electric traction elevators are to be modernized as indicated in Section 140120.10 "Electric Traction Passenger Elevator Modernization". Storage Room 021 as shown on Sheet A100 would be eliminated as would the walls shown surrounding Elevator Equipment 020 and the new door and frame. The entire space would be defined as Elevator Equipment 020. The existing door leading into this space would be removed and replaced with a new HM door (set into existing frame). This "replaced door" would be identified as Door 020. The scheduled information for this door would be as indicated in the Door Schedule found on Detail A6/A500 except the frame would be modified to read "EXTG".

   This alternate has been added to provide opportunity to maximize the available depth of the existing hoistway by increasing the size of the cab.

ADD 2-12. Refer to Section 087100 "Door Hardware", Hardware Schedule; Add the following hardware sets:

Set: 32.0

Doors: 002A

Description:

3 Hinges	TA2714 4-1/2” x 4-1/2”	US26D	MK
1 Exit Device	12 8813 ETL LC	US32D	SA
1 Cylinder	20-001	626	SC
1 Door Closer	281 P10	EN	SA
1 Kick Plate	K1050 10” x 2” LDW 4BE CSK	US32D	RO
1 Gasketing	S88D		PE

Set: 33.0

Doors: 015

Description:

6 Hinges	TA2714 4-1/2” x 4 1/2"	US26D	MK
2 Multi-Point Lock	12 701315 ETL	US26D	SA
2 Cylinder	20-001	626	SC
2 Door Closer	281 P10	EN	SA
2 Kick Plate	K1050 10” x 2” LDW 4BE CSK	US32D	RO
2 Wall Stop	409	US32D	RO
1 Gasketing	S88D		PE

Set: 34.0

Doors: ST01.7

Description:

3 Hinge	TA2714 4-1/2” x 4-1/2”	US26D	MK
1 Mortise Lock	(Storeroom) L9080 06A	626	SC
1 Door Closer	281 P10	EN	SA

1 Kick Plate	K1050 10” x 2” LDW 4BE CSK	US32D	RO
1 Wall Stop	409	US32D	RO
1 Gasketing	S88D		PE

ADD 2-13. Refer to Section 140120 “Electric Traction Elevator Modernization”; Make the following modifications to the specifications:

1. Under Article 1.2, Paragraph B, add the following:

    7. Section 140120.10 “Electric Traction Passenger Elevator Modernization” for modernized passenger elevators to be installed in an existing hoistway under Alternate No. Eight.

2. Under Article 2.3, add the following bulleted item:

    - New pit channels and buffers

3. Under Article 2.4, change the text in the first bulleted item to read:

    - Car sling, platform and cab.

4. Under Article 2.5, Paragraph B.1. change the text to read the following:

    1. Elevator Number: EL 03 as indicated on the Drawings.

5. Under Article 2.5, Paragraph B.2, change the text to read the following:

    1. Machine Location: Existing, adjacent to hoistway.

6. Under Article 2.5, Paragraph B.8; Eliminate this paragraph in its entirety. There are no new car enclosures associated with Elevator EL 03. Subsequent paragraphs 9, 10 and 11 will become paragraphs 8, 9 and 10 respectively.

ADD 2-14. Refer to Section 140120.10 “Electric Traction Passenger Elevator Modernization”; Add this section to the specification manual. Section has been **Attached** as part of this addendum.

ADD 2-15. Refer to Section 142100 “Electric Machine-Room-Less Traction Elevators”; The following modifications are being made primarily as a result of adding Alternate No. Eight to the project.

1. At the tail end of the Section Heading, add the text **“BASE BID”**

2. Under Article 1.2, Paragraph B.4, modify the section number from 142100 to 140120.

3. Under Article 1.2, Paragraph B, add the following:

    9. Section 140120.10 “Electric Traction Passenger Elevator Modernization” for modernized passenger elevators to be installed in an existing hoistway under Alternate No. Eight.

4. Under Article 1.2, Paragraph C.1, modify the section number from 142100 to 140120.

5. Under Article 2.3, Paragraph B.4, modify the rated speed to 200 fpm and delete the metric reference.

6. Under Article 2.3, Paragraph B.9.b, change the text to read as follows:

    b. Doors: New doors in a Satin stainless steel, No. 4 finish.

7. Under Article 2.3, Paragraph B.4, change speed to 200 fpm

8. Under Article 2.3, Paragraph B.9, add the following:

    d. Frame Wrap: Provide stainless steel frame wrap at depth required to cover existing frame and new wall framing as indicated in Detail A4/A600.

ADD 2-16. Refer to Section 211000 "Water-Based Fire-Suppression Systems"; Replace this entire section with **Attached Section 211000 "Water-Based Fire-Suppression Systems".**

New standpipes are not required for fire protection.

Section 3.6 "Hydraulic Designs" has been modified so hose stream demand for Light Hazard areas (Office & Collection Storage / Exhibit Areas) is 100 GPM.

ARCHITECTURAL PRIOR APPROVALS / SUBSTITUTIONS

ADD 2-17. The manufacturers listed herein will be considered approved for bidding. However, the proposed substitution must meet the intent of the specifications and will be subject to shop submittal approval during construction. Burden of Proof is on Proposer. Bidders shall bear all responsibility for coordinating and performing related changes in the Work necessitated by such substitution and include such costs in the Bid:

Specification Section	Manufacturer / Proposed Product
a. 033000 – Vapor Retarders	Barrier-Bac VB 250/350
b. 083323 – Overhead Coiling Doors	Cookson Temp-Master Insulated
c. 087100 – Door Hardware (Auto Operators)	Record – USA 8100 Series
d. 088000 – Glazing	AGC Energy Select 40 (2)Clear+Clear
e. 095113 – Acoustical Ceiling Tile (APC-1)	Certainteed Performa Symphony "M" 1222BF-IOF-1
f. 095113 – Acoustical Ceiling Tile (APC-2)	Certainteed Performa Symphony "F" 1342F-IOF-1
g. 095113 – Acoustical Ceiling Tile (APC-3)	Certainteed Performa Sand Micro SHM-157

MECHANICAL PRIOR APPROVALS / SUBSTITUTIONS

ADD 2-18. The manufacturers listed herein will be considered approved for bidding. However, the proposed substitution must meet the intent of the specifications and will be subject to shop submittal approval during construction. Burden of Proof is on Proposer. Bidders shall bear all responsibility for coordinating and performing related changes in the Work necessitated by such substitution and include such costs in the Bid:

