

Notice

Basic Information

Reference Number	0000383689
Issuing Organization	Dallas County
Owner Organization	
Project Type	IFB - Invitation for Bid (Formal)
Project Number	2025-035-7060
Title	Replacement of Hot Water Piping System and Security Ceiling
Source ID	PU.AG.USA.2438.C18536526
Piggyback Solicitation	No

Details

Location	Dallas County, Texas
Job Location	2600 Lone Star Dr Dallas, Texas United States 75212
Description	<p>This is a one-time construction contract for the upgrade and replacement of the hot water piping system for the Henry Wade Juvenile Justice Center. The project will include the replacement of the hot water return piping, insulation, hangers and supports, and circulating pumps. The project scope will also include the replacement of the security ceiling in areas where the hot water piping is to be replaced.</p> <p>Closing and Submission Date The bids response must be submitted by the due date May 8th, 2025, at 2:00 p.m. (CST)</p> <p>Bid Reading May 8th, 2025, at 2:30 p.m. (CST), the reading will be conducted via a live meeting online. Bids will be publicly opened in compliance with the public bid opening statutory requirements.</p> <p>Join live event +1 469-208-1731 United States, Dallas (Toll) Conference ID: 930 677 736#</p>

Dates

Publication	04/17/2025 02:06 PM CDT
Question Acceptance Deadline	05/01/2025 02:00 PM CDT
Questions are submitted online	Yes
Closing Date	05/08/2025 02:00 PM CDT

Prebid Conference	04/29/2025 01:00 PM CDT
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Contact Information

Marvin Kines
214-653-7933
marvin.kines@dallascounty.org

Buyer Preferences, Guidelines & Requirements

Participation Requirements

- Small Business Participation

General Requirements

- Insurance Required

Bonding Requirements

- Bid Bond	5.00 %
- Performance Bond	100.00 %
- Payment Bond	100.00 %

Pre-Bidding Events

Event Type	Prebid Conference
Attendance	Recommended
Event date	04/29/2025 01:00 PM CDT
Location	Via Microsoft Teams

Event Note

Optional Pre-Bid Conference
Pre-bid conference is on April 29th, 2025 at 1:00 p.m. (CST), this pre-bid conference will be conducted virtually via Microsoft Teams.

Join the meeting now
Meeting ID: 291 476 018 124 0
Passcode: 9cE6pb37
Dial in by phone
+1 469-208-1731,,437220166# United States, Carrollton
Find a local number
Phone conference ID: 437 220 166#

Question and Answer Deadline
May 1st, 2025, at 2:00 p.m. (CST)

Bid Submission Process
Bid Submission Type
Pricing
Pricing
Bid Documents List

Electronic or Physical Bid Submission
In attached document
In attached document

Item Name	Description	Mandatory	Limited to 1 file
SBE Documents	Attachment S - Small Business Enterprise (SBE) Forms	Yes	No
2025 W-9	2025 W-9	Yes	No
References	Submit reference letters here	Yes	No
Completed Bid submission	Attach completed Bid	Yes	No
SBE Questions	Attach response	Yes	No
Cost Sheet	Attach completed cost sheet	Yes	No
Bonds	Attach Bonds	Yes	No

Documents

Documents

Document	Size	Uploaded Date	Language
SBE Documents [pdf]	536 Kb	12/19/2024 11:15 AM CST	English
DALLAS COUNTY STANDARD TERMS AND CONDITIONS IFB (1).pdf [pdf]	342 Kb	12/20/2024 02:00 PM CST	English
Specifications - Exhibit 1 [pdf]	3 Mb	04/14/2025 11:33 AM CDT	English
Drawings - Exhibit 2 [pdf]	63 Mb	04/14/2025 11:33 AM CDT	English
2025-035-7060 IFB Replacement of Hot Water Piping System.pdf [pdf]	213 Kb	04/16/2025 09:27 AM CDT	English
SBE Questions (Mandatory).xls [xls]	20 Kb	04/17/2025 08:20 AM CDT	English

Categories

Selected Categories

NIGP Categories (5)	
670	PLUMBING EQUIPMENT, FIXTURES, AND SUPPLIES
67091	Water Heaters, Commercial Water Heaters, Commercial
936	EQUIPMENT MAINTENANCE AND REPAIR SERVICES FOR GENERAL EQUIPMENT
93691	Water Supply and Sewage Treatment Equipment Maintenance and Repair Water Supply and Sewage Treatment Equipment Maintenance and Repair
031	AIR CONDITIONING, HEATING, AND VENTILATING EQUIPMENT, PARTS AND ACCESSORIES (SEE CLASS 740 ALSO)
03194	Unit Heaters, Steam and Hot Water Types Unit Heaters, Steam and Hot Water Types
934	EQUIPMENT MAINTENANCE AND REPAIR SERVICES FOR LAUNDRY, LAWN, PAINTING, PLUMBING, AND SPRAYING EQUIPMENT
93464	Plumbing Equipment and Fixtures, Maintenance and Repair Plumbing Equipment and Fixtures, Maintenance and Repair
909	BUILDING CONSTRUCTION SERVICES, NEW (INCL. MAINTENANCE AND REPAIR SERVICES)
90963	Maintenance and Repair, Commercial and Institutional Building Maintenance and Repair, Commercial and Institutional Building

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IFB

ATTACHMENT S
SBE PROGRAM AND FORMS



SBE LANGUAGE

7.0 SMALL BUSINESS ENTERPRISE (SBE) PROGRAM

7.1. Definitions.

- 7.1.1. The term **"Commercially Useful Function"** is defined as a business that is directly responsible for providing the supplies or services to Dallas County as required by the solicitation or request quotes, bids or proposals. A firm is considered to perform a commercially useful function when responsible for the execution of a distinct element of the work of a contract and carries out its responsibilities by actually performing, managing and supervising the work involved. Example: a business that stocks sufficient quantities of supplies in direct inventory which is being held for sale or resale, to cover anticipated future demands for the suppliers is considered to be performing a commercially useful function.
- 7.1.2. A **"Contractor"** is defined as one who participates, through a contract or any other contractual agreement in a County funded contract opportunity for work, labor, services, supplies, equipment, materials, goods or any combination of the aforementioned. For purposes of this Section, a Contractor is any individual, company, or other entity seeking to do work for Dallas County regardless of the method used to procure the services or products, including but not limited to bid or solicitation. A Contractor includes but is not limited to a contractor, consultant, or vendor.
- 7.1.3. The term **"Director of Small Business Enterprise"** shall mean the Director of the County's Office of Small Business Enterprise and/or her/his designee.
- 7.1.4. The term **"Contract Administration"** shall mean the County Purchasing Department and/or his or her designee.
- 7.1.5. The **"Contract Administration Supervisor"** shall mean the Purchasing Director and/or his or her designee.
- 7.1.6. **Equal Employment Opportunity Requirements.** It is the policy of Dallas County to ensure non-discrimination in the award and administration of contracts. The Contractor or Subcontractor shall not discriminate on the basis of race, color, national origin, disability, veteran status, religion, or sex in the performance of any Dallas County contract.
- 7.1.7. **Good Faith Effort Plan.** The plan submitted with a Submittal detailing the Respondent's efforts to achieve the set aspirational goal or documenting the Good Faith Efforts to meet the goals for all elements the Solicitation. A Good Faith Effort Plan must be submitted with a Submittal for any Dallas County projects in which goals have been established.
- 7.1.8. **Metropolitan Statistical Area (MSA).** The Dallas County MSA includes the following counties: Dallas, Tarrant, Denton and Collin.
- 7.1.9. **Small Business Enterprise.** It is the policy of Dallas County to support the growth and development of Small Business Enterprise ("SBE") and ensure that SBEs have an equal opportunity to compete for and participate in Dallas County contracts. Thus, Dallas County Commissioners Court has created the

Office of Small Business Enterprise to establish and oversee a Diversity Program to ensure that SBEs have an equal opportunity to compete for and participate in Dallas County contracts. It is Dallas County's intent to:

- Ensure nondiscrimination in the award and administration of Dallas County contracts;
- Create a level playingfield on which small businesses can compete fairly for Dallas County contracts; and
- Ensure that only firms who attempt in good faith to meet the SBE good faith efforts are considered for applicable contract awards.

Consequently, the contractor shall carry out applicable requirements of the good faith effort in its proposal/bid hereunder and, if awarded the contract, the award and administration of the Contract.

7.2 SBE Goals, Good Faith Efforts and Eligibility.

The Director of Small Business Enterprise and the Contract Administration Supervisor sets the annual SBE participation contracting/subcontracting aspirational SBE goals for each contract. The contracting/subcontracting goals for this contract will be based on meeting or exceeding the **minimum aspirational SBE goal of 40%**, unless good cause exists for failing to meet the goal. The SBE aspirational goal is based on the total dollar amount of the contract.

To be recognized as an SBE, firms (contractors and/or subcontractors):

- a) Must be certified as an SBE by the following County approved entities: North Texas Regional Certification Agency (NCTRCA), DFW Minority Supplier Development Council and/or the Women's Business Council of Southwest, at the time of the proposal/bid submission. Other certifications are not acceptable;
- b) To be recognized by the County as a **qualified SBE firm**, as defined pursuant to Section 3 of the Small Business Act and relevant regulations, an SBE is a firm for which the gross revenues or number of employees averaged over the past three years, inclusive of any affiliates, is as defined by 13 C.F.R. Sec. 121.201; and
- c) Must also perform a commercially useful function on the project and have a local presence in Dallas County Metropolitan Statistical Area (MSA) in order to be counted for SBE points. The MSA includes the following counties: Dallas, Tarrant, Denton and Collin.

7.3 Utilization

The aspirational SBE or certified sub-contractor goal is expressed as a percentage of the total dollar amount of the contract going to SBE or certified Sub-Contractor for those areas which the Contractor has sub-contracted or anticipates sub-contracting. The aspirational goal shall also apply to contract amendments that require work beyond the scope of services originally required to accomplish the project.

The Respondent agrees to employ good faith efforts through the award of subcontractors to eligible SBEs and certified firms to the fullest extent possible.

Dallas County's Good Faith Effort Plan (GFEP) will be used to document SBE participation. However, all subcontractors and/or suppliers, whether certified or not, must be listed in the GFEP. The information provided

in the GFEP Form will be utilized in the development of the final contract/agreement. The GFEP Form can be found in the attachments. This form is required and considered to be a part of the response to the IFB.

Should the Good Faith Effort Plan or any of the specified documents listed below be incomplete, not signed, and/or not submitted, the bid can be deemed non-responsive.

7.4 Each Contractor must include with its proposal/bid, the following documents:

- Completed and signed **Good Faith Effort Plan**, executed by an authorized representative;
- Completed and signed **Small Business Utilization Affidavit**, executed by an authorized representative; and
- A signed and executed **Subcontractor Intent Form**, executed by an authorized representative (prime and subcontractor).

Note: All forms must be complete in their entirety and submitted as part of a Respondent's submittal.

The County reserves the right to accept or reject any certified firm and in its sole discretion is not bound by the certifying bodies' determination, if the County has a concern regarding the eligibility of the firm to meet SBE guidelines or standards. A Contractor whose proposed certified firm is rejected may contest in writing to the Office of Small Business Enterprise, in accordance with the SBE Policy. The denial of SBE certification by the Office of Small Business Enterprise is excluded from the Dallas County Purchasing Code of Ethics Protests Procedure and is exclusively governed by the appeal process set forth in the SBE Policy.

7.5 SBE Reporting. The Contractor and its subcontractors are required to electronically submit subcontractor payment information using the County's Compliance Reporting System (CRS), accessed through a link on the Dallas County SBE webpage. The Contractor and all subcontractors will be provided a unique log-in credential and password to access Compliance Reporting System.

Training on the use of the system will be provided by both Dallas County's CRS Support Staff and by the Office for Small Business Enterprise. Additional information and free online training for CRS can be found at <https://dallascounty.diversitycompliance.com>. After the prime receives payment from the County, electronic submittals will require data entry of the amount paid to each subcontractor listed on the Contractor's Good Faith Effort Plan.

7.6 Contracting. If awarded the contract, the Contractor agrees to be bound by the policies and guidelines set forth in the County's SBE Policy, which may be incorporated into the contract. If a conflict exists between the SBE section of the solicitation and the County SBE Policy, the language in the solicitation governs.

**MANDATORY
SBE SOLICITATION ATTACHMENTS**



SMALL BUSINESS UTILIZATION AFFIDAVIT

It is the policy of Dallas County to encourage the inclusion of qualified Small Business Enterprises (SBEs) to the greatest extent feasible on the County's construction, procurement and professional services contracts. Neither the County, nor its Contractors and their subcontractors shall discriminate on the basis of race, age, color, religion, national origin, or sex in the award and performance of contracts. In consideration of this policy, Dallas County has adopted the Small Business Enterprise Policy for all County contracts.

Small Business Enterprise Participation Goals

The solicitation bidding plan establishes subcontracting goals and requirements for all prospective bidders to ensure reasonable degree of SBE meaningful business utilization and participation in County contracts. It is the goal of Dallas County that a certain percentage of work under each contract be executed by one or more SBEs. For the purposes of participation percentages, Dallas County does not include amounts paid to the prime by the sub-contractor.

The apparent proposer shall agree to meet the established goals or must demonstrate and document a "good faith effort" to include SBEs in subcontracting opportunities. The apparent proposer who fails to adequately document good faith efforts to subcontract or purchase significant material supplies from SBEs may be denied award of the contract by Dallas County based on the contractor's failure to be a "responsive" or "responsible" bidder.

By signing below, I agree to provide Dallas County, Small Business Enterprise Department a completed copy of all required forms. I understand that, for the purpose of SBE subcontracting participation, any amounts paid to the prime from the sub-contractor should not be included in the above listed participation amount. Finally, I understand that if I fail to provide all of the required documents within five (5) business days after notification, my bid may be deemed "non-responsive" and I may be denied award of the contract.

Solicitation Number: _____

Company Name: _____

Typed or Printed Name of Certifying Official of Company

Date

Signature of Certifying Official of Company

Title



Small Business Enterprise Program Utilization Form

Solicitation/Project Name: _____ Solicitation #: _____

Firm Name: _____ Firm Phone # _____

Firm Address: _____ City: _____ State: _____ Zip: _____

Compliance Contact: _____ Phone #: _____ Email Address: _____

Is Your Firm Certified: _____ Certifying Agency: DFWMSDC _____ NCTRCA _____ WBC-Southwest _____ Other: _____

Total Bid Amount: _____ Amount self-performed: _____ Percentage self-performed: _____

Utilization Plan

List the firms that will be utilized on the project. Provide copies of correspondence.

SBE certified subcontractors/suppliers									
Firm Name & SBE Certification #	Tier	Person Contacted & Date	Address	Phone & Email Address	Type of Work	NAICS Code	Local or Non-Local	Dollar Amount	% of contract
							Total	\$	%

Small Business Enterprise

[Records Building](#) - 500 Elm Street, Suite 0300, Dallas, TX 75202
Telephone: (214) 653-6021 | E-Mail: sbe@dallascounty.org



Non SBE certified subcontractors/suppliers									
Firm Name	Tier	Person Contacted & Date	Address	Phone & Email Address	Type of Work	NAICS Code	Local or Non-Local	Dollar Amount	% of Total Contract
							Total	\$	%

Prime Printed Name: _____ Title: _____ Signature: _____ Date: _____

For Use by SBE Office Only

SBE Compliance Officer: _____ Date: _____

SBE Notes:



Good Faith Efforts Form

The Good Faith Efforts Form must be fully completed if the aspirational goal is **not** met.

1. Did you speak with or receive assistance from a staff member in the Small Business Enterprise

Department? _____ (Y/N) Name of staff member _____

2. Did you utilize a Dallas County SBE vendor list? If not, please explain?

Vendor List Accessed	Date of Access

3. Did you provide written notice to potential SBE subcontractors, suppliers, and vendors? Written notice should include plans, specifications, subcontractor/supplier opportunities, and deadline for submission to respondent no less than 7 days before bid submission. Please provide copies of all correspondence, including accepted and rejected SBE bids or proposals, i.e. letters, memos, emails and phone calls.

Firm Name & Address	Phone #	Person Contacted & Date	Type of Work	NAICS Code	SBE Certification No.	Response to Solicitation	Bid/Quote Amount	Company Selected (Y or N)

4. If applicable, did you participate in the pre-bid meeting? _____

Small Business Enterprise

[Records Building](#) - 500 Elm Street, Suite 0300, Dallas, TX 75202
Telephone: (214) 653-6021 | E-Mail: sbe@dallascounty.org



5. Did you identify and select specific work items to be performed and/or procurement to be fulfilled by SBEs? Please subdivide total contract work into smaller portions or quantities to permit maximum active participation by SBEs.

1.	2.	3.
4.	5.	6.

6. Did you advertise in trade publications or with local advocacy organizations? The advertisement must identify and describe subcontracting opportunities in detail, including a contact person and deadlines. Please provide a copy.

Publication Name	Date of Publication

Prime Printed Name: _____

Title: _____

Signature: _____

Date: _____

Small Business Enterprise

[Records Building](#) - 500 Elm Street, Suite 0300, Dallas, TX 75202
Telephone: (214) 653-6021 | E-Mail: sbe@dallascounty.org



**DALLAS COUNTY
SUBCONTRACTOR INTENT FORM**

To: Dallas County - Small Business Enterprise Department

Date: _____

Project Name: _____

Solicitation #: _____

_____ will provide the following good(s)/service(s):
Subcontractor on the project

to _____
Prime Contractor on the project

SBE subcontractor is certified by the following agency: _____DFW Minority Supplier Development Council _____NCTRCA _____Women's Business Council SW

SBE Certification #: _____ (Certification must be kept current/valid for the entire duration of this contract. Failure to comply with this provision could be subject to removal from contract.)

For the purposes of SBE subcontracting participation, Dallas County does not include amounts paid to the prime by the sub-contractor.

Total Contract Amount for prime: \$ _____

Estimated Work Start Date: _____

Sub Participation Amount: \$ _____ %

Estimated Work End Date: _____

The undersigned intends to enter into a formal agreement with the subcontractor listed, conditioned upon being awarded the Dallas County contract. The undersigned understands that, for the purpose of SBE subcontracting participation, any amounts paid to the prime from the sub-contractor should not be included in the above listed participation amount. **Before any subcontractor/supplier substitutions are made, the prime contractor must submit an SBE Substitution Request Form to The SBE Department for approval.** Failure to comply with these provisions could result in termination of the contract, sanctions against the prime contractor, and/or ineligibility for future Dallas County contracts. The subcontractor's participation will be entered in B2GNow, Dallas County's compliance system, based upon this intent form.

Officer's Signature (Prime Contractor)

Officer's Signature (Subcontractor)

Printed Name (Prime Contractor)

Printed Name (Subcontractor)

Title (Prime Contractor)

Title (Subcontractor)

Date

Date

Please select or list all Chambers or Advocacy groups you are a member of:

	Prime	Sub
Greater Dallas Asian American Chamber of Commerce	_____	_____
Greater Dallas Black Chamber of Commerce	_____	_____
Greater Dallas Hispanic Chamber of Commerce	_____	_____
U.S. Pan Asian American Chamber of Commerce	_____	_____
Asian Contractors Association	_____	_____
Regional Black Contractors Association	_____	_____
Regional Hispanic Contractors Association	_____	_____

DALLAS COUNTY STANDARD TERMS AND CONDITIONS

By returning the Bid Proposal with a price quote, vendors certify and agree that:

1. All charges – wages, salaries, taxes including payroll taxes, benefits, insurance, overhead, fees, permits, licenses, fees, labor, personnel, service, supervision, documentation, administration, training, implementation, materials, supplies, delivery, transportation, shipping , freight, fuel surcharges, mileages, parking, tolls, travel time, and all other associated cost direct and indirect including incidentals necessary to provide the goods and services outlined in this solicitation specified or implied are to be included in bid proposal cost. Services and Inside Delivery will be F.O.B.: Dallas County as indicated on each individual purchase order.

2. **TEXAS GOVERNMENT CODE CHAPTER 2271 VERIFICATION – BOYCOTT ISRAEL**

Effective September 1, 2017, the State of Texas requires all governmental entity, state agency or political subdivision (which includes counties) to obtain written verification from the Company that their Company does NOT boycott Israel and will not boycott Israel during the life of this contract, agreement or purchase order (hereafter referred to as "Contract"). By accepting this Contract, the Company (Professional or other applicable term defining the contracting party) verifies that it does not Boycott Israel, and agrees that during the term of this Contract will not Boycott Israel as that term is defined in Texas Government Code Section 808.001, as amended." The County cannot execute a contract for goods and services without this declaration. Please refer to Texas Government Code, Subtitle F, Title 10, Government Code Chapter 2270.

(a) This section applies only to a contract that:

(1) is between a governmental entity and a company with 10 or more full-time employees; and

(2) has a value of \$100,000 or more that is to be paid wholly or partly from public funds of the governmental entity.

3. **CONFLICT OF INTEREST QUESTIONNAIRE (CIQ) FORM**

Effective January 1, 2006, Chapter 176 of the Texas Local Government Code requires that any vendor or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the vendor or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filed with the records administrator of Dallas County no later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor. By submitting a response to this request, the vendor represents that it is in compliance with the requirements of Chapter 176 of the Texas Local Government Code. Contractor shall complete and file the Conflict of Interest Questionnaire with the Dallas County Clerk at 1201 Elm Street, 21st Floor, Dallas, Texas 75270.

4. **CERTIFICATE OF INTERESTED PARTIES FORM 1295**

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that a governmental entity or state agency may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties form to the governmental entity or state agency at the time the business entity submits the signed contract to the governmental entity or state agency. The form discloses any interested parties who have a controlling interest (10% or more ownership) in the business entity and those who actively participate in facilitating the contract or negotiate the terms of the contract (broker, intermediary, advisor, and/or attorney), if any. The disclosure requirement applies to a contract entered into on or after January 1, 2016.

The Texas Ethics Commission was required to adopt rules necessary to implement that law, prescribe the disclosure of interested parties form, and post a copy of the form on the commission's website. The commission adopted the Certificate of Interested Parties form (Form 1295) on October 5, 2015 and new rules (Chapter 46) on November 30, 2015.

The "Certificate of Interested Parties" form must be completed on the Texas Ethics Commission website, printed, signed, and submitted to the County by the authorized agent of the Business Entity with acknowledgment that disclosure is made under oath and under penalty of perjury prior to final contract execution.

To obtain additional information on HB 1295, to learn more about Texas Ethics Commission process to create a new account or to complete an electronic version of Form 1295 for submission with a signed contract, please go to the following website: <https://www.ethics.state.tx.us/tec/1295-Info.htm>

Instructional Videos for Business Entities on how to file online can be found at https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

The identification number (section 3 of the form) to be used on the 1295 for this procurement is the IFB solicitation number.

5. **TITLE VI ASSURANCES/COMPLIANCE POLICY**

The County, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Pursuant to Title VI requirements, any entity or person that enters into a contract with Dallas County including, but not limited to prime contractors, sub-contractors, and sub-recipients, may not discriminate on the basis of race, color, national origin, age, sex, disability, or religion in their selection and retention of subcontractors (including consultants), in connection with any federally funded program or activity (including any program or activity undertaken/funded by a Dallas County Division/Department that receives federal funds).

6. **TEXAS GOVERNMENT CODE CHAPTER 2252 ATTESTATION**

By entering into this Contract, Contractor attests that Contractor is not a company that is identified on a list prepared and maintained by the Texas State Comptroller under Section 2252.153, Tex. Gov't Code, as a company known to have contracts with or provide supplies or services to a foreign terrorist organization as designated by the U.S. Secretary of State.

7. **PRE-AWARD SURVEY**

After bid opening and before award, County may perform a pre-award survey of the bidder's facilities and equipment to be used in the performance of work under this solicitation. Bidder agrees to allow all reasonable requests for inspection of his or her facilities.

8. After bid opening and before award Dallas County reserves the right to request the bidder to provide, but not necessarily limited to, the following forms:

- a. Texas Government Code Chapter 2270 Verification Form
- b. Texas Government Code Chapter 2252 Certification Form
- c. 1295 Form
- d. W-9 Form

9. The bid award shall be based on, but not necessarily limited to, the following factors:

- e. Unit Price
- f. Total Bid Price
- g. Delivery Date
- h. Results of Testing Samples
- i. Special Needs and Requirements of Dallas County
- j. Dallas County's Experience with Products Bid
- k. Vendor's Past Performance Record with Dallas County
- l. Dallas County's Evaluation of Vendor's Ability
- m. Estimated Costs for Supplies, Maintenance, etc.
- n. Estimated Surplus Value
- o. Small Business Enterprise completed forms
- p. Dallas County reserves the right to award to a primary and secondary vendor(s).

Dallas County shall award this contract to the responsive bidder(s) offering the lowest and best bid in accordance to Local Government Code 262.021(5-a) who comply with all of the requirements, terms and conditions prescribed herein. Dallas County reserves the right to reject any or all bids in whole or in part, to make multiple awards, partial awards, award by item by item basis, award by types, award by sections, or lump sum total, and waive any immaterial deviations in the bid as may be considered in the best interest of the County.

10. **INVOICING/BILLING**

Invoices will be submitted to the Dallas County Auditor's Office. All billings must have appropriate supporting documentation before such billings will be approved. Billing shall cover goods and services not previously invoiced. Vendor shall reimburse the Dallas County for any monies paid to Contractor for goods or services not provided or when goods/services provided do

not meet the contract agreement or solicitation requirements. Payments made by the County shall not preclude the right of the County from thereafter disputing any items involved or billed under the contract agreement or solicitation and shall not be construed as acceptance of any part of the goods or services. Contractor understands and agrees that any funds paid under this contract are contingent upon satisfactory delivery of the Services as described in this contract and subject to routine processing. No payment, on any basis, will be made for unsatisfactory work.

Contractor agrees to submit complete, fully documented and accurate itemized statement of invoices with appropriate/applicable attachments and documentation, as required by the County for all goods, services, and work performed **following acceptance of goods, services or work by the County.**

At minimum, the original invoices submitted against the IFB, must reference all of the following information:

- a. Contractor/Vendor Name
- b. Contractor/Vendor Address
- c. Contractor/Vendor Contact Information
- d. Contractor/Vendor Telephone Number and Fax Number
- e. Contractor/Vendor Remittance to Address
- f. Invoice Date
- g. Invoice Number (uniquely numbered, no duplicates)
- h. Valid Dallas County Purchase Order Number must appear on all itemized invoices and packing slips
- i. Solicitation Number
- j. Date of Services or Date Purchase
- k. Description of Services and Goods
- l. Cost of Services and Goods

Invoices and support documentation are to be sent to:

Original Invoice: Dallas County Auditor's Office
Attn: Accounts Payable
500 Elm Street, Suite 4200
Dallas, TX 75202
214.653.6478
Accounts.Payable@dallascounty.org

Copy of invoice(s) shall be sent to: REQUESTING USER DEPARTMENT NAME AND ADDRESS INDICATED ON THE PURCHASE ORDER

All invoices must reference a Dallas County Purchase Order Number

Payment will be made upon receipt and acceptance by the County of completed services, goods and/or products ordered and receipt of a valid invoice, in accordance with the Texas Government

Code, Chapter 2251. The County will incur no penalty for late payment if payment is made within thirty (30) or fewer days from the statement if there is an uncontested billing. Any payment not made within thirty (30) days of its due date shall bear interest in accordance with Chapter 2251 of the Texas Government Code. Invoices received without all the required supporting documentation and information will not be processed and will be returned to the Contractor unpaid for correction.