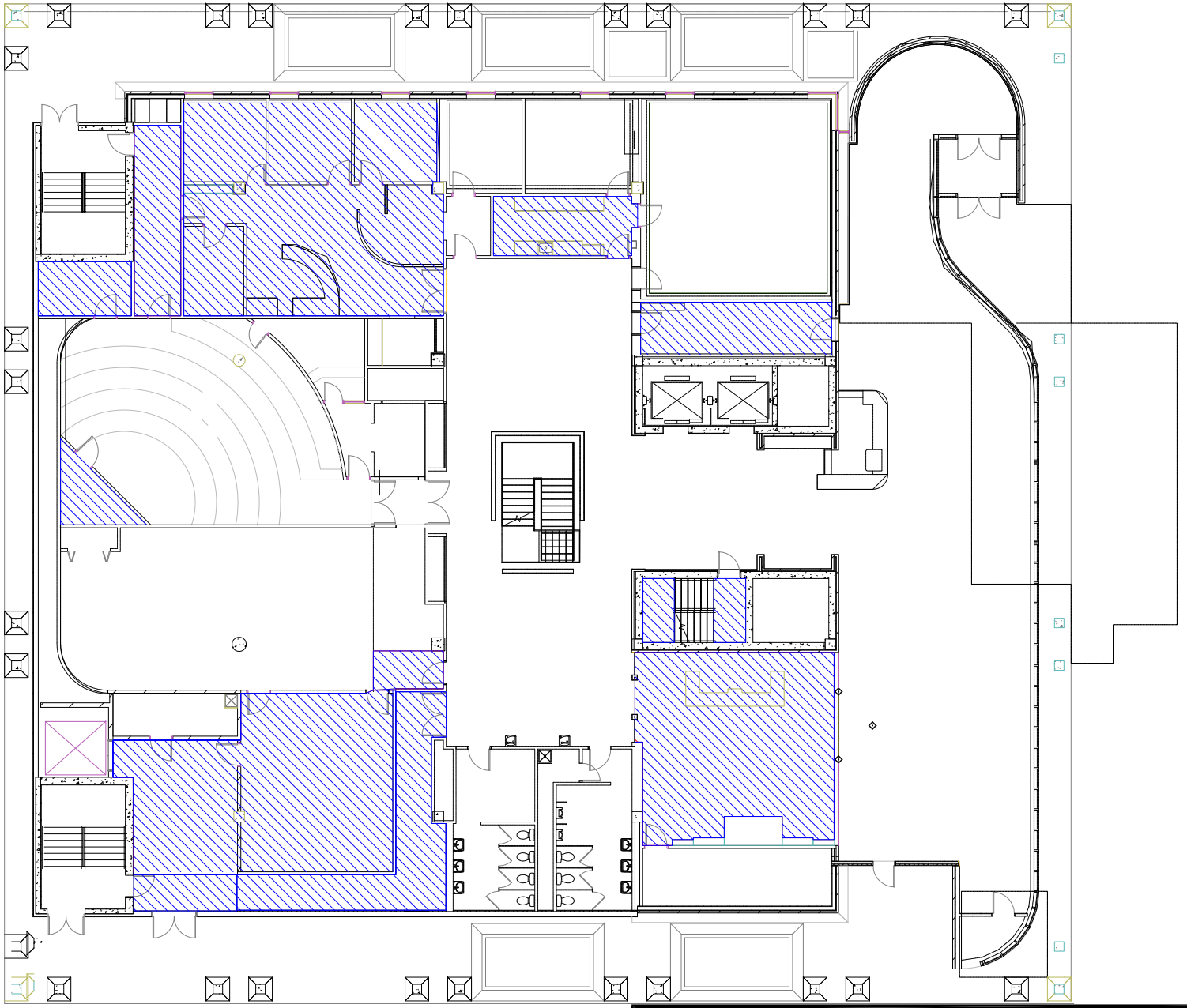
Proposed Equipment	Manufacturer
a. 236423 – Scroll Water Chillers	Carrier
b. 237313 – Modular Indoor Central-Station Air-Handlers	Carrier
c. 238219 – Fan Coil Units	Carrier

ATTACHMENTS

ADD 2-19. The following attachments are included as part of this addendum:

- Cardno ATC Abatement Plan Sheet 1 of 6
- Cardno ATC Abatement Plan Sheet 3 of 6
- Cardno ATC Abatement Plan Sheet 5 of 6
- Section 004113 – Bid Form – Stipulated Sum (Single-Prime Contract) (4 pages)
- Section 140120.10 – Electric Traction Passenger Elevator Modernization (8 pages)
- Section 211000 – Water Based Fire Suppression System (15 Pages)

End of Addendum #2



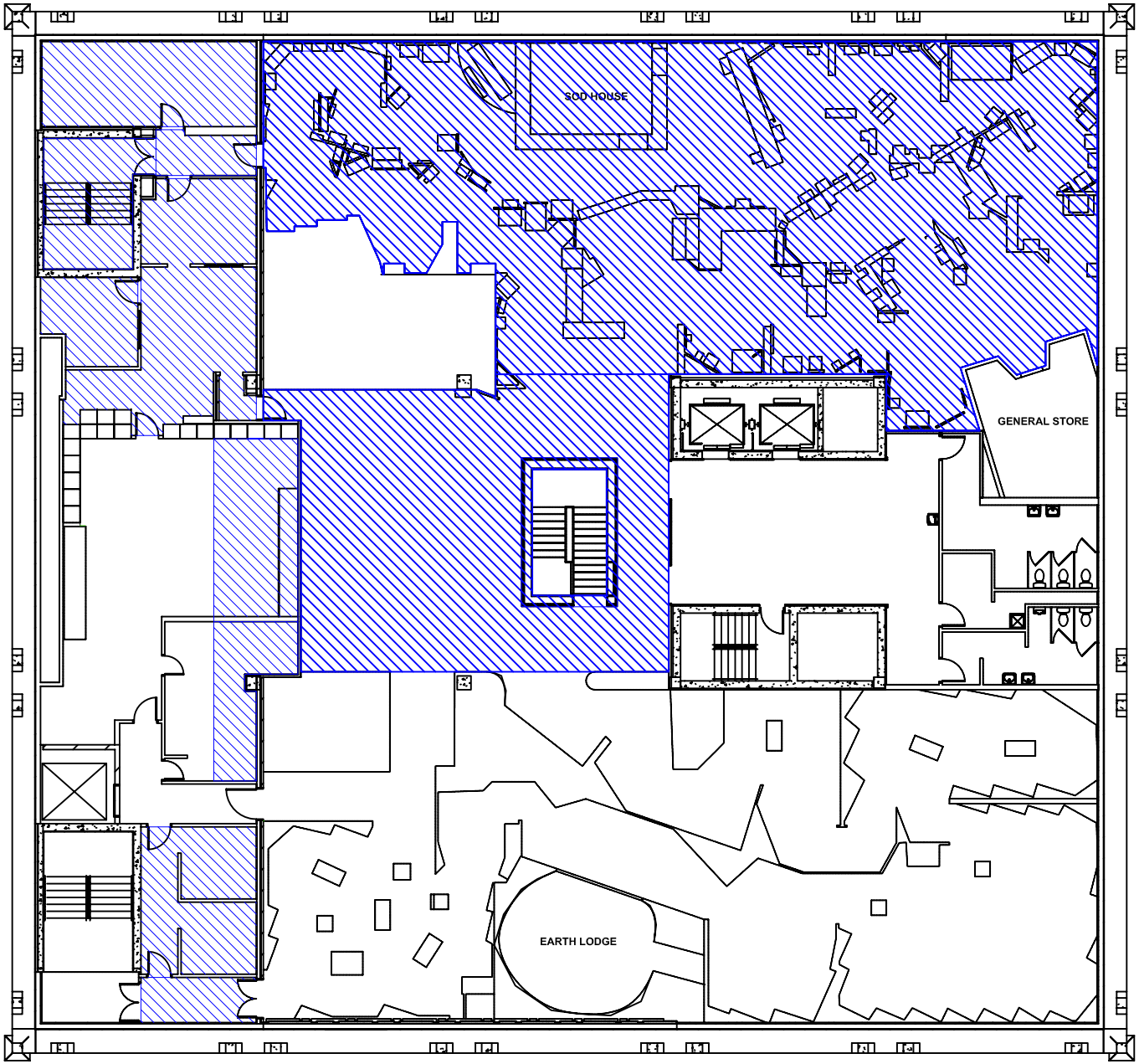
LEGEND
Asbestos Containing Flooring Material

Cardno ATC
Shaping the Future
11117 Mockingbird Drive
Omaha, NE 68137
(402) 697-9747
FAX (402) 597-8532

DRAWING TITLE
Nebraska History Museum
Ground Level
15th and P Street
Lincoln, NE 68508