11. If applicable, a packing list or other suitable shipping documents shall accompany each shipment and shall show:
 - (a) Name and address of vendor
 - (b) Name and address of receiving department
 - (c) Dallas County Purchase Order number and
 - (d) Description of material shipped, including item numbers, quantity, number of containers, and package number, if any.

12. **ACH ELECTRONIC PAYMENTS**

ACH Electronic Payments

Dallas County offers ACH vendor and supplier payment services for all vendors and suppliers providing goods, services or products to Dallas County.

Dallas County is moving away from making payments by paper checks and we are strongly encouraging vendors and suppliers to accept electronic payments. Below is the option that is currently available in lieu of a paper check. Dallas County has chosen the Paymode-X ACH payment service through Bank of America for this efficient form of payment.

There is no cost or fee to the vendor or supplier of any kind resulting from the acceptance of an ACH payment from Dallas County via PaymodeX. This allows Dallas County to directly deposit invoice payments into the vendor's bank account along with complete remittance information that can be accessed at any time.

For more information regarding Paymode-X, please visit our website at: <http://portal.paymode.com/dallascounty/> or call customer service @ 877.443.6944 or contract the Dallas County Auditor's Office – Account Payable Division at 214.653.6473.

13. Upon request by Dallas County, bidders agree to furnish samples and/or demonstrations of products bid, as applicable. The product(s) requested will be furnished at no additional cost to Dallas County and will be of sufficient amounts and/or time frames agreed by County and bidder to ensure effective testing of the products(s). Any testing product used beyond the agreed upon amount or time frame may be considered for payment by Dallas County, if in the best interest of the County. Any product that fails testing shall be considered sufficient reason to reject the bid or product. Any product used by Dallas County, during the contract period that does not perform as specified and/or approved during testing shall be considered grounds for cancellation of the contract.
14. Whenever an article or material is defined by describing a proprietary product or by using the name of a manufacturer, the term "or equal" if not inserted shall be implied. The specified article or material shall be understood as descriptive and not restrictive. As determined by Dallas County, equal is considered as articles or materials which can effectively and economically

perform the required task; is comparative in quality and performance and, if required, is acceptably similar or matches the specified structural design.

If the amount shown in words and its equivalent in figures do not agree, the written words shall be binding. Ditto marks are not considered writing or printing and shall not be used.

15. The Contractor shall be considered an Independent Contractor and not an agent, servant, employee, or representative of the County in the performance of the work. No term or provision hereof or act of the Contractor shall be construed as changing that status.
16. The Contractor agrees that it will protect, defend, indemnify, and save whole and harmless the County and all of its officers, agents, and employees from and against all claims, demands, causes or action, damages, judgments, loss and expenses, including attorney's fees, of whatsoever nature, character, or description that any person or entity has or may have arising from or on account of any injuries or damages (including but not restricted to death) received or sustained by any person, persons, or property, on account of, arising out of, or in connection with the performance of the work, including without limiting the generality of the foregoing, any negligent act or omission of the Contractor or any agent, servant, employee or sub-contractor of the Contractor in the execution or performance of this Contract. Contractor further agrees to protect, indemnify and hold County harmless against and from any and all claims and against and from any and all loss, cost, damage, judgments or expense, including attorney's fees arising out the breach of any of the requirements and provisions of this contract of any failure of Contractor, its employees, officers, agents, contractors, invitees, or assigns in any respect to comply with and perform all the requirements and provisions hereof.
17. The Contractor agrees, during the performance of the work, to comply with all applicable codes and ordinances of the appropriate City, County or the State of Texas as they may apply, as these laws may now read or as they may hereafter be changed or amended.
18. The Contractor shall obtain from the appropriate City, Dallas County or the State of Texas the necessary permit(s), if any, required by the ordinances of the City, County or State for the performance of the Work.
19. The Contractor shall not sell, assign, transfer or convey this Contract, in whole or in part, without the prior written consent of the County.
20. Should Dallas County authorize the original awardee to subcontract (assign) any portion of this contract, the original awardee will maintain the ultimate legal responsibility for all services according to contract specifications. In the event of a subcontract, the original awardee must maintain a continuous effective business relationship with the subcontractor(s) including, but not limited to, regular payments of all monies owed to any subcontractor. Failure to comply with these requirements, in whole or part, will result in termination of this contract and/or legal ramifications, due to nonperformance.

Should Dallas County authorize the original contractor to transfer this contract, in whole or part, the secondary contractor will maintain all the legal responsibilities set forth in the context of this contract.

21. In case any one or more of the provisions contained in this Contract shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision thereof and this Contract shall be considered

as if such invalid, illegal, or unenforceable provision had never been contained herein.

22. The parties herein agree that this Contract shall be enforceable in Dallas County, Texas, and if legal action is necessary to enforce it, exclusive venue shall lie in Dallas County, Texas.

23. This Contract shall be governed by and construed in accordance with the laws of the State of Texas and all applicable Federal Laws.

24. **Scanned or Re-typed Response:**

If in its response, bidder/offeror either electronically scans, re-types, or in some way reproduces the County's published bid or proposal specifications, then in the event of any conflict between the terms and provisions of the County's published bid or proposal specifications, or any portion thereof, and the terms and provisions of the response made by bidder/offeror, the County's bid or proposal specifications as published shall control.

Furthermore, if an alteration of any kind to the County's published bid or proposal specifications is only discovered after the contract is executed and is or is not being performed; the contract is subject to immediate cancellation.

25. This Contract embodies the complete agreement of the parties hereto, superseding all oral or written previous and contemporary agreements between the parties and relating to matters herein, and except as otherwise provided herein cannot be modified without written agreement of the parties.

26. Multi-year service/lease-purchase agreements or any continuing contracts are solicited and awarded based on governmental fiscal funding. If for any reason, funds are not appropriated to continue the service/lease- purchase agreement, the said agreement/contract shall be automatically terminated on the expiration date or date in which the funds have been eliminated. Any/all services/leased equipment will be removed from the respective county department/facilities without penalty to Dallas County. Any/all charges incurred as a result of this action are the responsibility of the contractor.

27. Contractors are not officially authorized to begin work and/or deliver items covered under this agreement until formal approval and/or a signed contract is executed by the proper county authorities. Dallas County accepts no liability, of any kind, for products/services delivered/furnished without proper authorization.

28. Except for proposals received under Local Government Code 262.030 and/or 262.0295, in accordance with the aforementioned statutes, Dallas County will uphold the confidentiality of bidder trade secrets to the extent allotted by law. All confidential information must be clearly identified and separated, by the bidder and prior to submission of the proposal.

29. **OPEN RECORDS**

All responses submitted to Dallas County become the property of Dallas County and are subject to the Public Information Act (Texas Government Code Chapter 552). The interested

firms/individuals should familiarize themselves with the provisions of that Act. In no event shall Dallas County, or any of its agents, representatives, consultants, directors, officers, or employees, be liable to a firm/individual for the disclosure of all or any portion of a response submitted pursuant to the IFB.

If a firm/individual has special concerns about information that it desires to make available to Dallas County, but which it believes constitutes a trade secret, proprietary information or other information excepted from disclosure, such firm/individual should specifically and conspicuously designate ((i.e. mark confidential) each page of that information, which the Bidder believes, should not be disclosed outside Dallas County. Disclosure of requested information will be subject to the Texas Public Information Act.

30. **TERMINATION**

The County may, at its option and without prejudice to any other remedy to which it may be entitled at law or in equity, or elsewhere under this contract, terminate this Contract, in whole or part, by giving 10 days advance written notice thereof to the Contract with the understanding that all (products/services) being (delivered/performed) under this Contract shall cease upon the date specified in such notice. The County shall compensate the Contractor in accordance with the terms of this contract for the (products/services) (delivered/performed) prior to the date specified in such notice.

31. **TERMINATION FOR DEFAULT OR NON-PERFORMANCE**

Default, material breach, or non-performance of the bidder in terms of specifications or non-compliance with the terms of this contract shall be a basis for termination of the contract by the County. Termination in whole or in part, by the County may be made at its option and without prejudice to any other remedy to which it may be entitled at law or in equity, or elsewhere under this Contract, by giving ten (10) days' advance written notice setting forth the nature of the material failure or non-performance to the Contractor and/or bidder with the understanding that all work being performed under this contract shall cease upon the date specified in such notice. The termination will not be effective if the material failure is fully cured prior to the end of the stated in written notice NOT LESS THAN TEN (10) day period.

Termination under this will not relieve Contractor from liability for any default or breach under this contract agreement or any other act or omission of Contractor.

The County shall not pay for work, equipment, services or supplies which are unsatisfactory. Contractor may be given a reasonable opportunity prior to termination to correct any deficiency. This however shall in no way be construed as negating the basis for termination for non-performance. In addition and as authorized by Commissioners Court, vendors terminated for non-performance will be disbarred from award consideration on future county solicitation for a period of not less than thirteen (13) months.

32. **MONETARY RESTITUTION**

In the event the contract is prematurely terminated due to default, non-performance and/or withdrawal by the contractor, Dallas County reserves the right to seek monetary restitution (to include but not limited to; withholding of monies owed) from the contractor to cover costs for interim services and/or to cover the difference of a higher cost (difference between termination vendor's rate and new company's rate) beginning the date of vendor's termination through the contract expiration date. In the event a civil suit is filed to enforce this provision, Dallas County will seek its attorney's fees and cost of suit from the Contractor.

33. **NON-EXCLUSIVITY**

This contract and/or agreement is non-exclusive and shall not in any way preclude Dallas County from entering into similar agreements and/or arrangements with other Vendors, Contractors, or from acquiring similar, equal or like goods and/or services from other entities or sources including state contracts.

34. **NEPOTISM**

No person (1) who is an employee, agent, consultant, officer, or official of the contractor and who exercises or has exercised any functions or responsibilities with respect to assisted contract activities; or (2) who is in a position to participate in a decision-making process or gains inside information with regard to such activities, may obtain a personal or financial interest or benefit, direct or indirect, in any contract, subcontract, or agreement with respect thereto, or the proceeds thereunder, either for themselves or those with whom they have family or business ties, during their tenure.

35. **RIGHT TO PROTEST**

Vendors aggrieved in connection with a specific solicitation, evaluation, or the award of any bid, purchase order, or contract, may formally protest to the Purchasing Director only if the Vendor has reason to believe that, with respect to a specific solicitation, (a) there was a material violation of state or federal statutory requirements, County Purchasing Department rules and regulations, or this Code of Ethics (including the Restricted Contact Period), or (b) the procurement process gave an unfair advantage or unfair disadvantage to one or more Vendors.

Procurement processes that may give an unfair advantage or disadvantage to one or more Vendors include, but are not limited to, the following:

- i. The specification unfairly limits competition for no legitimate purpose;
- ii. The contract award is compromised by improprieties in post-award negotiations;
- iii. The evaluation factors or criteria are applied in a manner that is different than disclosed in

the solicitation; and

iv. There are irregularities in the receipt or opening of solicitation responses.

Protests must be in written form and must contain the following information (if applicable):

i. The protesting Vendor's name, address, telephone number, fax number, and email address;

ii. The identifying number of the solicitation and/or contract;

iii. The date the Vendor became aware of the facts forming the basis of the protest;

iv. A detailed statement of the factual grounds for the protest, including copies of any relevant documents or evidence and the statute, rule, or regulation that was violated, if applicable; and

v. A sworn certification that the protest is brought in good faith and for good cause. If a protest is based on an ambiguity or a problem in a solicitation, and is made after the solicitation response deadline, it must also include a certification that the protesting Vendor was not aware of the ambiguity or problem (and did not have an opportunity to ask for clarification or a correction) before the solicitation response deadline.

Protests must timely raise all claims and describe the evidence supporting those claims with specificity. Any claims that are not timely raised may be deemed waived. In the event of a protest during a solicitation response period, a protesting Vendor who wishes to continue in the solicitation process during such protest must still submit a bid or proposal according to the rules set forth in the solicitation.

Protests, including any protest appeals requests, must be sent by mail or email to the Dallas County Purchasing Director at Founders Square, 900 Jackson St., 6th Floor, Suite 680 Dallas, Texas 75202 or Michael.Frosch@dallascounty.org. Mail-in requests must be postmarked and email requests must be received by the Purchasing Director no later than (a) five (5) business days after the date that the protesting Vendor knew or should have known of the facts giving rise to the protest, or (b) before the contract is awarded, if the Vendor is aware of the facts giving rise to the protest prior to the contract award, whichever is earlier.

It is the responsibility of the Vendor to ensure that solicitation protests are delivered to the Purchasing Director within the time period stated herein. Protests that are late or delivered to an incorrect address or individual, or that otherwise do not comply with these rules (including providing the sworn certification as described above), will be declared invalid.

Written Decision. All protests will be initially reviewed by the Purchasing Director, who must rule on the protest and provide a written decision, including the reasons for the decision and the decision date, to the protesting Vendor within ten (10) business days (the “Written Decision”). Any appeal of the Written Decision must be made within five (5) business days of the receipt thereof.

Appeals Process. Appeals of the Written Decision should be sent to the Purchasing Director at the address above, who shall notify the Appeals Committee, consisting of the County Administrator, the County Auditor, and the County Budget Director. The Purchasing Director shall serve as staff to the Appeals Committee and will be present at the Appeals Hearing. The protesting Vendor shall be notified of the time and place of the Appeals Hearing and will be provided an opportunity to present arguments. The documentary evidence at the Appeals Hearing is limited to the documentary evidence submitted for the original protest unless, for good cause shown, the Appeals Committee grants authority for the protesting Vendor to provide additional documentary evidence. The protesting Vendor shall seek approval to submit additional documentary evidence for good cause as soon as possible, but no later than (a) five (5) days before the hearing, or (b) within seventy-two (72) hours from when the protesting Vendor knew or should have known about the additional evidence, whichever period is shorter. The request should include copies of the additional documents that the protesting Vendor seeks authority to use at the hearing. The Appeals Committee may appoint an independent hearing examiner to conduct the hearing and provide a written recommendation, if needed. A written final decision, including the reasons for the final decision and the decision date, will be provided to the protesting Vendor within ten (10) business days of the Appeals Hearing (the “Final Decision”). Requests for an appeal of the Final Decision must be mailed or emailed to the Purchasing Director within five (5) business days of the Final Decision, who will notify the Commissioners Court of the request.

A Commissioners’ Hearing may take place at the discretion of the Commissioners Court. A single vote of a Commissioner on the Commissioners Court is required for a Hearing to be granted. The Commissioners may, at any time during the process, review the written record of the previous decisions on the matter. All decisions of the Commissioners Court, including whether to allow a Commissioners’ Hearing, are final.

Right to Appear before the Commissioners Court. All individuals and entities have the right to an appearance before the Commissioners Court subject to the rules of the Court, this Code of Ethics, and, during an Active Solicitation, the Restricted Contact Period provisions in Section 6 herein. However, a protesting Vendor does not have an automatic right to a Commissioners’ Hearing on any protest appeal under this Code of Ethics, which will be granted only at the discretion of the Commissioners Court.

Notification. Protest hearings are open to the public. Public notification of any hearings, including Appeals Hearings and Commissioners’ Hearings, shall be posted on the Dallas County Purchasing website at www.dallascounty.org/departments/purchasing

Solicitations and Contracts Pending. Filing a protest under this Section will not trigger an automatic stay of any procurement process or contract award. It is in the discretion of the Purchasing Director and the Commissioners Court whether to stay any procurement process or contract award with respect to any Vendor protest. Whether a stay is granted shall not compromise any protesting Vendor’s right to the protest procedures outlined herein.

Records. Records of all protests, including the protest filed, related evidence, and any Written and Final Decisions (including the outcome of any Commissioners' Hearing, if applicable) will be maintained by the Purchasing Department for a period of no less than four (4) years.

36. Contractors are required to comply with the Equal Employment Opportunity Act requiring that no person shall be discriminated against on the basis of race, color, religion, sex or national origin in all phases of employment during the performance of this Contract. The successful bidder shall take affirmative action to ensure that applicants are employed and treated during employment, without regard to their race, age, color, religion, sex or national origin. This action shall include, but not be limited to, employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, compensation and selection for training. The successful bidder shall state to all employees and advertisements that all employees and qualified applicants will receive consideration for employment without regard to race, color, age, religion, sex, or natural origin.
37. No official or employee shall have any financial interest, direct or indirect, in any contract with the County or be financially interested, directly or indirectly, in the sale to the County of any land, materials, supplies or services, except on behalf of the County as an official or employee. Any violation of this section, with knowledge, express or implied, of the person or corporation contracting with the County shall render the contract involved voidable by the Commissioners Court of Dallas County. It is the responsibility of the contractor during all phases of the contract process to notify the County in writing of any potential conflict of interest.
38. In the best interest of the County, as determined by the Dallas County Commissioners Court, any bidder/proposer who is currently involved, either directly or indirectly, with any litigation against or involving Dallas County may be disqualified and/or not considered for an award.
39. Pursuant to Sec. 9.001 of the Texas Business Organization Code, non-Texas entities, including, but not limited to corporations, limited partnerships, and limited liability companies must have an application for registration filed with the Texas Secretary of State and shall provide to Dallas County a Certificate of Status issued by the Texas Secretary of State that serves as official evidence of the entity's existence or authority to transact business in Texas. To transact business with Dallas County, all entities must be in legal compliance pursuant to applicable laws, and shall provide to Dallas County evidence of said compliance.
40. Vendor hereby assigns to purchaser any and all claims for overcharges associated with this contract which arise under the antitrust laws of the United States, 15 USCA Section 1 et seq., and which arise under the antitrust laws of the State of Texas, Tex. Bus. & Com. Code, Section 15.01, et seq.
41. Where applicable, MSDS Forms must be provided with delivered products. In addition WITHOUT EXCEPTION, within 30 days after award, the successful bidder(s) MUST furnish Material Safety Data Sheets for all applicable awarded contract items to: Erin Spargo, Ph.D., Southwestern Institute of Forensic Sciences/Office of the Medical Examiner Facility, 2355 Stemmons Freeway, Dallas, Texas 75207. Dallas County reserves the right to withhold payments owed and/or terminate the contract due to non-performance if the aforementioned documents are not provided accordingly.

42. **INTERLOCAL AGREEMENT (City/State Participation Program)**

In accordance with Article 791.025 of the Texas Government Code, governmental agencies (local, state) may request to utilize County contract by executing an interlocal agreement with Dallas County to do so. Vendors are to indicate on the bid proposal page whether they are willing to extend pricing from this contract to other governmental agencies in accordance with the outlined specifications. Dallas County is indemnified against any and all claims that may arise from Interlocal Agreements entered into by the Contractor and governmental agencies.

43. **FEDERAL DEBARRED VENDORS**

No products and/or services utilizing Federal funds may be procured from vendors that are listed on the Federal Excluded Parties List aka System for Award Management (SAM). Government requirements for non-procurement suspension and debarment are contained in the OBM guidance 2CFR, part 180 that implements Executive Orders 12549 and 12689 Debarment and Suspension. Dallas County reserves the right to reject from award consideration and/or terminate any contract with any vendor found to be suspended, ineligible and/or debarred as outlined herein.

44. **TWELVE (12) MONTH WAITING PERIOD FOR EMPLOYMENT OF CERTAIN FORMER COUNTY EMPLOYEES**

In accordance with the County's Transparency Policy, any firm awarded a contract for the Procurement of goods or services shall be prohibited from hiring any individual who has previously worked for the County and in that capacity either evaluated, recommended, approved, monitored, or managed a contract involving that firm no sooner than twelve months after that individual has ceased to work for or be employed by the County. Failure to adhere to such a contractual requirement may result in the termination of the contract with the County.

**Dallas County Henry Wade Juvenile Justice Center
Hot Water and Ceiling Replacement**

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David H. Graham

PART 1 – GENERAL

1.1 PURPOSE, LAWS, AND REGULATIONS

- A. The purpose of the Prequalification Procedure described in this Document is to provide Owner with a mechanism to evaluate and determine whether Prospective Bidders are qualified to participate in the construction of Project. Evaluation will be limited to that office of the Prospective Bidder that is to perform the Work.
- B. Applicable provisions shall be observed in the soliciting, receiving, and evaluating of Prospective Bidders' qualifications.
- C. Applicable provisions shall be observed in bidding, letting, and execution of the Work.
- D. Prospective Bidders are required to comply with these Requirements for Prequalification. Only those Prospective Bidders who have complied with the Requirements for Prequalification and have been determined to be qualified will be eligible to submit construction bids on Project.

1.2 DEFINITIONS

- A. Financial Statement: The requirement for submitting a financial statement as an attachment to AIA Document A305, "Contractor's Qualification Statement" shall be understood to mean a certified annual audit, prepared according to generally acceptable accounting practices and signed by an independent certified public accountant. A Reviewed Statement of Assets and Liabilities, prepared and signed by an independent certified public accountant, is also acceptable. A self-prepared annual compiled financial statement or balance sheet is unacceptable.
- B. Prospective Bidder: A Prospective Bidder is a person or entity who submits a Submittal of Qualifications to Owner.
- C. Project: Generally described in the [Advertisement for Prequalification of Bidders] [Advertisement for Bids].

1.3 PREQUALIFICATION DOCUMENTS

- A. Prequalification Documents: Consist of the Advertisement for Prequalification of Bidders; this Request for Qualifications document; AIA Document A305, "Contractor's Qualification Statement"; and additional documents issued by Owner.
- B. Obtaining Prequalification Documents: Prospective Bidders may obtain complete sets of the Prequalification Documents from the issuing office designated in the Advertisement for Prequalification of Bidders. Prospective Bidders shall use complete sets of Prequalification

Documents in preparing their submittal. Owner assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Prequalification Documents.

- C. Interpretation or Correction of Prequalification Documents: If the Prospective Bidder is in doubt as to the interpretation of any part of the Prequalification Documents, or finds discrepancies in or omissions from any part of the Prequalification Documents, it must submit a written Request for Interpretation thereof no later than seven days prior to acceptance of Submittals of Qualifications. Address all communications to Owner.

1.4 PREQUALIFICATION PROCEDURES

- A. Form of Prequalification Submittal:
1. Submittals of Prequalification must be submitted in duplicate on AIA Document A305, "Contractor's Qualification Statement," properly executed and with all items filled out in ink or typed, and all additional data, attachments, and forms provided. Do not change or add words to the Qualification Statement or forms. All signatures must be original (and sealed if a corporation) and must be notarized and sealed by a Notary Public.
- B. Modification to Requirements for Prequalification:
1. Clarifications, alterations, or changes made by Owner to the Requirements for Prequalification shall be in writing only. Verbal information is not valid or binding.
 2. Modifications will be mailed or delivered to those Prospective Bidders having obtained Prequalification Documents from the issuing office.
- C. Submission of Prequalification Documents:
1. Each Submittal of Prequalification shall be delivered to the location indicated in the Advertisement for Prequalification on or before the day and hour set for receipt of Submittals. Each Submittal of Prequalification shall be submitted in an opaque, sealed envelope marked in the lower left-hand corner as follows:
 - a. Bidder's Prequalification Statement for Henry Wade Juvenile Center Hot Water System Replacement.
 - b. Prospective Bidder's Name.
 - c. Prospective Bidder's Address.
 - d. Contractor's License No.
 - e. Date and Time for Submittal.
 2. If not delivered in person, this envelope shall be enclosed in a second envelope for posting to the location indicated for receipt of bids. This envelope shall be addressed as follows:
 - a. Bidder's Prequalification Statement for Henry Wade Juvenile Center Hot Water System Replacement.
 - b. Date and Time for Submittal.
 - c. City of Dallas
 - d. Owner's Address
 - e. Contractor's License No. (In return address).
 3. Include a completed copy of the Prequalification Checklist attached to the cover of the Submittal.
 4. It is the sole responsibility of the Prospective Bidder to ensure that its submittal is received by the submittal date and time. No faxed or e-mail submittal or modification of a submittal will be considered. No submittal submitted after the time fixed for receiving submittals will be considered; late submittals will be returned to the Prospective Bidder unopened.

5. Owner reserves the right to waive any informality and to request additional information from Prospective Bidders, at Owner's discretion.

D. Attachments:

1. Prospective Bidders shall complete all required forms and attachments described in the Prequalification Documents, entering "Not Applicable" where information does not apply. Absence of any of the forms included in the Prequalification Documents will be reason for possible disqualification.

E. Status of Prospective Bidders:

1. Proprietors submitting bids shall indicate their status as proprietors.
2. Prospective Bidders submitting qualifications for partnerships shall indicate their status as partners and shall submit a certified copy of the power of attorney authorizing the executor of the submittal to bind the partnership.
3. Prospective Bidders submitting qualifications for corporations shall indicate their status as corporations and shall submit a certified copy of the board of directors' authorization for the Prospective Bidder to bind the corporation and shall affix the corporate seal on the submittal.
4. Prospective Bidders shall provide the following:
 - a. Names and addresses of proprietors, of all members of a partnership, or of the corporation's officers.
 - b. Name of jurisdiction where the partnership is registered or where the corporation is incorporated. Corporations must be licensed to do business in Project state at the time of executing the Contract.

1.5 WITHDRAWAL

- A. A Qualification Statement may be withdrawn on personal request received from the Prospective Bidder.

1.6 PREQUALIFICATION CRITERIA

- A. Prospective Bidders must demonstrate the following to the satisfaction of Owner:
 1. Proper license under the laws and regulations governing their respective trade(s).
 - a. <Insert additional licensure requirements>.
 2. Capacity to provide Performance Bond, Labor and Material Payment Bond, and Insurance in a form acceptable to Owner in amounts adequate to bond the Work based on the scope indicated in the Advertisement for Prequalifications.
 3. Applicable experience of firm as described in the Contractor's Qualification Statement, including the following:
 - a. Experience of Firm: The firm in its current organization shall have successfully completed minimum of five projects of similar type, quality, and scope, including a minimum of two within the last three years. The firm shall have a record of project completion, credit record, record of judgment claims, arbitration proceedings, and suits pending or outstanding acceptable to Owner.
 - b. Experience of Firm Officers: The firm officers shall have personal record of project completion acceptable to Owner.
 - c. Experience of Project and Field Management Staff to Be Committed by the Prospective Bidder to Carry Out the Work: The assigned project manager and field superintendent

must have successfully completed minimum of three projects of similar type, quality, and scope.

- d. For purposes of this submittal, reference to "key individuals" as described in the Contractor's Qualification Statement shall be understood to mean the principal in charge, the project manager(s), and the project field superintendent(s) committed by the Prospective Bidder to carry out the Work of this Project. Prospective Bidder by submitting qualifications of key individuals agrees that Owner reserves the right to approve or reject subsequent reassignment of key individuals.
- e. For purposes of this submittal, "successful completion" shall be understood to mean completion of project within project schedule and budget. Provide additional information indicating reasons why any referenced project did not meet project schedule or project budget.
- f. For purposes of this Qualification, "similar project" shall be understood to include the following project elements:
 - I. Hot Water System Installation, Demolition, Refurbishment, Testing, & Startup.
 - II. Renovation/addition work on occupied sites.

- 4. Adequate financial resources, including ability to secure materials and labor necessary for completion of the Work and other work in hand, within the anticipated contract times, and reflecting the anticipated retainage from progress payments.
- 5. Work-in-hand capacity, such that the Prospective Bidder demonstrates adequate work under contract to continue its business operations at least at their current level, at the same time indicating the capability to carry out Owner's scope of work.
- 6. Adequate organization to complete work of the scope anticipated, including firm management, project management, field superintendence, and field engineering and quality control.
- 7. Acceptable past performance as indicated by firm's references, including ability to meet contract time and to monitor, manage, and communicate interim scheduling requirements, to carry out required quality-control activities, to properly prepare interim and final payment requests, and to successfully complete project closeout requirements.
- 8. Acceptable documentation of firm's ability to comply with Owner's Minority-owned business enterprise/woman-owned business enterprise (MBE/WBE) requirements. Prospective Bidders shall contact Owner to obtain copies of requirements.
- 9. Acceptable documentation of firm's employee screening practices as indicating by affidavit describing background check procedures for firm's employees and requirements for same incorporated in firm's subcontracts.