SCALE
NONE

JOB NUMBER	DWN BY	DATE	CAD FILE	SHEET
007.75429.0057	TJS	9/2/14	NHM - Ground GC	1 of 6



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LEGEND

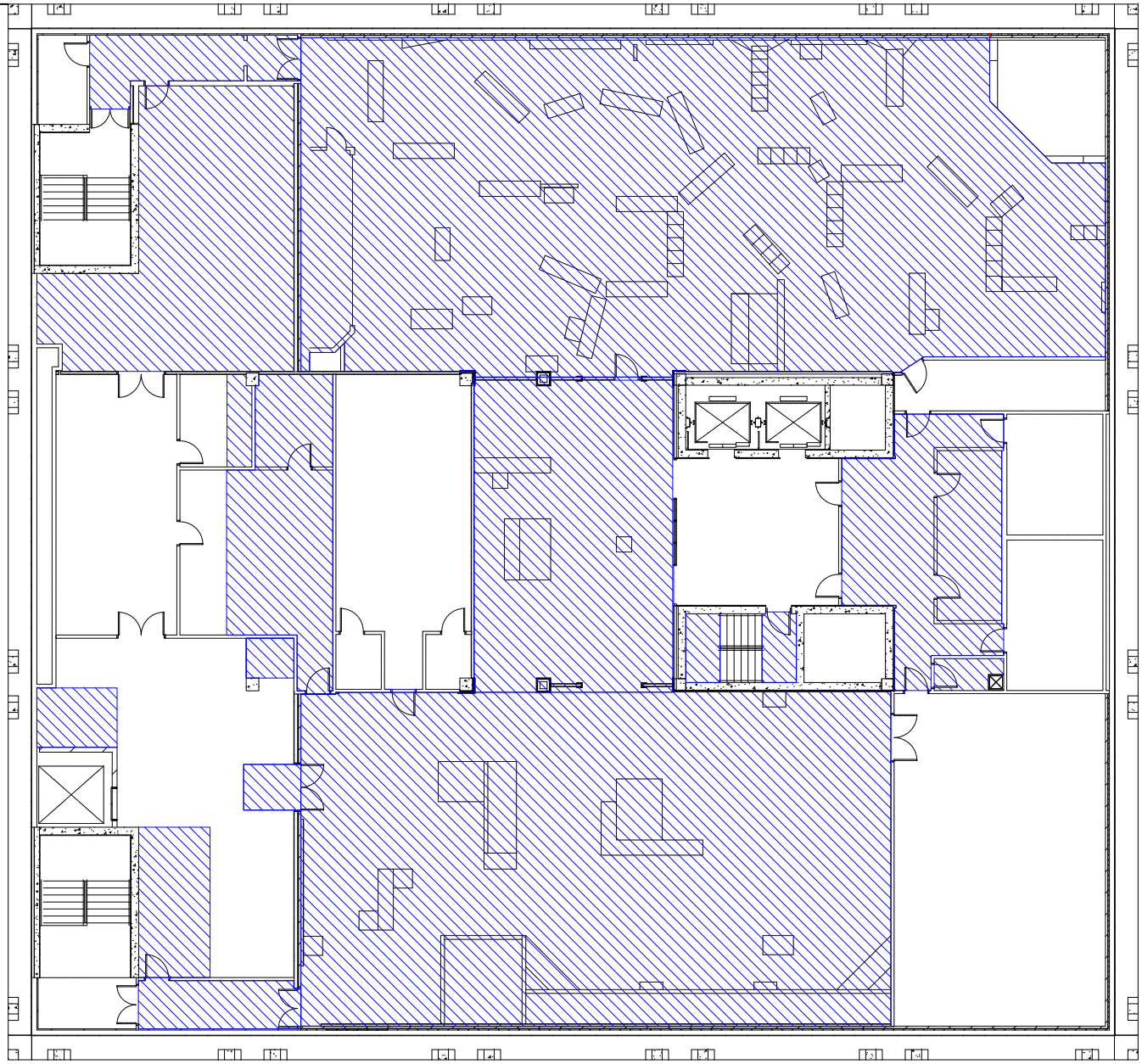
Asbestos Containing Flooring Material

Cardno ATC
Shaping the Future
11117 Mockingbird Drive
Omaha, NE 68137
(402) 697-9747
FAX (402) 597-8532

DRAWING TITLE
Nebraska History Museum
Second Level
15th and P Street
Lincoln, NE 68508

SCALE *NONE*

JOB NUMBER	DWN BY	DATE	CAD FILE	SHEET
007.75429.0057	TJS	9/2/14	NHM - Second GC	3 of 6



LEGEND
Asbestos Containing Flooring Material

Cardno ATC
Shaping the Future
11117 Mockingbird Drive
Omaha, NE 68137
(402) 697-9747
FAX (402) 597-8532

DRAWING TITLE
Nebraska History Museum
Third Level
15th and P Street
Lincon, NE 68508

SCALE
NONE

JOB NUMBER	DWN BY	DATE	CAD FILE	SHEET
007.75429.0057	*TJS*	*9/2/14*	*NHM - Third GC*	*5 of 6*

DOCUMENT 004113 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

The following proposal shall be filled out by each bidder:

Date: _____

Proposal of:

_____

Name

(a Corporation organized and existing under the laws of the State of _____)

or

(an Individual trading as: _____)

TO: **The State of Nebraska Administrative Services**
521 South 14th Street, Suite 500
P.O. Box 98940
Lincoln, NE 68508-2707

PROJECT: **Nebraska History Museum Renovation**

The undersigned in compliance with your Invitation for Bids for construction of **The Nebraska History Museum Renovation**, having examined the plans and specifications with related documents and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies and to construct the project in accordance with the Contract Documents, at the prices stated below. The prices are to cover all expenses incurred in performing the work required under the contract documents of which this proposal is a part.

I (or We) acknowledge receipt of the following addendum or addenda:

_____

The Contractor shall indicate herein the number of consecutive calendar days anticipated to complete the project after commencing work.

_____ calendar days

BASE PROPOSAL

For all work described in the specifications and shown on the plans for the project, I (or we) agree to perform all work for the sum of

_____Dollars

($_____)

(Amount shall be shown in both written form and figures. In case of discrepancy between the written amount and the figures, the written amount will govern.)

ALTERNATES

A. Alternate No. One: **Museum Store Relocation**

Add or Deduct _____ Dollars

B. Alternate No. Two: **Exterior Façade East and North Lighting**

Add or Deduct _____ Dollars

C. Alternate No. Three: **Air-Cooled Chillers – Replacement for UNL Service**

Add or Deduct _____ Dollars

D. Alternate No. Four: **Entry Wood Planking**

Add or Deduct _____ Dollars

E. Alternate No. Five: **North Façade Storefronts**

Add or Deduct _____ Dollars

F. Alternate No. Six: **Additional Surveillance Cameras**

Add or Deduct _____ Dollars

G. Alternate No. Seven: **Temperature Control Contractors**

Alternate Control Contractor: _____

Add or Deduct _____Dollars

H. Alternate No. Eight: Passenger Elevator Modernization

Add or Deduct _____Dollars

UNIT PRICES

A. Unit Price No. One: **Exterior Cast-in-Place Concrete Crack Repair**

_____ Dollars ($_____) per Lineal Foot

B. Unit Price No. Two: **Exterior Brick Tuckpointing**

_____ Dollars ($_____) per Lineal Foot

C. Unit Price No. Three: **Exterior Brick Replacement**

_____ Dollars ($_____) per Brick Unit

D. Unit Price No. Four: **Visible Fire Alarm Notification Devices**

_____ Dollars ($_____) per Device

E. Unit Price No. Five: **Exit Signs**

_____ Dollars ($_____) per Sign

Upon receipt of notice of the acceptance of the bids, we will execute the formal contract attached within five (5) days and deliver a Surety Bond for a faithful performance of this contract.

Respectfully submitted,

By _____

_____

Title

_____

Business Address

SEAL: If bid is by Corporation

SECTION 140120.10 - ELECTRIC TRACTION PASSENGER ELEVATOR MODERNIZATION (ALTERNATE NO. EIGHT)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes modernization of an existing electric traction freight elevator to an electric traction service elevator installed in an existing hoistway and is specific to **Alternate No. Eight.**

B. Related Sections include the following:

1. Section 015000 "Temporary Facilities and Controls" for temporary use of elevators for construction purposes.
2. Section 055000 "Metal Fabrications" for the following:
    a. Attachment plates and angle brackets for supporting guide-rail brackets.
    b. Cants in hoistways made from steel sheet.
3. Section 096513 “Resilient Base and Accessories” for rubber stair landing tile to be installed as the finish flooring in the elevator car.
4. Section 142100 “Electric Machine Room Less Traction Elevators” for new passenger elevators to be installed in an existing hoistway.
5. Section 271500 "Communications Horizontal Cabling" for telephone service for elevators.
6. Section 283111 "Digital, Addressable Fire-Alarm System" Fire-Alarm System" for smoke detectors in elevator lobbies to initiate emergency recall operation and heat detectors in shafts and machine rooms to disconnect power from elevator equipment before sprinkler activation and for connection to elevator controllers.