- B. Consideration of qualifications may be withheld if the Qualification Statement shows any unexplained erasures, omissions, alterations of form, additions not called for, added restrictions or qualifying conditions, or other irregularities of any kind.
- C. Owner may make such investigations as it deems necessary to determine the ability of the Prospective Bidder to perform the Work, and the Prospective Bidder shall furnish to Owner all such information for this purpose as Owner may request. Owner reserves the right to withhold qualification if the evidence submitted by or investigation of such Prospective Bidder fails to satisfy Owner that such Prospective Bidder is properly qualified to carry out the obligations of the Project. The determination of which bidders are prequalified is not protestable, except as allowed by law.
- D. Prequalification Submittal and data contained therein is considered privileged and confidential and will not be disclosed to any outside party except as required by law.

1.7 BONDS AND INSURANCE

- A. The Prospective Bidder shall provide as part of the Submittal of Qualifications evidence of its ability to furnish below:
 - 1. Performance Bond, a Payment Bond, and a Labor and Material Bond, each in the amount of 100 percent of the Contract Sum, with a corporate surety authorized to transact business in Project's jurisdiction.
 - 2. Satisfactory certificates of insurance in the amount and types required by statute, but not less than the following:
 - a. Professional design errors and omissions insurance endorsement for delegated design by Contractor's professional engineer.
 - b. Workers' Compensation insurance provisions: statutory limits.
 - c. Commercial General Liability insurance provisions: at limits established by Owner in Project Contract Documents and including below:

1.8 ACCEPTANCE OF QUALIFICATIONS

- A. Prospective bidders will be notified of Owner's determination, within **14** days from the date of submission.
- B. Evaluations will be confidential. Notifications will be publicly available information.
- C. Owner may deny prequalification if it finds one or more of the following:
 - 1. The Prospective Bidder does not have sufficient financial capacity to perform the Work.
 - 2. The Prospective Bidder does not have the appropriate experience to perform the Work, including, but not limited to, having met the experience criteria set forth herein.
 - 3. The Prospective Bidder or any officer, director, or owner thereof has had judgments entered against him within the past five years for the breach of contracts for governmental or nongovernmental construction work including, but not limited to, design-build or construction management contracts.
 - 4. The Prospective Bidder has been in substantial noncompliance with the terms and conditions of prior construction with Owner, or in documented substantial noncompliance with the terms and conditions of prior construction with another public body without good cause.
 - 5. The Prospective Bidder or any officer, director, owner, or chief financial official thereof has been convicted within the past 10 years of a crime related to governmental or nongovernmental construction or contracting.
 - 6. The Prospective Bidder or any officer, director, or owner thereof is currently debarred pursuant to an established debarment procedure from bidding or contracting by any public body, agency of another state, or agency of the Federal Government.
 - 7. The Prospective Bidder failed to provide to the public body in a timely manner any information required by the public body relevant to the six preceding subparagraphs.
 - 8. The Prospective Bidder provides false, nonresponsive, misleading, or incomplete information for items required herein.
- D. The acceptance of a Prospective Bidder's qualifications will be a Notice of Prequalification, signed by a duly authorized representative of Owner; no other act by Owner or its agents shall constitute the acceptance of qualifications. The acceptance of a Prospective Bidder's qualifications by Owner does not constitute a contract or promise to award a contract to the Prospective Bidder.

1.9 PROSPECTIVE BIDDER'S CHECKLIST

- A. In an effort to assist the Prospective Bidder in properly completing all documentation required, the following checklist is provided for the Prospective Bidder's convenience. The Prospective Bidder is solely responsible for verifying compliance with prequalification requirements.
- B. Attach this completed checklist to the outside of the Submittal envelope.
 - 1. Reviewed the Prequalification Documents, including the Advertisement for Prequalification and Requirements for Prequalification, prior to preparing this submittal.
 - 2. Prepared AIA Document A305, "Contractor's Qualification Statement," as required by the document instructions and by the Requirements for Prequalification, including all attachments and data required as part of the Qualification Statement, properly notarized.
 - 3. Attached: Copy of applicable Contractor's license(s).
 - 4. Attached: Affidavit of Employee Screening.
 - 5. Attached: Resumes of key individuals.
 - 6. Attached: Other attachments as necessary to provide information required.
 - 7. Envelope shows name and address of the Prospective Bidder.
 - 8. Envelope shows the Prospective Bidder's Contractor's License No.
 - 9. By submitting notarized statement, the Prospective Bidder certifies that the Bidder can provide executed Performance Bond and Labor and Material Bond meeting requirements given in the Requirements for Prequalification.
 - 10. By submitting notarized statement, the Prospective Bidder certifies that the Bidder can provide Certificates of Insurance in the amounts indicated in the Requirements for Prequalification.

END OF DOCUMENT 001153

SECTION 004322 - UNIT PRICES FORM

1.1 BID INFORMATION

- A. Bidder: _____.
- B. Prime Contract: Deo Matukanga
- C. Project Name: Henry Wade Juvenile Center Hot Water System Replacement.
- D. Project Location: 2600 Lone Star Dr, Dallas, Tx 75212
- E. Owner: City of Dallas
- F. Engineer: MEPCE
- G. Engineer Project Number: 31.00230

1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.
- B. The undersigned Bidder bids the amounts below be added to or deducted from the Contract Sum on performance and measurement of the individual items of Work and for adjustment of the quantity given in the Unit-Price Allowance for the actual measurement of individual items of the Work.
- C. If the unit price does not affect the Work of this Contract, the Bidder shall indicate "NOT APPLICABLE."

1.3 UNIT PRICES

PART 2 – Unit-price descriptions below are model text for illustration purposes.

- A. Unit-Price No. 1: Removal of unsatisfactory soil and replacement with satisfactory soil material.
 - 1. _____ dollars (\$_____) per unit.
- B. Unit-Price No. 2: Rock excavation and replacement with satisfactory soil material.
 - 1. _____ dollars (\$_____) per unit.
- C. Unit-Price No. 3: Cutting and patching of concrete floor slabs.
 - 1. _____ dollars (\$_____) per unit.
- D. Unit-Price No. 4: Miscellaneous and structural steel.
 - 1. _____ dollars (\$_____) per unit.

- E. Unit-Price No. 5: Elevator jack hole rock.
1. _____ dollars (\$_____) per unit.
- F. Unit-Price No. <Insert unit-price number>: <Insert unit-price item>.
1. _____ dollars (\$_____) per unit.

2.2 SUBMISSION OF BID SUPPLEMENT

- A. Respectfully submitted this ____ day of _____, <Insert year>.
- B. Submitted By: _____(Insert name of bidding firm or corporation).
- C. Authorized Signature: _____(Handwritten signature).
- D. Signed By: _____(Type or print name).
- E. Title: _____(Owner/Partner/President/Vice President).

END OF DOCUMENT 004322

SECTION 004323 - ALTERNATES FORM

1.1 BID INFORMATION

- A. Bidder: _____.
- B. Prime Contract: Deo Matukanga
- C. Project Name: Henry Wade Juvenile Center Hot Water System Replacement.
- D. Project Location: 2600 Lone Star Dr, Dallas, Tx 75212
- E. Owner: City of Dallas
- F. Engineer: MEPCE
- G. Engineer Project Number: 31.00230

1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.

1.3 DESCRIPTION

- A. The undersigned Bidder requests for the amount below be added to or deducted from the Base Bid if particular alternates are accepted by Owner. Amounts listed for each alternate include costs of related coordination, modification, or adjustment.
- B. Cost-Plus-Fee Contract: Alternate price given below includes adjustment to Contractor's Fee.
- C. If the alternate does not affect the Contract Sum, the Bidder shall indicate "NO CHANGE."
- D. If the alternate does not affect the Work of this Contract, the Bidder shall indicate "NOT APPLICABLE."
- E. The Bidder shall be responsible for determining from the Contract Documents the affects of each alternate on the Contract Time and the Contract Sum.
- F. Owner reserves the right to accept or reject any alternate, in any order, and to award or amend the Contract accordingly within [60] days of the Notice of Award unless otherwise indicated in the Contract Documents.
- G. Acceptance or non-acceptance of any alternates by the Owner shall have no affect on the Contract Time unless the "Schedule of Alternates" Article below provides a formatted space for the adjustment of the Contract Time.

1.4 SCHEDULE OF ALTERNATES

PART 2 – Revise "Alternate No." Paragraph below to correspond to scheduled alternates.

- A. Alternate No. <Insert number>: <Insert title of alternate>:
1. ADD____ DEDUCT____ NO CHANGE____ NOT APPLICABLE____.
 2. _____ Dollars (\$_____).

PART 3 – Retain subparagraph below if provision for adjustment of the Contract Time for the alternate is required.

1. ADD____ DEDUCT____ calendar days to adjust the Contract Time for this alternate.

3.2 SUBMISSION OF BID SUPPLEMENT

- A. Respectfully submitted this ____ day of _____, 2024.
- B. Submitted By: _____(Insert name of bidding firm or corporation).
- C. Authorized Signature: _____(Handwritten signature).
- D. Signed By: _____(Type or print name).
- E. Title: _____(Owner/Partner/President/Vice President).

PART 4 – END OF DOCUMENT 004323

PART 1 – GENERAL

1.1 DEFINITIONS

- A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.
- B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.2 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of requested substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.3 PROCUREMENT SUBSTITUTIONS

- A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.
- B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:
 - 1. Extensive revisions to the Contract Documents are not required.
 - 2. Requested changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
 - 3. The request is fully documented and properly submitted.

1.4 SUBMITTALS

- A. Procurement Substitution Request: Submit to Owner's Representative. Procurement Substitution Request must be made in writing by prime contract Bidder only in compliance with the following requirements:
 - 1. Requests for substitution of materials and equipment will be considered if received no later than 10 days prior to date of bid opening.

2. Submittal Format: Submit three copies of each written Procurement Substitution Request, using form bound in Project Manual.
- B. Architect's Action:
1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the requested substitute by means of an Addendum to the Procurement and Contracting Documents.
- C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

END OF SECTION 002600

SECTION 004113 - BID FORM

1.1 BID INFORMATION

- A. Bidder: _____.
- B. Project Name: Henry Wade Juvenile Center Hot Water System Replacement
- C. Project Location: 2600 Lone Star Dr, Dallas, TX 75212
- D. Owner: Dallas County
- E. Engineer: MEPCE
- F. Architect Project Number: 31.00230.

1.2 CERTIFICATIONS AND BASE BID

- A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by MEPCE and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:
 - 1. _____ Dollars (\$_____).
 - 2. The above amount may be modified by amounts indicated by the Bidder on the attached Document 004322 "Unit Prices Form" and Document 004323 "Alternates Form."

1.3 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within **10** days after a written Notice of Award, if offered within **60** days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:
 - 1. _____ Dollars (\$_____).
- B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.4 SUBCONTRACTORS AND SUPPLIERS

- A. The following companies shall execute subcontracts for the portions of the Work indicated:
 - 1. Plumbing Work: _____.

2. Electrical Work: _____.

1.5 ACKNOWLEDGEMENT OF ADDENDA

- A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:
1. Addendum No. 1, dated _____.
 2. Addendum No. 2, dated _____.
 3. Addendum No. 3, dated _____.
 4. Addendum No. 4, dated _____.

1.6 CONTRACTOR'S LICENSE

- A. The undersigned further states that it is a duly licensed contractor, for the type of work to be performed, in Dallas County, and that all fees, permits, etc., pursuant to submitting this bid have been paid in full.

1.7 SUBMISSION OF BID

- A. Respectfully submitted this ____ day of _____, 2024.
- B. Submitted By: _____ (Name of bidding firm or corporation).
- C. Authorized Signature: _____ (Handwritten signature).
- D. Signed By: _____ (Type or print name).
- E. Title: _____ (Owner/Partner/President/Vice President).
- F. Witnessed By: _____ (Handwritten signature).
- G. Attest: _____ (Handwritten signature).
- H. By: _____ (Type or print name).
- I. Title: _____ (Corporate Secretary or Assistant Secretary).
- J. Street Address: _____.
- K. City, State, Zip: _____.
- L. Phone: _____.
- M. License No.: _____.
- N. Federal ID No.: _____ (Affix Corporate Seal Here).

END OF SECTION 004113

SECTION 006000 – PROJECT FORMS

PART 1 – GENERAL

1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

- A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:
 - 1. AIA Document A101 "Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is a Stipulated Sum."
 - a. The General Conditions for Project are AIA Document A201, "General Conditions of the Contract for Construction."

1.2 ADMINISTRATIVE FORMS

- A. Copies of AIA standard forms may be obtained from the American Institute of Architects; <https://www.aiacontractdocs.org>; (800) 942-7732.
- B. Preconstruction Forms:
 - 1. Form of Performance Bond and Labor and Material Bond: AIA Document A312 "Performance Bond and Payment Bond."
 - 2. Form of Certificate of Insurance: AIA Document G715 "Supplemental Attachment, ACORD Certificate of Insurance."
- C. Information and Modification Forms:
 - 1. Form for Requests for Information (RFIs): AIA Document G716 "Request for Information (RFI)."
 - 2. Form of Request for Bids: AIA Document G709
 - 3. Change Order Form: AIA Document G701 "Change Order."
 - 4. Form of Architect's Memorandum for Minor Changes in the Work: AIA Document G710 "Architect's Supplemental Instructions."
 - 5. Form of Change Directive: AIA Document G714 "Construction Change Directive."
- D. Payment Forms:
 - 1. Schedule of Values Form: AIA Document G703 "Continuation Sheet."
 - 2. Payment Application: AIA Document G702 "Application and Certificate for Payment and Continuation Sheet."
 - 3. Form of Contractor's Affidavit: AIA Document G706 "Contractor's Affidavit of Payment of Debts and Claims."
 - 4. Form of Affidavit of Release of Liens: AIA Document G706A "Contractor's Affidavit of Payment of Release of Liens."
 - 5. Form of Consent of Surety: AIA Document G707 "Consent of Surety to Final Payment."

END OF SECTION 006000

SECTION 011000 - SUMMARY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Phased construction.
 - 4. Work performed by Owner.
 - 5. Multiple Work Packages.
 - 6. Work under Owner's separate contracts.
 - 7. Future work not part of this Project.
 - 8. Owner's product purchase contracts.
 - 9. Owner-furnished/Contractor-installed (OFCI) products.
 - 10. Owner-furnished/Owner-installed (OFOI) products.
 - 11. Contractor-furnished/Owner-installed (CFOI) products.
 - 12. Contractor's use of site and premises.
 - 13. Coordination with occupants.
 - 14. Work restrictions.
 - 15. Specification and Drawing conventions.
 - 16. Miscellaneous provisions.

1.3 DEFINITIONS

- A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

- A. Project Identification: Henry Wade Juvenile Center Hot Water System Replacement.
 - 1. Project Location: 2600 Lone Star Dr, Dallas, TX 75212
- B. Owner: City of Dallas
 - 1. Owner's Representative: Deo Matukanga
- C. Engineer: MEPCE
 - 1. Engineer's Representative: Matt Fulls

- D. Web-Based Project Software: Project software will be used for purposes of managing communication and documents during the construction stage.
 - 1. See Section 013100 "Project Management and Coordination." for requirements for using web-based Project software.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:
 - 1. Replacement of hot water piping throughout the facility. Work will consist of replacing the hot water recirculating pump and ceilings, and other Work indicated in the Contract Documents.
- B. Type of Contract:
 - 1. Project will be constructed under a single prime contract.

1.6 PHASED CONSTRUCTION

- A. Construct the Work in phases, with each phase substantially complete as indicated on Drawings.
- B. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule, showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

1.7 WORK PERFORMED BY OWNER

- A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.8 WORK UNDER OWNER'S SEPARATE CONTRACTS

- A. Work with Separate Contractors: Cooperate fully with Owner's separate contractors, so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under Owner's separate contracts.

1.9 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Unrestricted Use of Site: Each Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Restricted Use of Site: Each Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

- C. Limits on Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- E. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.10 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy Project site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
 - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.11 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to between 7:00 a.m. to 6:00 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than two days in advance of required utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Owner not less than two days in advance of requested disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.

- E. Smoking and Controlled Substance Restrictions: Use of tobacco products , alcoholic beverages, and other controlled substances on Owner's property is not permitted.
- F. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.
- G. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
 - 1. Maintain list of approved screened personnel with Owner's representative.

1.12 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
 - 3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
 - 4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings and published as part of the U.S. National CAD Standard.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Document 002600 "Procurement Substitution Procedures" for requirements for substitution requests prior to award of Contract.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes requested by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes requested by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form acceptable to Owner.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate requested substitution.
 - c. Detailed comparison of significant qualities of requested substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from [ICC-ES] <Insert applicable code organization>.
 - j. Detailed comparison of Contractor's construction schedule using requested substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a request of change, if any, in the Contract Sum.
 - l. Contractor's certification that requested substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of requested substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Owner of acceptance or rejection of requested substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a requested substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of requested substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed unless otherwise indicated.

C. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
 - 2. Section 013100 "Project Management and Coordination" for requirements for forms for contract modifications provided as part of web-based Project management software.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue through Owner supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.

1.4 CHANGE ORDER REQUESTS

- A. Owner-Initiated Change Requests: Architect will issue a detailed description of requested changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Order Requests issued by Architect are not instructions either to stop work in progress or to execute the requested change.
 - 2. Within time specified in Change Request after receipt of Change Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Owner.
- B. Contractor-Initiated Change Request: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the requested change. Indicate the effect of the requested change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the requested change requires substitution of one product or system for product or system specified.
7. Change Request Form: Use form provided by Owner.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Request, **Architect** will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.8 WORK CHANGE DIRECTIVE

- A. Work Change Directive: Architect may issue a Work Change Directive on EJCDC Document C-940. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule. Cost-loaded Critical Path Method Schedule may serve to satisfy requirements for the schedule of values.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
 - 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
 - 5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract, as described in Section 011000 "Summary."

- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Owner's name.
 - c. Owner's Project number.
 - d. Name of Architect.
 - e. Architect's Project number.
 - f. Contractor's name and address.
 - g. Date of submittal.
 2. Arrange schedule of values consistent with format of AIA Document G703.
 3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - I. Labor.
 - II. Materials.
 - III. Equipment.
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
 5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site.
 6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 7. Purchase Contracts: Provide a separate line item in the schedule of values for each Purchase contract. Show line-item value of Purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.
 8. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
 9. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
 10. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
 11. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
 12. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: Submit Application for Payment to Architect by the last of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 - 1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
 - 1. Other Application for Payment forms requested by the Contractor may be acceptable to Architect and Owner. Submit forms for approval with initial submittal of schedule of values.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 - 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- G. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment] [subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 5. Products list (preliminary if not final).
 6. Sustainable design action plans, including preliminary project materials cost data.
 7. Schedule of unit prices.
 8. Submittal schedule (preliminary if not final).
 9. List of Contractor's staff assignments.
 10. List of Contractor's principal consultants.
 11. Copies of building permits.
 12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 13. Initial progress report.
 14. Report of preconstruction conference.
 15. Certificates of insurance and insurance policies.
 16. Performance and payment bonds.
 17. Data needed to acquire Owner's insurance.
- J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Certification of completion of final punch list items.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706.
6. AIA Document G706A.
7. AIA Document G707.
8. Evidence that claims have been settled.
9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Web-based Project management software package.
 - 6. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 1. Post copies of list in Project meeting room, in temporary field office, and in prominent location in **each** built facility. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination of Multiple Contracts: Each contractor shall cooperate with Project coordinator, who shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors and direction of Project coordinator to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.

7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Coordinate the addition of trade-specific information to coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
 - c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - f. Indicate required installation sequences.
 - g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating intended resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms, showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.

- b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
- 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit **1-1/4 inches** in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
 - c. Panel board, switchboard, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
- 8. Fire-Protection System: Show the following:
 - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
- 9. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
- 10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."

C. Coordination Drawing Process: Prepare coordination drawings in the following manner:

- 1. Schedule submittal and review of Fire Sprinkler, Plumbing, HVAC, and Electrical Shop Drawings to make required changes prior to preparation of coordination drawings.
- 2. Commence routing of coordination drawing files with HVAC Installer, who will provide drawing plan files denoting approved ductwork. HVAC Installer will locate ductwork and piping on a single layer, using orange color. Forward drawings to Plumbing Installer.
- 3. Plumbing Installer will locate plumbing and equipment on a single layer, using blue color.
- 4. Fire Sprinkler Installer will locate piping and equipment, using red color. Fire Sprinkler Installer shall forward drawing files to Electrical Installer.
- 5. Electrical Installer will indicate service and feeder conduit runs and equipment in green color. Electrical Installer shall forward drawing files to Communications and Electronic Safety and Security Installer.
- 6. Communications and Electronic Safety and Security Installer will indicate cable trays and cabling runs and equipment in purple color. Communications and Electronic Safety and Security Installer shall forward completed drawing files to Contractor.
- 7. Contractor shall perform the final coordination review. As each coordination drawing is completed, Contractor will meet with Architect to review and resolve conflicts on the coordination drawings.

D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

- 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
- 2. File Preparation Format: DWG, operating in Microsoft Windows operating system.
- 3. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format.
- 4. BIM File Incorporation: Develop and incorporate coordination drawing files into BIM established for Project.
 - a. Perform three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect.

5. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
 - b. Digital Data Software Program: Drawings are available in Revit.
 - c. Contractor shall execute a data licensing agreement in the form of AIA Document C106.

1.7 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Owner name.
 3. Owner's Project number.
 4. Name of Architect.
 5. Architect's Project number.
 6. Date.
 7. Name of Contractor.
 8. RFI number, numbered sequentially.
 9. RFI subject.
 10. Specification Section number and title and related paragraphs, as appropriate.
 11. Drawing number and detail references, as appropriate.
 12. Field dimensions and conditions, as appropriate.
 13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 14. Contractor's signature.
 15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716.
 1. Attachments shall be electronic files in PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.

- d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 - 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
 - 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Bid according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 5> days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Software log with not less than the following:
- 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number, including RFIs that were returned without action or withdrawn.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.
 - 8. Identification of related Minor Change in the Work, Construction Change Directive, and Bid Request, as appropriate.
 - 9. Identification of related Field Order, Work Change Directive, and Bid Request, as appropriate.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Architect's Data Files Not Available: Architect will not provide Architect's BIM model digital data files for Contractor's use during construction.
- B. Use of Architect's Digital Data Files: Digital data files of Architect's BIM model will be provided by Architect for Contractor's use during construction.
 - 1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project Record Drawings.
 - 2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
 - 3. Digital Drawing Software Program: Contract Drawings are available in Revit.
 - 4. Contractor shall execute a data licensing agreement in the form of AIA Document C106 Digital Data Licensing Agreement.
 - a. Subcontractors and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of AIA Document C106.
 - 5. The following digital data files will be furnished for each appropriate discipline:
 - a. Floor plans.
 - b. Reflected ceiling plans.

- C. Web-Based Project Management Software Package: web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.
1. Web-based Project management software includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, Architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.
 - d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.
 2. Provide up to seven Project management software user licenses for use of Owner, Architect, and Architect's consultants. Provide eight hours of software training at Architect's office for web-based Project software users.
 3. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
 4. Provide one of the following Project management software packages under their current published licensing agreements:
 - a. Autodesk; Constructware.
 - b. Corecon Technologies, Inc.
 - c. Meridian Systems; Prolog.
 - d. Newforma, Inc.
 - e. Procore Technologies, Inc.
 - f. Viewpoint, Inc.;
- D. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
1. Assemble complete submittal package into a single indexed file, incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.9 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 - 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Sustainable design requirements.
 - o. Preparation of Record Documents.
 - p. Use of the premises and existing building.
 - q. Work restrictions.
 - r. Working hours.
 - s. Owner's occupancy requirements.
 - t. Responsibility for temporary facilities and controls.
 - u. Procedures for moisture and mold control.
 - v. Procedures for disruptions and shutdowns.
 - w. Construction waste management and recycling.
 - x. Parking availability.
 - y. Office, work, and storage areas.
 - z. Equipment deliveries and priorities.
 - aa. First aid.
 - bb. Security.
 - cc. Progress cleaning.
 - 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

- C. Sustainable Design Requirements Coordination Conference: Owner will schedule and conduct a sustainable design coordination conference before starting construction, at a time convenient to Owner, Architect, and Contractor.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent and sustainable design coordinator; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect meeting sustainable design requirements, including the following:
 - a. Sustainable design Project checklist.
 - b. General requirements for sustainable design-related procurement and documentation.
 - c. Project closeout requirements and sustainable design certification procedures.
 - d. Role of sustainable design coordinator.
 - e. Construction waste management.
 - f. Construction operations and sustainable design requirements and restrictions.
 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- D. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Sustainable design requirements.
 - i. Review of mockups.
 - j. Possible conflicts.
 - k. Compatibility requirements.
 - l. Time schedules.
 - m. Weather limitations.
 - n. Manufacturer's written instructions.
 - o. Warranty requirements.
 - p. Compatibility of materials.
 - q. Acceptability of substrates.
 - r. Temporary facilities and controls.
 - s. Space and access limitations.
 - t. Regulations of authorities having jurisdiction.
 - u. Testing and inspecting requirements.
 - v. Installation procedures.
 - w. Coordination with other work.
 - x. Required performance results.

- y. Protection of adjacent work.
 - z. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- E. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than **90** days prior to the scheduled date of Substantial Completion.
- 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 - 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for completing sustainable design documentation.
 - f. Requirements for preparing operations and maintenance data.
 - g. Requirements for delivery of material samples, attic stock, and spare parts.
 - h. Requirements for demonstration and training.
 - i. Preparation of Contractor's punch list.
 - j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - k. Submittal procedures.
 - l. Coordination of separate contracts.
 - m. Owner's partial occupancy requirements.
 - n. Installation of Owner's furniture, fixtures, and equipment.
 - o. Responsibility for removing temporary facilities and controls.
 - 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- F. Progress Meetings: Conduct progress meetings at weekly intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to

Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- I. Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - I. Interface requirements.
 - II. Sequence of operations.
 - III. Resolution of BIM component conflicts.
 - IV. Status of submittals.
 - V. Status of sustainable design documentation.
 - VI. Deliveries.
 - VII. Off-site fabrication.
 - VIII. Access.
 - IX. Site use.
 - X. Temporary facilities and controls.
 - XI. Progress cleaning.
 - XII. Quality and work standards.
 - XIII. Status of correction of deficient items.
 - XIV. Field observations.
 - XV. Status of RFIs.
 - XVI. Status of Bid Requests.
 - XVII. Pending changes.
 - XVIII. Status of Change Orders.
 - XIX. Pending claims and disputes.
 - XX. Documentation of information for payment requests.
 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- G. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
- c. Review present and future needs of each contractor present, including the following:
 - I. Interface requirements.
 - II. Sequence of operations.
 - III. Resolution of BIM component conflicts.
 - IV. Status of submittals.
 - V. Deliveries.
 - VI. Off-site fabrication.
 - VII. Access.
 - VIII. Site use.
 - IX. Temporary facilities and controls.
 - X. Work hours.
 - XI. Hazards and risks.
 - XII. Progress cleaning.
 - XIII. Quality and work standards.
 - XIV. Status of RFIs.
 - XV. Bid Requests.
 - XVI. Change Orders.
 - XVII. Pending changes.
- 3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Unusual event reports.
- B. Related Requirements:
 - 1. Section 014000 "Quality Requirements" for schedule of tests and inspections.
 - 2. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file.
 - 2. PDF file.
 - 3. Two paper copies, of sufficient size to display entire period or schedule, as required.
- B. Startup construction schedule.
 - 1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
 - 3. Total Float Report: List of activities sorted in ascending order of total float.
 - 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit at weekly intervals.