C. Manufacturer Requirements:

1. Elevator manufacturer providing equipment under this section shall be the same as the manufacturer performing the work under Section 140120 “Electric Traction Elevator Modernization” for renovation of the existing service elevator.

1.3 DEFINITIONS

A. Definitions in ASME A17.1 apply to work of this Section.

1.4 ACTION SUBMITTALS

A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information. Include product data for car enclosures, hoistway entrances, and operation, control, and signal systems.

B. Shop Drawings:

1. Include plans, elevations, sections, and large-scale details indicating service at each landing, machine room layout, coordination with building structure, relationships with other construction, and locations of equipment.
2. Include large-scale layout of car-control station.
3. Indicate maximum dynamic and static loads imposed on building structure at points of support, and maximum and average power demands.

C. Samples for Initial Selection: For finishes involving color selection.

D. Samples for Verification: For exposed finishes of cars, hoistway doors and frames, and signal equipment; 3-inch- (75-mm-) square Samples of sheet materials; and 4-inch (100-mm) lengths of running trim members.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Manufacturer Certificates: Signed by elevator manufacturer certifying that hoistway, pit, and machine room control closet layout and dimensions, as shown on Drawings, and electrical service, as shown and specified, are adequate for elevator system being provided.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For elevators to include in emergency, operation, and maintenance manuals.

B. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted elevator use.

C. Continuing Maintenance Proposal: Submit a continuing maintenance proposal from Installer to Owner, in the form of a standard one-year maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

D. Warranty: For Manufacturer’s Special Warranty.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Elevator manufacturer or an authorized representative who is trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials, components, and equipment in manufacturer's protective packaging. Store materials, components, and equipment off of ground, under cover, and in a dry location.

1.9 COORDINATION

A. Coordinate installation of sleeves, block outs, elevator equipment with integral anchors, and other items that are embedded in concrete or masonry for elevator equipment. Furnish templates, sleeves, elevator equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.

B. Coordinate locations and dimensions of other work relating to electric traction elevators including pit ladders, sumps, and floor drains in pits; entrance subsills; machine beams; and electrical service, electrical outlets, lights, and switches in pits and hoistways.

1.10 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair, restore, or replace defective elevator work within specified warranty period.

1. Failures include, but are not limited to, operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
2. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Kone Inc.
2. Minnesota Elevator, Inc.
3. Schindler Elevator Corporation.
4. Schumacher Elevator Co.
5. ThyssenKrupp Elevator.

B. Source Limitations: Obtain elevators from single manufacturer.

1. Major elevator components, including driving machines, controllers, signal fixtures, door operators, car frames, cars, and entrances, shall be manufactured by single manufacturer.

2. Elevator manufacturer providing equipment under this section shall be the same as the manufacturer performing the work under Section 142100 “Electric Machine-Room-Less Traction Elevators” for installation of the new passenger elevators.

2.2 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with ASME A17.1/CSA B44.

B. Accessibility Requirements: Comply with Section 407 in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and with ICC A117.1.

2.3 SCOPE OF MODERNIZATION WORK SHALL INCLUDE:

- New AC geared machine at 200 fpm.
- New AC hoist motor.
- New AC Variable Voltage Variable Frequency AC drive.
- Required sheave guards and machine bed plates.
- New hoist cables and shackles.
- New Variable Voltage Variable Frequency AC microprocessor control system.
- New AC Variable Voltage Variable Frequency AC drive.
- Tach for feedback to controller and drive.
- Hoistway landing system to accommodate new controller.
- Complete new traveling cables and hoistway wiring.
- New digital governor and governor rope.
- Isolation transformers and position transducers as required or necessary.
- New closed loop car door operator.
- Complete new car door equipment including car tracks, hangers, car door restrictor, spirator, etc.
- New enamel finish steel car doors.
- Extended toe guard as required by code.
- Cab interior upgrade including enamel steel panels, handrails, and ceiling.
- Car top railing as required by code.
- New hoistway door equipment at existing frames including interlocks, closers, etc. at each landing.
- New microlight infrared door protection edge.
- New encoder mounted to governor for tach feedback.
- Code required rope gripper.
- Code required door restrictor.
- New car operating panel in car to include pushbuttons, engraving, emergency light, ADA phone, etc. Finish #4 Stainless Steel.
- New digital car position indicator. Finish #4 Stainless Steel.
- New surface mount hall pushbutton stations at each landing. Finish #4 Stainless Steel.
- A car traveling lantern will be provided in the car. Stainless Steel #4.
- New Jamb Braille plates at each landing.
- Digital hall position indicators with directional arrows above door at first floor. Finish #4 Stainless Steel.
- New car top inspection stations.
- Wiring Diagrams.
- New car sling, platform and cabs.
- The existing hoistway contains an additional depth of approximately 12” to 14”. The size of the new cabs should maximize this additional depth, which will require custom sizing.
- New car safety.
- New pit channels and buffers.
- New hoistway entry doors.
- Other equipment and accessories as required to provide a code-compliant, fully operational, service elevator.

2.4 RETAIN AND RE-USE THE FOLLOWING EQUIPMENT:

- Hoistway entrance frames and sills.
- Car and counterweight rails.
- Counterweights and counterweight frame.

2.5 ELEVATORS

A. Elevator System, General: Manufacturer's standard elevator systems. Unless otherwise indicated, manufacturer's standard components shall be used, as included in standard elevator systems and as required for complete system.

B. Elevator Description:

1. Elevator Number: EL 01 and EL 02 as indicated on the Drawings.
2. Machine Location: Existing, adjacent to hoistway.
3. Rated Load: 3500 to 4000 lb. based on maximum custom cab size allowable within existing hoistway.
4. Rated Speed: 200 fpm.
5. Operation System: Group automatic operation.
6. Auxiliary Operations:

    a. Battery-powered lowering.
    b. Automatic dispatching of loaded car.
    c. Nuisance call cancel.
    d. Loaded-car bypass.

7. Security Features: Card reader operation for access to lower floor and mechanical penthouse.
8. Car Enclosures:

    a. Inside Width: Maximum width to fit existing hoistway from side wall to side wall.
    b. Inside Depth: Maximum depth to fit existing hoistway from back wall to front wall (return panels).
    c. Inside Height: 94 inches (2388 mm) to underside of ceiling.
    d. Front Walls (Return Panels): Satin stainless steel, No. 4 finish.
    e. Car Fixtures: Satin stainless steel, No. 4 finish.
    f. Side and Rear Wall Panels: Plastic laminate, Laminart 4013 “Smoky Bronze Chrysallis”.
    g. Reveals: Satin stainless steel, No. 4 finish.
    h. Door Faces (Interior): Satin stainless steel, No. 4 finish.
    i. Door Sills: Aluminum, mill finish.
    j. Ceiling: Satin stainless steel, No. 4 finish.
    k. Handrails: 1-1/2 inches (38 mm) flat satin stainless steel, No. 4 finish, at sides and rear of car.
    l. Floor prepared to receive carpet (specified in Section 096813 "Tile Carpeting").

9. Hoistway Entrances:

    a. Frames: Reuse existing frames.
    b. Doors: New doors in a Satin stainless steel, No. 4 finish.
    c. Sills: Aluminum, mill finish.
    d. Frame Wrap: Provide stainless steel frame wrap at depth required to cover existing frame and new wall framing as indicated in Detail A4/A600.

10. Hall Fixtures: Satin stainless steel, No. 4 finish.
11. Provide inspection certificate in each car, mounted under acrylic cover with frame made from satin stainless steel, No. 4 finish.

2.6 FINISH MATERIALS

A. General: Provide the following materials for exposed parts of elevator car enclosures, car doors, hoistway entrance doors and frames, and signal equipment as indicated.

B. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, commercial steel, Type B, exposed, matte finish.

C. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, commercial steel, Type B, pickled.

D. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304.