- H. Material Location Reports: Submit at weekly intervals.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.
- J. Unusual Event Reports: Submit at time of unusual event.
- K. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Verify availability of qualified personnel needed to develop and update schedule.
 - 3. Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial Owner occupancy.
 - 4. Review delivery dates for Owner-furnished products.
 - 5. Review schedule for work of Owner's separate contracts.
 - 6. Review submittal requirements and procedures.
 - 7. Review time required for review of submittals and resubmittals.
 - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 9. Review time required for Project closeout and Owner startup procedures.
 - 10. Review and finalize list of construction activities to be included in schedule.
 - 11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
 - 1. Use scheduling component of Project management software package specified in Section 013100 "Project Management and Coordination for current Windows operating system.
- B. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting, using CPM scheduling.

1. In-House Option: Owner may waive requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
 2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- C. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- D. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Temporary Facilities: Indicate start and completion dates for the following as applicable:
 - a. Securing of approvals and permits required for performance of the Work.
 - b. Temporary facilities.
 - c. Construction of mock-ups, prototypes and samples.
 - d. Owner interfaces and furnishing of items.
 - e. Interfaces with Separate Contracts.
 - f. Regulatory agency approvals.
 - g. Punch list.
 3. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 4. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 5. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 6. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 7. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.
- E. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:

- a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use-of-premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
- a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
 - n. Commissioning.
8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
- a. Structural completion.
 - b. Temporary enclosure and space conditioning.
 - c. Permanent space enclosure.
 - d. Completion of mechanical installation.
 - e. Completion of electrical installation.
 - f. Substantial Completion.
- F. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- G. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
- 1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.
- H. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
- 1. Unresolved issues.
 - 2. Unanswered Requests for Information.
 - 3. Rejected or unreturned submittals.
 - 4. Notations on returned submittals.
 - 5. Pending modifications affecting the Work and the Contract Time.

- I. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Final Completion percentage for each activity.
- J. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- K. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.8 STARTUP CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.9 GANTT-CHART SCHEDULE REQUIREMENTS

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.
 - 1. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.10 CPM SCHEDULE REQUIREMENTS

- A. Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first [90] <Insert number> days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's Construction Schedule using a cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.
 - 1. Develop network diagram in sufficient time to submit CPM schedule, so it can be accepted for use no later than 60 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates.
 - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
 - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing and inspection.
 - j. Commissioning.
 - k. Punch list and Final Completion.
 - l. Activities occurring following Final Completion.
 - 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 - 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 - 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
 - a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
 - b. Total cost assigned to activities shall equal the total Contract Sum.
- E. Contract Modifications: For each requested contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the requested change on the overall Project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Submit initial schedule within 10 days of date of agreement. Prepare tabulated reports showing the following:
 1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Main events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.
 7. Changes in the Contract Time.
- H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
 1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
 2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
 3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
 4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

1.11 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Testing and inspection.
 8. Accidents.
 9. Meetings and significant decisions.
 10. Unusual events.
 11. Stoppages, delays, shortages, and losses.
 12. Meter readings and similar recordings.
 13. Emergency procedures.
 14. Orders and requests of authorities having jurisdiction.
 15. Change Orders received and implemented.
 16. Work Change Directives received and implemented.
 17. Services connected and disconnected.
 18. Equipment or system tests and startups.
 19. Partial completions and occupancies.
 20. Substantial Completions authorized.
- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
 2. Material stored prior to previous report and since removed from storage and installed.
 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.
1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Concealed Work photographs.
 - 3. Periodic construction photographs.
 - 4. Final Completion construction photographs.
 - 5. Preconstruction video recordings.
 - 6. Periodic construction video recordings.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
 - 2. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within three days of taking photographs.
 - 1. Submit photos by uploading to web-based Project management software site. Include copy of key plan indicating each photograph's location and direction.
 - 2. Identification: Provide the following information with each image description in web-based Project management software site:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of location, vantage point, and direction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- C. Video Recordings: Submit video recordings within seven days of recording.

1. Submit video recordings by uploading to web-based Project management software site. Include copy of key plan indicating each video's location and direction.
2. Identification: With each submittal, provide the following information on web-based Project management software site:
 - a. Name of Project.
 - b. Name and address of photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date video recording was recorded.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
3. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in three-ring binders. Provide label on front and spine. Include a cover sheet with label information. Include name of Project and date of video recording on each page.

1.4 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.
- B. Construction Webcam Service Provider: A firm specializing in providing photographic equipment, web-based software, and related services for construction projects, with a record of providing satisfactory services similar to those required for Project.

1.5 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels, and with vibration-reduction technology. Use flash in low light levels or backlit conditions.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high-definition mode with vibration-reduction technology. Provide supplemental lighting in low light levels or backlit conditions.
- C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- D. Metadata: Record accurate date and time and GPS location data from camera.
- E. File Names: Name media files with date Project area and sequential numbering suffix.

1.6 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
1. Flag construction limits before taking construction photographs.
 2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
 3. Take 20 photographs of existing buildings either on or adjoining property, to accurately record physical conditions at start of construction.
 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:
1. Piping.
 2. Electrical conduit.
 3. Waterproofing and weather-resistant barriers.
- E. Periodic Construction Photographs: Take 20 photographs weekly coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- F. Final Completion Construction Photographs: Take 20 photographs after date of Substantial Completion for submission as Project Record Documents. Architect will inform photographer of desired vantage points.
- G. Additional Photographs: Architect may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum or in the allowance for construction photographs.
1. Three days' notice will be given, where feasible.
 2. In emergency situations, take additional photographs within 24 hours of request.
 3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Special events planned at Project site.
 - b. Immediate follow-up when on-site events result in construction damage or losses.
 - c. Photographs shall be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
 - d. Substantial Completion of a major phase or component of the Work.
 - e. Extra record photographs at time of final acceptance.
 - f. Owner's request for special publicity photographs.

1.7 CONSTRUCTION VIDEO RECORDINGS

- A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings.
- B. Narration: Describe scenes on video recording by audio narration by microphone while or dubbing audio narration off-site after video recording is recorded. Include description of items being viewed,

recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.

1. Confirm date and time at beginning and end of recording.
 2. Begin each video recording with name of Project, Contractor's name, videographer's name, and Project location.
- C. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from video recording opposite the corresponding narration segment.
- D. Preconstruction Video Recording: Before starting demolition, record video recording of Project site and surrounding properties from different vantage points, as directed by Architect.
1. Flag construction limits before recording construction video recordings.
 2. Show existing conditions adjacent to Project site before starting the Work.
 3. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of demolition.
 4. Show protection efforts by Contractor.
- E. Periodic Construction Video Recordings: Record video recording monthly coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last video recordings were recorded. Minimum recording time shall be 30 minutes(s).

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Submittal schedule requirements.
 - 2. Administrative and procedural requirements for submittals.
- B. Related Requirements:
 - 1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
 - 3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 4. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.
 - 5. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
 - 6. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
 - 7. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 8. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 9. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL FORMATS

- A. Submittal Information: Include the following information in each submittal:
1. Project name.
 2. Date.
 3. Name of Architect.
 4. Name of Construction Manager.
 5. Name of Contractor.
 6. Name of firm or entity that prepared submittal.
 7. Names of subcontractor, manufacturer, and supplier.
 8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
 9. Category and type of submittal.
 10. Submittal purpose and description.
 11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 12. Drawing number and detail references, as appropriate.
 13. Indication of full or partial submittal.
 14. Location(s) where product is to be installed, as appropriate.
 15. Other necessary identification.
 16. Remarks.

17. Signature of transmitter.
- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Paper Submittals:
1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect, through Construction Manager, will return two copies.
 4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
 5. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 6. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using AIA Document G810 transmittal form.
- E. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
- F. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.6 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
 - a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
 2. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
 3. Paper: Prepare submittals in paper form and deliver to Architect.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.7 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.

- e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
- 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 2. BIM Incorporation: Develop and incorporate Shop Drawing files into BIM established for Project.
- C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
- 1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
 - 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 - 3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
 - 4. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
 - 5. Paper Transmittal: Include paper transmittal, including complete submittal information indicated.
 - 6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product intended for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.
 - I. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - II. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- C. BIM Incorporation: Incorporate delegated-design drawing and data files into BIM established for Project.
 1. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as original Drawings.

1.9 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform indication in web-based Project management software. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required[, **and return**].
 1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.
 2. Submittals by Web-Based Project Management Software: Architect will indicate, on Project management software website, the appropriate action.
 - a. Actions taken by indication on Project management software website have the following meanings:
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 013300

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes special procedures for alteration work.

1.3 DEFINITIONS

- A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.
- B. Consolidate: To strengthen loose or deteriorated materials in place.
- C. Design Reference Sample: A sample that represents the Architect's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.
- D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.
- K. Retain: To keep existing items that are not to be removed or dismantled.

- L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.4 COORDINATION

- A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and scheduling of alteration work for entire Project, including each activity to be performed, and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.
 - 1. Schedule construction operations in sequence required to obtain best Work results.
 - 2. Coordinate sequence of alteration work activities to accommodate the following:
 - a. Owner's continuing occupancy of portions of existing building.
 - b. Owner's partial occupancy of completed Work.
 - c. Other known work in progress.
 - d. Tests and inspections.
 - 3. Detail sequence of alteration work, with start and end dates.
 - 4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
 - 5. Use of elevator and stairs.
 - 6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment intended for use in existing structure. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.
- B. Pedestrian and Vehicular Circulation: Coordinate alteration work with circulation patterns within Project building(s) and site. Some work is near circulation patterns and adjacent to restricted areas. Circulation patterns cannot be closed off entirely and in places can be only temporarily redirected around small areas of work. Access to restricted areas may not be obstructed. Plan and execute the Work accordingly.

1.5 PROJECT MEETINGS FOR ALTERATION WORK

- A. Preliminary Conference for Alteration Work: Before starting alteration work, conduct conference at Project site.
 - 1. Attendees: In addition to representatives of Owner, Architect, and Contractor, testing service representative, specialists, and chemical-cleaner manufacturer(s) shall be represented at the meeting.
 - 2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
 - a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Fire-prevention plan.
 - c. Governing regulations.
 - d. Areas where existing construction is to remain and the required protection.
 - e. Hauling routes.
 - f. Sequence of alteration work operations.
 - g. Storage, protection, and accounting for salvaged and specially fabricated items.

- h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
 - i. Qualifications of personnel assigned to alteration work and assigned duties.
 - j. Requirements for extent and quality of work, tolerances, and required clearances.
 - k. Embedded work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.
 - 3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.
- B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at weekly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
 - 1. Attendees: In addition to representatives of Owner, Architect, and Contractor, each specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of alteration work activities shall be represented at these meetings. All participants at conference shall be familiar with Project and authorized to conclude matters relating to alteration work.
 - 2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
 - a. Alteration Work Subschedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
 - b. Schedule Updating: Revise Contractor's Alteration Work Subschedule after each coordination meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each entity present, including review items listed in the "Preliminary Conference for Alteration Work" Paragraph in this article and the following:
 - I. Interface requirements of alteration work with other Project Work.
 - II. Status of submittals for alteration work.
 - III. Access to alteration work locations.
 - IV. Effectiveness of fire-prevention plan.
 - V. Quality and work standards of alteration work.
 - VI. Change Orders for alteration work.
 - 3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.6 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1. Carefully dismantle and salvage each item or object in a manner to prevent damage and protect it from damage, then promptly deliver it to Owner where directed at Project site.

1.7 INFORMATIONAL SUBMITTALS

- A. Alteration Work Subschedule:
 1. Submit alteration work subschedule within seven days of date established for commencement of alteration work.
- B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.
- C. Alteration Work Program: Submit 30 days before work begins.
- D. Fire-Prevention Plan: Submit 30 days before work begins.

1.8 QUALITY ASSURANCE

- A. Specialist Qualifications: An experienced firm regularly engaged in specialty work similar in nature, materials, design, and extent to alteration work as specified in each Section and that has completed a minimum of five recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this work.
 1. Field Supervisor Qualifications: Full-time supervisors experienced in specialty work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on-site when specialty work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.
 - a. Construct new mockups of required work whenever a supervisor is replaced.
- B. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.
- C. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.
 1. Dust and Noise Control: Include locations of temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
 2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.
- D. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.

- E. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.9 STORAGE AND HANDLING OF SALVAGED MATERIALS

- A. Salvaged Materials:
1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
 2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area on-site.
 5. Protect items from damage during transport and storage.
- B. Salvaged Materials for Reinstallation:
1. Repair and clean items for reuse as indicated.
 2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.
- C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.
- D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
 2. Secure stored materials to protect from theft.
 3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F or more above the dew point.
- E. Storage Space:
1. Owner will arrange for limited on-site location(s) for free storage of salvaged material. This storage space includes security and climate control for stored material.
 2. Arrange for off-site locations for storage and protection of salvaged material that cannot be stored and protected on-site.

1.10 FIELD CONDITIONS

- A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of measured drawings.
1. Comply with requirements specified in Section 013233 "Photographic Documentation."