E. Stainless-Steel Bars: ASTM A 276, Type 304.

F. Stainless-Steel Tubing: ASTM A 554, Grade MT 304.

G. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elevator areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance. Examine hoistways, hoistway openings, pits, and machine rooms as constructed; verify critical dimensions; and examine supporting structure and other conditions under which elevator work is to be installed.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions.

B. Welded Construction: Provide welded connections for installing elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualifications of welding operators.

C. Sound Isolation: Mount rotating and vibrating equipment on vibration-isolating mounts designed to minimize transmission of vibrations to structure and minimize structure-borne noise.

D. Lubricate operating parts of systems, including ropes, as recommended by manufacturers.

E. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with car. Where possible, delay final adjustment of sills and doors until car is operable in shaft. Reduce clearances to minimum, safe, workable dimension at each landing.

F. Leveling Tolerance: 1/8 inch (3 mm), up or down, regardless of load and direction of travel.

G. Set sills flush with finished floor surface at landing. Fill space under sill solidly with nonshrink, nonmetallic grout.

H. Locate hall signal equipment for elevators as follows, unless otherwise indicated:

1. Locate hall push-button stations at location most convenient for approaching passengers.
2. Mount hall lanterns at a minimum of 72 inches (1829 mm) above finished floor.

3.3 FIELD QUALITY CONTROL

A. Acceptance Testing: On completion of elevator installation and before permitting elevator use (either temporary or permanent), perform acceptance tests as required and recommended by ASME A17.1/CSA B44 and by governing regulations and agencies.

B. Advise Owner, Architect, and authorities having jurisdiction in advance of dates and times that tests are to be performed on elevators.

3.4 PROTECTION

A. Temporary Use: Limit temporary use for construction purposes to one elevator. Comply with the following requirements for each elevator used for construction purposes:

1. Provide car with temporary enclosure, either within finished car or in place of finished car, to protect finishes from damage.
2. Provide strippable protective film on entrance and car doors and frames.
3. Provide padded wood bumpers on entrance frames covering jambs and frame faces.
4. Provide other protective coverings, barriers, devices, signs, and procedures as needed to protect elevator and elevator equipment.
5. Do not load elevators beyond their rated weight capacity.
6. Engage elevator Installer to provide full maintenance service. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as necessary for proper elevator operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.
7. Engage elevator Installer to restore damaged work, if any, so no evidence remains of correction. Return items that cannot be refinished in the field to the shop, make required repairs and refinish entire unit, or provide new units as required.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to operate, adjust, and maintain elevator(s).

B. Check operation of each elevator with Owner's personnel present before date of Substantial Completion and again not more than one month before end of warranty period. Determine that operation systems and devices are functioning properly.

3.6 MAINTENANCE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of elevator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper elevator operation at rated speed and capacity. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Perform maintenance during normal working hours.
2. Perform emergency callback service during normal working hours with response time of two hours or less.

END OF SECTION 140120.10

SECTION 211000 - WATER-BASED FIRE-SUPPRESSION SYSTEMS

PART 1 - **GENERAL**

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following fire-suppression piping inside the building:
   1. Wet-pipe sprinkler systems.
   2. Preaction sprinkler systems.
   3. Dry-pipe sprinkler systems

1.3 SYSTEM DESCRIPTIONS

A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply. 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.

B. Dry-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing compressed air. Opening of sprinklers releases compressed air and permits water pressure to open dry-pipe valve. Water then flows into piping and discharges from opened sprinklers.

C. Preaction Sprinkler System: Automatic sprinklers are attached to piping containing air. Actuation of fire-detection system in same area as sprinklers opens deluge valve, permitting water to flow into piping and to discharge from sprinklers that have opened.

1.4 PERFORMANCE REQUIREMENTS

A. Standard Piping System Component Working Pressure: Listed for at least 175 psig.

B. Fire-suppression system design shall be approved by authorities having jurisdiction.

   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: Per NFPA 13

   3. Minimum Density for Automatic-Sprinkler Piping Design: Per NFPA 13

   4. Maximum Protection Area per Sprinkler: Per UL listing

   5. Total Combined Hose-Stream Demand Requirement: According to NFPA 13

1.5 SUBMITTALS

A. Qualification Data: fire sprinkler designer with NICET-III certification or registered professional fire protection engineer**.**

B. Product Data: For the following:

1. Piping materials, including sprinkler specialty fittings.
2. Valves, including listed fire-protection valves, unlisted general-duty valves, and specialty valves and trim.
3. Air compressors, including electrical data.
4. Sprinklers, escutcheons, and guards. Include sprinkler flow characteristics, mounting, finish, and other pertinent data.
5. Hose connections, including size, type, and finish.
6. Alarm devices, including electrical data.

C. Fire-hydrant flow test report: Provide new two hydrant water flow test to confirm water pressure available on site. If flow test is not available on site account for elevation difference from flow test location to building elevation.

D. Preliminary Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, submitted to architect/Engineer for preliminary review prior to submitting to authorities having jurisdiction.

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. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13 and NFPA 14. Include "Contractor's Material and Test Certificate for Aboveground Piping" and "Contractor's Material and Test Certificate for Underground Piping."

G. Operation and Maintenance Data: For sprinkler specialties to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer's responsibilities include designing, fabricating, and installing fire-suppression 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 fire sprinkler designer with NICET-III certification or registered professional fire protection engineer**.**

B. Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.

C. NFPA Standards: Fire-suppression-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."
4. NFPA 230, "Fire Protection of Storage."

1.7 System Design Criteria

A. Design, furnish, and install complete operable fire suppression systems in accordance with the latest adopted editions of NPA 13, NFPA 24, NFPA 72 and applicable city, county, and state laws, codes and standards. Include valves, flow switches, valve monitor switches, low air pressure switches, and accessories to meet requirements of AHJs and aforementioned codes and standards.

B. In areas where local codes require coverage by either fire sprinklers or heat detectors, provide coverage by fire sprinklers.

C. Coverage: It is the requirement of this section for complete fire sprinkler coverage of the entire facility including:
1. Accessible chases and shafts.
2. Void spaces both combustible and non-combustible.
3. Mechanical Rooms
4. Electrical and telephone rooms.

D. No change orders will be issued for additions and deletions of sprinkler heads and associated piping and fittings except as such additions and deletions stem from changes in building design made subsequent to approved shop drawings.

1.8 COORDINATION

A. Coordinate layout and installation of sprinklers with other construction that penetrates ceilings, including light fixtures, HVAC equipment, and partition assemblies.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Sprinkler Cabinets: Finished, wall-mounting, steel cabinet with hinged cover, with space for minimum of six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include separate cabinet with sprinklers and wrench for each type of sprinkler on Project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 STEEL PIPE AND FITTINGS

A. Threaded-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795, hot-dip galvanized where applicable and with factory- or field-formed threaded ends.

1. Cast-Iron Threaded Flanges: ASME B16.1.
2. Malleable-Iron Threaded Fittings: ASME B16.3.
3. Gray-Iron Threaded Fittings: ASME B16.4.
4. Steel Threaded Couplings: ASTM A 865 hot-dip galvanized-steel pipe where applicable.

B. Plain-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795 hot-dip galvanized-steel pipe where applicable.

1. Locking-Lug Fittings: UL 213, ductile-iron body with retainer lugs that require one-quarter turn to secure pipe in fitting.

C. Plain-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795 hot-dip galvanized-steel pipe where applicable.

1. Steel Welding Fittings: ASTM A 234/A 234M, and ASME B16.9 or ASME B16.11.
2. Steel Flanges and Flanged Fittings: ASME B16.5.

D. Grooved-End, Standard-Weight Steel Pipe: ASTM A 53/A 53M, ASTM A 135, or ASTM A 795, hot-dip galvanized where applicable and with factory- or field-formed, square-cut- or roll-grooved ends.

1. Grooved-End Fittings: UL-listed, ASTM A 536, ductile-iron casting with OD matching steel-pipe OD.
2. Grooved-End-Pipe Couplings: UL 213 and AWWA C606, rigid pattern, unless otherwise indicated; gasketed fitting matching steel-pipe OD. Include ductile-iron housing with keys matching steel-pipe and fitting grooves, prelubricated rubber gasket listed for use with housing, and steel bolts and nuts.

E. Threaded-End, Schedule 30 Steel Pipe: ASTM A 135 or ASTM A 795, with wall thickness less than Schedule 40 and equal to or greater than Schedule 30; or ASTM A 795 and ASME B36.10M, Schedule 30 wrought-steel pipe; hot-dip galvanized where applicable and with factory- or field-threaded ends.

1. Cast-Iron Threaded Flanges: ASME B16.1.
2. Malleable-Iron Threaded Fittings: ASME B16.3.
3. Gray-Iron Threaded Fittings: ASME B16.4.
4. Steel Threaded Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M or ASTM A 106, Schedule 40, seamless steel pipe hot-dip galvanized where applicable. Include ends matching joining method.
5. Steel Threaded Couplings: ASTM A 865 hot-dip galvanized-steel pipe where applicable.

F. Plain-End, Schedule 30 Steel Pipe: ASTM A 135 or ASTM A 795, with wall thickness less than Schedule 40 and equal to or greater than Schedule 30; or ASTM A 795 and ASME B36.10M, Schedule 30 wrought-steel pipe hot-dip galvanized where applicable.

1. Locking-Lug Fittings: UL 213, ductile-iron body with retainer lugs that require one-quarter turn to secure pipe in fitting.

G. Plain-End, Schedule 30 Steel Pipe: ASTM A 135 or ASTM A 795, with wall thickness less than Schedule 40 and equal to or greater than Schedule 30; or ASTM A 795 and ASME B36.10M, Schedule 30 wrought-steel pipe hot-dip galvanized where applicable.

1. Steel Welding Fittings: ASTM A 234/A 234M, and ASME B16.9 or ASME B16.11.
2. Steel Flanges and Flanged Fittings: ASME B16.5.

H. Grooved-End, Schedule 30 Steel Pipe: ASTM A 135 or ASTM A 795, with wall thickness less than Schedule 40 and equal to or greater than Schedule 30; or ASTM A 795 and ASME B36.10M, Schedule 30 wrought-steel pipe hot-dip galvanized where applicable; with factory- or field-formed, roll-grooved ends.

1. Grooved-End Fittings: UL-listed, ASTM A 536, ductile-iron casting with OD matching steel-pipe OD.
2. Grooved-End-Pipe Couplings: UL 213 and AWWA C606, rigid pattern, unless otherwise indicated; gasketed fitting matching steel-pipe OD. Include ductile-iron housing with keys matching steel-pipe and fitting grooves, prelubricated rubber gasket listed for use with housing, and steel bolts and nuts.

I. Plain-End, Schedule 10 Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 10 in NPS 5 and smaller; and NFPA 13-specified wall thickness in NPS 6 to NPS 10.

1. Locking-Lug Fittings: UL 213, ductile-iron body with retainer lugs that require one-quarter turn to secure pipe in fitting.

J. Plain-End, Schedule 10 Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 10 in NPS 5 and smaller; and NFPA 13 specified wall thickness in NPS 6 to NPS 10.

1. Steel Welding Fittings: ASTM A 234/A 234M, and ASME B16.9 or ASME B16.11.
2. Steel Flanges and Flanged Fittings: ASME B16.5.

K. Grooved-End, Schedule 10 Steel Pipe: ASTM A 135 or ASTM A 795, Schedule 10 in NPS 5 and smaller; and NFPA 13-specified wall thickness in NPS 6 to NPS 10; with factory- or field-formed, roll-grooved ends.

1. Grooved-End Fittings: UL-listed, ASTM A 536, ductile-iron casting with OD matching steel-pipe OD.
2. Grooved-End-Pipe Couplings: UL 213 and AWWA C606, rigid pattern, unless otherwise indicated; gasketed fitting matching steel-pipe OD. Include ductile-iron housing with keys matching steel-pipe and fitting grooves, rubber gasket listed for use with housing, and steel bolts and nuts.

2.3 COPPER TUBE AND FITTINGS

A. Plain-End, Hard Copper Tube: ASTM B 88, Type K (ASTM B 88M, Type A) or ASTM B 88, Type L (ASTM B 88M, Type B), water tube, drawn temper.

1. Copper Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.
2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end. Furnish Class 300 flanges if required to match tubing system.
3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body with ball-and-socket metal-to-metal seating surfaces, and solder-joint or threaded ends.
4. Copper, Mechanically Formed Tee Option: For forming T-branch on copper water tube.

5. Brazing Filler Metals: AWS A5.8, BCuP-3 or BCuP-4.

2.4 DIELECTRIC FITTINGS

A. Assembly shall be copper alloy, ferrous, and insulating materials with ends matching piping system.

B. Dielectric Unions: Factory-fabricated assembly, designed for 250-psig minimum working pressure at 180 deg F. Include insulating material that isolates dissimilar materials and ends with inside threads according to ASME B1.20.1.

C. Dielectric Flanges: Factory-fabricated companion-flange assembly, for 175-psig minimum working-pressure rating as required for piping system.

D. Dielectric Flange Insulation Kits: Components for field assembly shall include CR or phenolic gasket, PE or phenolic bolt sleeves, phenolic washers, and steel backing washers.

E. Dielectric Couplings: Galvanized steel with inert and noncorrosive thermoplastic lining and threaded ends and 300-psig working-pressure rating at 225 deg F.

F. Dielectric Nipples: Electroplated steel with inert and noncorrosive thermoplastic lining, with combination of plain, threaded, or grooved ends and 300-psig working-pressure rating at 225 deg F.

2.5 SPRINKLER SPECIALTY FITTINGS

A. Sprinkler specialty fittings shall be UL listed or FMG approved, with 175-psig minimum working-pressure rating, and made of materials compatible with piping.

B. Sprinkler Drain and Alarm Test Fittings: Cast- or ductile-iron body; with threaded or locking-lug inlet and outlet, test valve, and orifice and sight glass.

C. Sprinkler Branch-Line Test Fittings: Brass body with threaded inlet, capped drain outlet, and threaded outlet for sprinkler.

D. Sprinkler Inspector's Test Fitting: Cast- or ductile-iron housing with threaded inlet and drain outlet and sight glass.

E. Drop-Nipple Fittings: UL 1474, adjustable with threaded inlet and outlet, and seals.

F. Dry-Pipe-System Fittings: UL listed for dry-pipe service.

2.6 LISTED FIRE-PROTECTION VALVES

A. Valves shall be UL listed or FMG approved, with 175-psig minimum pressure rating.

1. Gate Valves: UL 262, cast-iron body, bronze mounted, with solid disc, nonrising stem, operating nut, and flanged ends.

B. Ball Valves: Comply with UL 1091, except with ball instead of disc.

1. NPS 1-1/2 and Smaller: Bronze body with threaded ends.

2. NPS 2 and NPS 2-1/2: Bronze body with threaded ends or ductile-iron body with grooved ends.
3. NPS 3: Ductile-iron body with grooved ends.

C. Butterfly Valves: UL 1091.

1. NPS 2 and Smaller: Bronze body with threaded ends.
2. NPS 2-1/2 and Larger: Bronze, cast-iron, or ductile-iron body; wafer type or with flanged or grooved ends.

D. Check Valves NPS 2 and Larger: UL 312, swing type, cast-iron body with flanged or grooved ends.

E. Gate Valves: UL 262, OS&Y type.

1. NPS 2 and Smaller: Bronze body with threaded ends.
2. NPS 2-1/2 and Larger: Cast-iron body with flanged ends.

F. Indicating Valves: UL 1091, with integral indicating device and ends matching connecting piping.

1. Indicator: Electrical, 115-V ac, prewired, supervisory switch.
2. NPS 2 and Smaller: Ball or butterfly valve with bronze body and threaded ends.
3. NPS 2-1/2 and Larger: Butterfly valve with cast- or ductile-iron body; wafer type or with flanged or grooved ends.

2.7 UNLISTED GENERAL-DUTY VALVES

A. Ball Valves NPS 2 and Smaller: MSS SP-110, 2-piece copper-alloy body with chrome-plated brass ball, 600-psig minimum CWP rating, blowout-proof stem, and threaded ends.

B. Check Valves NPS 2 and Smaller: MSS SP-80, Type 4, Class 125 minimum, swing type with bronze body, nonmetallic disc, and threaded ends.

C. Gate Valves NPS 2 and Smaller: MSS SP-80, Type 2, Class 125 minimum, with bronze body, solid wedge, and threaded ends.

D. Globe Valves NPS 2 and Smaller: MSS SP-80, Type 2, Class 125 minimum, with bronze body, nonmetallic disc, and threaded ends.

2.8 SPECIALTY VALVES

A. Sprinkler System Control Valves: UL listed or FMG approved, cast- or ductile-iron body with flanged or grooved ends, and 175-psig minimum pressure rating.

1. Alarm Check Valves: UL 193, designed for horizontal or vertical installation, with bronze grooved seat with O-ring seals, single-hinge pin, and latch design. Include trim sets for bypass, drain, electrical sprinkler alarm switch, pressure gages, retarding chamber, and fill-line attachment with strainer.

2. Dry-Pipe/Pre-Action System Valves: UL 260, differential type; with bronze seat with O-ring seals, single-hinge pin, and latch design. Include UL 1486, quick-opening devices,

trim sets for air supply, drain, priming level, alarm connections, ball drip valves, pressure gages, priming chamber attachment, and fill-line attachment.

a. Air-Pressure Maintenance Device: UL 260, automatic device to maintain correct air pressure in piping. Include shutoff valves to permit servicing without shutting down sprinkler piping, bypass valve for quick filling, pressure regulator or switch to maintain pressure, strainer, pressure ratings with 14- to 60-psig adjustable range, and 175-psig maximum inlet pressure.
b. Air Compressor: UL 753, tank mounted, 3/4 horsepower, 208-V ac, 60 Hz, three phase. Provide flexible connection to air maintenance device and vibration isolation mounting pads. Coordinate electrical requirement with electrical contractor.

B. Automatic Drain Valves: UL 1726, NPS 3/4, ball-check device with threaded ends.

2.9 PAINTING

A. All exposed piping shall be painted
B. All horizontal piping shall be installed prior to painting
C. Painting of the sprinkler piping and equipment if required shall be by the painting contractor; however, preparation of the sprinkler piping for the painting contractor is by the sprinkler contractor.
D. The sprinkler contractor is to remove all labels, stickers, fabrication identification tags, excess pipe dope, Teflon tape, oil residues and grease from the sprinkler piping before the system is turned over to the painting contractor for painting.
E. The sprinkler contractor is to install protective plastic bags on all sprinkler heads in areas where the roof deck and/or structural systems is to be painted. In addition, all brass valves shall be protected from painting. Painted valves (other than by the manufacturer) shall be replaced at no additional cost to the Owner.
F. Any sprinkler head over sprayed with paint shall be replaced. Cleaning of sprinkler heads to remove paint is not acceptable. Painted sprinklers shall be replaced at no additional cost to the Owner.
G. The sprinkler contractor shall furnish a signed statement on his letterhead and place it in the operating instruction and maintenance manuals that he has verified that all plastic bags have been removed from sprinklers and that all sprinklers over sprayed with paint have been replaced.

2.10 SPRINKLERS

A. Sprinklers shall be UL listed or FMG approved, with 175-psig minimum pressure rating.

B. Automatic Sprinklers: With heat-responsive element complying with the following:

1. UL 199, for nonresidential applications.

C. Sprinkler Types and Categories: Nominal 1/2-inch orifice for "Ordinary" temperature classification rating, unless otherwise indicated or required by application.

D. Sprinkler types, features, and options as follows:

1. Concealed ceiling quick response sprinklers, including cover plate.
2. Extended-coverage quick response sprinklers.

3. Flush ceiling quick response sprinklers, including escutcheon.
4. Pendent quick response sprinklers.
5. Pendent, dry-type sprinklers.
6. Upright sprinklers.

E. Sprinkler Finishes: Chrome plated, bronze, and painted.

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: Plastic, white finish.
2. Sidewall Mounting: Plastic, white finish.

G. Sprinkler Guards: Wire-cage type, including fastening device for attaching to sprinkler.

2.11 HOSE CONNECTIONS

1. Valve Operation: Nonadjustable type, unless pressure-regulating type is indicated.
2. Finish: Rough metal or chrome-plated.

2.12 ALARM DEVICES

A. Alarm-device types shall match piping and equipment connections.

B. Electrically Operated Alarm: UL 464, vibrating-type, metal alarm bell with red-enamel factory finish and suitable for outdoor use.

C. Water-Flow Indicator: UL 346, electrical-supervision, paddle-operated-type, water-flow detector with 250-psig pressure rating and designed for horizontal or vertical installation. Include two single-pole, double-throw circuit switches for isolated alarm and auxiliary contacts, 7 A, 125-V ac and 0.25 A, 24-V dc; complete with factory-set, field-adjustable retard element to prevent false signals and tamperproof cover that sends signal if removed.

D. Pressure Switch: UL 753, electrical-supervision-type, water-flow switch with retard feature. Include single-pole, double-throw, normally closed contacts and design that operates on rising pressure and signals water flow.

E. Valve Supervisory Switch: UL 753, electrical, single-pole, double-throw switch with normally closed contacts. Include design that signals controlled valve is in other than fully open position.

F. Indicator-Post Supervisory Switch: UL 753, electrical, single-pole, double-throw switch with normally closed contacts. Include design that signals controlled indicator-post valve is in other than fully open position.

2.13 PRESSURE GAGES

A. Description: UL 393, 3-1/2- to 4-1/2-inch- diameter, dial pressure gage with range of 0 to 250 psig minimum.

1. Water System Piping: Include caption "WATER" or "AIR/WATER" on dial face.

2. Air System Piping: Include retard feature and caption "AIR" or "AIR/WATER" on dial face.

PART 3 - EXECUTION

3.1 PREPARATION

A. Perform fire-hydrant flow test according to NFPA 13, NFPA 14, and NFPA 291. Use results for system design calculations required in Part 1 "Quality Assurance" Article.

B. Report test results promptly and in writing.

3.2 EXAMINATION

A. Examine roughing-in for hose connections and stations to verify actual locations of piping connections before installation.

B. Examine walls and partitions for suitable thicknesses, fire- and smoke-rated construction, framing for hose-station cabinets, and other conditions where hose connections and stations are to be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PIPING APPLICATIONS, GENERAL

A. Shop weld pipe joints where welded piping is indicated.

B. Do not use welded joints for galvanized-steel pipe.

C. Flanges, flanged fittings, unions, nipples, and transition and special fittings with finish and pressure ratings same as or higher than system's pressure rating may be used in aboveground applications, unless otherwise indicated.

D. Piping between Fire Department Connections and Check Valves: Galvanized, standard-weight steel pipe with threaded ends; or grooved joints.

3.4 SPRINKLER SYSTEM PIPING APPLICATIONS

A. Standard-Pressure, Wet-Pipe Sprinkler System, 175-psig Maximum Working Pressure:

1. Sprinkler Mains:
   a. Steel piping as allowed by NFPA13 and Authority Having Jurisdiction**.**
   b. Copper piping as allowed by NFPA13 and Authority Having Jurisdiction with wall thickness of schedule 30 or greater.

2. Branch Piping:
   a. Steel piping as allowed by NFPA13 Factory Mutual and Authority Having Jurisdiction with wall thickness of schedule 10 or greater.
   b. Copper piping as allowed by NFPA13 and Authority Having Jurisdiction**.**

B. Standard-Pressure, Dry-Pipe Sprinkler System, 175-psig Maximum Working Pressure:

1. Sprinkler Mains:
   a. Steel piping as allowed by NFPA13 and Authority Having Jurisdiction**.**
   b. Copper piping as allowed by NFPA13 and Authority Having Jurisdiction with wall thickness of schedule 40 or greater.

2. Branch Piping:
   a. Steel piping as allowed by NFPA13 Factory Mutual and Authority Having Jurisdiction with wall thickness of schedule 40 or greater.

3.5 VALVE APPLICATIONS

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Listed Fire-Protection Valves: UL listed and FMG approved for applications where required by NFPA 13 and NFPA 14.

   a. Shutoff Duty: Use ball, butterfly, or gate valves.

2. Unlisted General-Duty Valves: For applications where UL-listed and FMG-approved valves are not required by NFPA 13 and NFPA 14.

   a. Shutoff Duty: Use ball, butterfly, or gate valves.
   b. Throttling Duty: Use ball or globe valves.

3.6 HYDRAULIC DESIGNS

A. System minimums, greater may be required by local AHJ.

B. Office Areas: Provide a wet pipe automatic sprinkler system using minimum 1/2-inch orifice, 165 degree quick response sprinklers designed to provide a minimum density of 0.10 GPM/SQ.FT. over the hydraulically most remote 1,500 SQ.FT. Sprinkler spacing shall not exceed 225 SQ.FT. per head and a 100 GPM hose stream allowance shall be included in hydraulic calculations. Use of Extended Coverage (EC) heads is allowed as long as installed per UL listing.

C. Woodshop Area (Third Level): Provide a wet pipe automatic sprinkler system using minimum 1/2-inch orifice, 165 degree quick response sprinklers designed to provide a minimum density for Ordinary Hazard Group 2. Sprinkler spacing shall not exceed 130 SQ.FT. per head and a 250 GPM hose stream allowance shall be included in hydraulic calculations.

D. Collection Storage / Exhibit Areas: Provide a Double Interlock Pre-Action automatic sprinkler system using minimum 1/2-inch orifice, 165 degree quick response sprinklers designed to provide a minimum density of 0.10 GPM/SQ.FT. over the hydraulically most remote 1,500 SQ.FT. Sprinkler spacing shall not exceed 225 SQ.FT. per head and a 100 GPM hose stream allowance shall be included in hydraulic calculations. Use of EC heads is allowed as long as installed per UL listing.

E. Building Overhang (South Elevation): If the overhang requires sprinklers per NFPA 13 8.15.7 provide and design to provide a minimum density required for a Ordinary Hazard Group 2 Occupancy. These areas can be protected by either a dry pendant EC Horizontal sidewall (similar to Tyco DS-3) or from a typical dry pipe sprinkler system. Heads should be rated at 165 degrees upright heads, minimum K=5.6 and spacing shall not exceed 130 SQ.FT. A 250 GPM hose stream allowance shall be included in the hydraulic calculations. Use of EC type heads is allowed in the area as long as per UL listing.

3.7 JOINT CONSTRUCTION

A. Refer to Division 21 Section "Basic Piping Materials and Methods Fire Suppression" for basic piping joint construction.

B. Threaded Joints: Comply with NFPA 13 for pipe thickness and threads. Do not thread pipe smaller than NPS 8 (DN 200) with wall thickness less than Schedule 40 unless approved by authorities having jurisdiction and threads are checked by a ring gage and comply with ASME B1.20.1.

C. Twist-Locked Joints: Insert plain-end piping into locking-lug fitting and rotate retainer lug one-quarter turn.

D. Pressure-Sealed Joints: Use UL-listed tool and procedure. Include use of specific equipment, pressure-sealing tool, and accessories.

E. Grooved Joints: Assemble joints with listed coupling and gasket, lubricant, and bolts.

1. Ductile-Iron Pipe: Radius-cut-groove ends of piping. Use grooved-end fittings and grooved-end-pipe couplings.
2. Steel Pipe: Square-cut or roll-groove piping as indicated. Use grooved-end fittings and rigid, grooved-end-pipe couplings, unless otherwise indicated.
3. Copper Tube: Roll-groove tubing. Use grooved-end fittings and grooved-end-tube couplings.
4. Dry-Pipe Systems: Use fittings and gaskets listed for dry-pipe service.

F. Dissimilar-Metal Piping Joints: Construct joints using dielectric fittings compatible with both piping materials.

1. NPS 2 and Smaller: Use dielectric unions, couplings, or nipples.
2. NPS 2-1/2 to NPS 4: Use dielectric flanges.
3. NPS 5 and Larger: Use dielectric flange insulation kits.

3.8 PIPING INSTALLATION

A. Refer to Division 21 Section "Basic Piping Materials and Methods for Fire Suppression" for basic piping installation.

B. 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.

C. Install underground ductile-iron service-entrance piping according to NFPA 24 and with restrained joints.

D. Use approved 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. Unions are not required on flanged devices or in piping installations using grooved joints.

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

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

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

I. Install ball drip valves to drain piping between fire department connections and check valves. Drain to floor drain or outside building.

J. Install alarm devices in piping systems.

K. Hangers and Supports: Comply with NFPA 13 for hanger materials.

L. Install pressure gages on riser or feed main, at each sprinkler test connection, and at top of each sprinkler riser. 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.

M. Fill wet-pipe sprinkler system piping with water.

N. Drain dry-pipe sprinkler piping.

O. Pressurize and check dry-pipe sprinkler system piping and air-pressure maintenance devices and air compressors.

3.9 VALVE INSTALLATION

A. Install listed fire-protection valves, unlisted general-duty valves, specialty valves and trim, controls, and specialties according to NFPA 13 and NFPA 14 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. Alarm Check Valves: Install in vertical position for proper direction of flow, including bypass check valve and retarding chamber drain-line connection.
2. Dry-Pipe Valves: Install trim sets for air supply, drain, priming level, alarm connections, ball drip valves, pressure gages, priming chamber attachment, and fill-line attachment.

    a. Air-Pressure Maintenance Devices for Dry-Pipe Systems: Install shutoff valves to permit servicing without shutting down sprinkler system; bypass valve for quick system filling; pressure regulator or switch to maintain system pressure; strainer; pressure ratings with 14- to 60-psig adjustable range; and 175-psig maximum inlet pressure.
    b. Install air compressor and compressed-air supply piping.
    c. Install compressed-air supply piping from building's compressed-air piping system.

3.10 SPRINKLER APPLICATIONS

A. Drawings indicate sprinkler types to be used. Where specific types are not indicated, use the following sprinkler types:

1. Rooms without Ceilings: Upright quick response sprinklers.
2. Rooms with Suspended Ceilings: Concealed quick response sprinklers.
3. Wall Mounting: Sidewall quick response sprinklers.
4. Spaces Subject to Freezing: Pendent, dry sprinklers.
5. Sprinkler Finishes:
   a. Upright, Pendent, and Sidewall Sprinklers: White in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view;.
   b. Concealed Sprinklers: Rough brass, with factory-painted white cover plate.

3.11 SPRINKLER INSTALLATION

A. Install sprinklers in suspended ceilings in center of acoustical ceiling panels and tiles.

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

3.12 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

C. Connect water-supply piping to fire-suppression piping. Include backflow preventer between potable-water piping and fire-suppression piping. Refer to Division 22 Section "Domestic Water Piping Specialties" for backflow preventers.

D. Install ball drip valves at each check valve for fire department connection. Drain to floor drain or outside building.

E. Connect piping to specialty valves, hose valves, specialties, fire department connections, and accessories.

F. Connect compressed-air supply to dry-pipe and pre-action sprinkler piping.

G. Connect air compressor to the following piping and wiring:

1. Pressure gages and controls.
2. Electrical power system.
3. Fire alarm devices, including low-pressure alarm.

H. Electrical Connections: Power wiring is specified in Division 26.

I. Coordinate with Electrical contractor to connect alarm devices to fire alarm.

3.13 LABELING AND IDENTIFICATION

A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13 and NFPA 14.

3.14 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Leak Test: After installation, charge system 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. Energize circuits to electrical equipment and devices.
4. Start and run air compressors.
5. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
6. Coordinate with fire alarm tests. Operate as required.
7. Verify that equipment hose threads are same as local fire department equipment.

B. Report test results promptly and in writing to Architect and authorities having jurisdiction.

3.15 CLEANING AND PROTECTION

A. Clean dirt and debris from sprinklers.

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

C. Protect sprinklers from damage until Substantial Completion.

3.16 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain specialty valves. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 211000