- B. Discrepancies: Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.
- C. Owner's Removals: Before beginning alteration work, verify in correspondence with Owner that the following items have been removed:
- D. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

PART 2 – PRODUCTS - (Not Used)

PART 3 – EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.
 - 1. Use only proven protection methods, appropriate to each area and surface being protected.
 - 2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
 - 3. Erect temporary barriers to form and maintain fire-egress routes.
 - 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
 - 5. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
 - 6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 - 7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
 - 8. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.
- B. Temporary Protection of Materials to Remain:
 - 1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
 - 2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.
- C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
- D. Utility and Communications Services:
 - 1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
 - 2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
 - 3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

- E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
 - 1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
 - 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

3.2 PROTECTION FROM FIRE

- A. General: Follow fire-prevention plan and the following:
 - 1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled "Owner's Responsibility for Fire Protection."
 - 2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
 - a. If combustible material cannot be removed, provide fire blankets to cover such materials.
- B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
 - 1. Obtain Owner's approval for operations involving use of open-flame or welding or other high-heat equipment. Use of open-flame equipment is not permitted. Notify Owner at least 72 hours before each occurrence, indicating location of such work.
 - 2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
 - 3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
 - 4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
 - 5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
 - 6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
 - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
 - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.
 - e. Maintain fire-watch personnel at each area of Project site until 60 minutes two hours after conclusion of daily work.

- C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.
- D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
 - 1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

- A. Have specialty work performed only by qualified specialists.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs. Comply with requirements in Section 013233 "Photographic Documentation."
- D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.
- E. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.
 - 1. Do not proceed with the work in question until directed by Architect.

END OF SECTION 013516

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
 - 1. Section 012100 "Allowances" for testing and inspection allowances.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of **[five]** <Insert number> previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).
- D. Mockups: Full-size physical assemblies that are constructed either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed and tested at testing facility to verify performance characteristics.
 2. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
 3. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.
- E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.
- F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" shall have the same meaning as the term "testing agency."
- I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that construction will comply with requirements.
- J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.4 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.5 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
1. Specification Section number and title.
 2. Entity responsible for performing tests and inspections.
 3. Description of test and inspection.
 4. Identification of applicable standards.
 5. Identification of test and inspection methods.
 6. Number of tests and inspections required.
 7. Time schedule or time span for tests and inspections.
 8. Requirements for obtaining samples.
 9. Unique characteristics of each quality-control service.
- F. Reports: Prepare and submit certified written reports and documents as specified.
- G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within **10** days of **Notice to Proceed**, and not less than **[five]** **<Insert number>** days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Owner's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager **may also serve as Project superintendent.**
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
 2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
 3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 1. Date of issue.
 2. Project title and number.
 3. Name, address, telephone number, and email address of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 1. Name, address, telephone number, and email address of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement of whether conditions, products, and installation will affect warranty.

7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement of whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE

- A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged in the activities indicated.
 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:
1. Provide test specimens representative of intended products and construction.
 2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 4. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
 5. Build laboratory mockups at testing facility, using personnel, products, and methods of construction indicated for the completed Work.
 6. When testing is complete, remove test specimens and test assemblies; do not reuse products on Project.
 7. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups of size indicated.
 2. Build mockups in location indicated or, if not indicated, as directed by Architect.
 3. Notify Architect **seven** days in advance of dates and times when mockups will be constructed.
 4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
 5. Demonstrate the range of aesthetic effects and workmanship.
 6. Obtain Architect's approval of mockups before starting corresponding Work, fabrication, or construction.
 - a. Allow **seven** days for initial review and each re-review of each mockup.
 7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.
 8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 10. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 2. Payment for these services will be made from testing and inspection allowances specified in Section 012100 "Allowances," as authorized by Change Orders.
 3. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix intended for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspection equipment at Project site.

- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.
 - 1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
 - 2. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in the Statement of Special Inspections attached to this Section, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect]with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
 - 6. Retesting and reinspecting corrected Work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and authorities' having jurisdiction reference during normal working hours.
 - 1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. **Abbreviations and acronyms not included in this list shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."** The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. AABC - Associated Air Balance Council; www.aabc.com.
 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
 9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 11. AF&PA - American Forest & Paper Association; www.afandpa.org.
 12. AGA - American Gas Association; www.aga.org.
 13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 15. AI - Asphalt Institute; www.asphaltinstitute.org.
 16. AIA - American Institute of Architects (The); www.aia.org.
 17. AISC - American Institute of Steel Construction; www.aisc.org.
 18. AISI - American Iron and Steel Institute; www.steel.org.
 19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
 20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 21. ANSI - American National Standards Institute; www.ansi.org.
 22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
 23. APA - APA - The Engineered Wood Association; www.apawood.org.
 24. APA - Architectural Precast Association; www.archprecast.org.
 25. API - American Petroleum Institute; www.api.org.
 26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
 27. ARI - American Refrigeration Institute; (See AHRI).
 28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
 29. ASCE - American Society of Civil Engineers; www.asce.org.
 30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
 31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
 32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
 33. ASSE - American Society of Safety Engineers (The); www.asse.org.
 34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.

35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformite Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>.
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csagroup.com.
65. CSA - CSA International; www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarooft.com.

88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. ICBO - International Conference of Building Officials; (See ICC).
101. ICC - International Code Council; www.iccsafe.org.
102. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
103. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
104. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
105. IEC - International Electrotechnical Commission; www.iec.ch.
106. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
107. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
108. IESNA - Illuminating Engineering Society of North America; (See IES).
109. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
110. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
111. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
112. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
113. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
114. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
115. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
116. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
117. ISO - International Organization for Standardization; www.iso.org.
118. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
119. ITU - International Telecommunication Union; www.itu.int/home.
120. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
121. LMA - Laminating Materials Association; (See CPA).
122. LPI - Lightning Protection Institute; www.lightning.org.
123. MBMA - Metal Building Manufacturers Association; www.mbma.com.
124. MCA - Metal Construction Association; www.metalconstruction.org.
125. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
126. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
127. MHIA - Material Handling Industry of America; www.mhia.org.
128. MIA - Marble Institute of America; www.marble-institute.com.
129. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
130. MPI - Master Painters Institute; www.paintinfo.com.
131. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
132. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
133. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
134. NADCA - National Air Duct Cleaners Association; www.nadca.com.
135. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
136. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
137. NBI - New Buildings Institute; www.newbuildings.org.
138. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
139. NCMA - National Concrete Masonry Association; www.ncma.org.

140. NEBB - National Environmental Balancing Bureau; www.nebb.org.
141. NECA - National Electrical Contractors Association; www.necanet.org.
142. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
143. NEMA - National Electrical Manufacturers Association; www.nema.org.
144. NETA - InterNational Electrical Testing Association; www.netaworld.org.
145. NFHS - National Federation of State High School Associations; www.nfhs.org.
146. NFPA - National Fire Protection Association; www.nfpa.org.
147. NFPA - NFPA International; (See NFPA).
148. NFRC - National Fenestration Rating Council; www.nfrc.org.
149. NHLA - National Hardwood Lumber Association; www.nhla.com.
150. NLGA - National Lumber Grades Authority; www.nlga.org.
151. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
152. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
153. NRCA - National Roofing Contractors Association; www.nrca.net.
154. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
155. NSF - NSF International; www.nsf.org.
156. NSPE - National Society of Professional Engineers; www.nspe.org.
157. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
158. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
159. NWFA - National Wood Flooring Association; www.nwfa.org.
160. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
161. PDI - Plumbing & Drainage Institute; www.pdionline.org.
162. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
163. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
164. RFCI - Resilient Floor Covering Institute; www.rfci.com.
165. RIS - Redwood Inspection Service; www.redwoodinspection.com.
166. SAE - SAE International; www.sae.org.
167. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
168. SDI - Steel Deck Institute; www.sdi.org.
169. SDI - Steel Door Institute; www.steeldoor.org.
170. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
171. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
172. SIA - Security Industry Association; www.siaonline.org.
173. SJI - Steel Joist Institute; www.steeljoist.org.
174. SMA - Screen Manufacturers Association; www.smainfo.org.
175. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
176. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
177. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
178. SPIB - Southern Pine Inspection Bureau; www.spib.org.
179. SPRI - Single Ply Roofing Industry; www.spri.org.
180. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
181. SSINA - Specialty Steel Industry of North America; www.ssina.com.
182. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
183. STI - Steel Tank Institute; www.steeltank.com.
184. SWI - Steel Window Institute; www.steelwindows.com.
185. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
186. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
187. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
188. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
189. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
190. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
191. TMS - The Masonry Society; www.masonrysociety.org.
192. TPI - Truss Plate Institute; www.tpinst.org.

193. TPI - Turfgrass Producers International; www.turfgrasssod.org.
194. TRI - Tile Roofing Institute; www.tilerroofing.org.
195. UL - Underwriters Laboratories Inc.; www.ul.com.
196. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
197. USAV - USA Volleyball; www.usavolleyball.org.
198. USGBC - U.S. Green Building Council; www.usgbc.org.
199. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
200. WA - Wallcoverings Association; www.wallcoverings.org.
201. WASTEC - Waste Equipment Technology Association; www.wastec.org.
202. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
203. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
204. WDMA - Window & Door Manufacturers Association; www.wdma.com.
205. WI - Woodwork Institute; www.wicnet.org.
206. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
207. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.

2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
 3. DSCC - Defense Supply Center Columbus; (See FS).
 4. FED-STD - Federal Standard; (See FS).
 5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
 6. MILSPEC - Military Specification and Standards; (See DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
 2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
 3. CDHS; California Department of Health Services; (See CDPH).
 4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
 5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
 6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
 7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservicetamu.edu.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 USE CHARGES

- A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.
- E. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use with metering. Provide connections and extensions of services and metering as required for construction operations.
- F. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use with metering. Provide connections and extensions of services and metering as required for construction operations.
- G. Sewer, Water, and Electric Power Service: Use charges are specified in Section 011200 "Multiple Contract Summary."

1.4 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Within **15** days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.
- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
 - 1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
 - 2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
 - 3. Indicate methods to be used to avoid trapping water in finished work.
- F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures intended for use, desired locations, and approximate time frame for their operation. Include the following:
 - 1. Locations of dust-control partitions at each phase of work.
 - 2. HVAC system isolation schematic drawing.
 - 3. Location of intended air-filtration system discharge.
 - 4. Waste-handling procedures.
 - 5. Other dust-control measures.
- G. Noise and Vibration Control Plan: Identify construction activities that may impact the occupancy and use of existing spaces within the building or adjacent existing buildings, whether occupied by others, or occupied by the Owner. Include the following:
 - 1. Methods used to meet the goals and requirements of the Owner.
 - 2. Concrete cutting method(s) to be used.
 - 3. Location of construction devices on the site.
 - 4. Show compliance with the use and maintenance of quieted construction devices for the duration of the Project.
 - 5. Indicate activities that may disturb building occupants and that are planned to be performed during non-standard working hours as coordinated with the Owner.
 - 6. Indicate locations of sensitive areas or other areas requiring special attention as identified by Owner. Indicate means for complying with Owner's requirements.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete bases for supporting posts.
- C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.
- D. Wood Enclosure Fence: Plywood, 6 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.
- E. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less in accordance with ASTM E84 and passing NFPA 701 Test Method 2.
- F. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats, minimum 36 by 60 inches.
- G. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

- A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Field Offices: Owner will provide conditioned interior space for field offices for duration of Project.
- C. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents, including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- square tack and marker boards.
 - 3. Drinking water and private toilet.
 - 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 - 5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 – EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to **municipal system** as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Use of Permanent Toilets: Use of Owner's existing or new toilet facilities **will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.**
- F. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low

temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- G. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
1. Prior to commencing work, isolate the HVAC system in area where work is to be performed **according to coordination drawings**.
 - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
 - b. Maintain negative air pressure within work area, using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- H. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- I. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
1. Install electric power service overhead unless otherwise indicated.
 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- J. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- K. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install WiFi cell phone access equipment and one land-based telephone line(s) for each field office.
1. Provide additional telephone lines for the following:
 - a. Provide [one] <Insert number> telephone line(s) for Owner's use.
 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - f. Engineers' offices.
 - g. Owner's office.
 - h. Principal subcontractors' field and home offices.
- L. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Architect and Owner.
- M. Project Computer: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications. Equip computer with not less than the following:
1. Processor: Intel Core i5 or i7.
 2. Memory: 16 gigabyte.
 3. Disk Storage: 1 -terabyte hard-disk drive and combination DVD-RW/CD-RW drive.
 4. Display: 24-inch LCD monitor with 256-Mb dedicated video RAM.
 5. Full-size keyboard and mouse.

6. Network Connectivity: 10/100BaseT Ethernet.
7. Operating System: Microsoft Windows 10 Professional.
8. Productivity Software:
 - a. Microsoft Office Professional, 2013 or higher, including Word, Excel, and Outlook.
 - b. Adobe Reader DC.
 - c. WinZip 10.0 or higher.
9. Printer: "All-in-one" unit equipped with printer server, combining color printing, photocopying, scanning, and faxing, or separate units for each of these three functions.
10. Internet Service: Broadband modem, router, and ISP, equipped with hardware firewall, providing minimum 10.0 -Mbps upload and 15 -Mbps download speeds at each computer.
11. Internet Security: Integrated software, providing software firewall, virus, spyware, phishing, and spam protection in a combined application.
12. Backup: External hard drive, minimum 2 terrabytes, with automated backup software providing daily backups.

3.4 SUPPORT FACILITIES INSTALLATION

- A. Comply with the following:
 1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.
 2. Utilize designated area within existing building for temporary field offices.
 3. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas **within construction limits**.
 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Planned Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
 2. Prepare subgrade and install subbase and base for temporary roads and paved areas in accordance with Section 312000 "Earth Moving."
 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course in accordance with Section 321216 "Asphalt Paving."
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: **Use designated areas of Owner's existing** parking areas for construction personnel.
- F. Storage and Staging: **Use designated areas of Project site** for storage and staging needs.
- G. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 2. Remove snow and ice as required to minimize accumulations.
- H. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 3. Maintain and touch up signs, so they are legible at all times.
- I. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- J. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- K. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- L. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
1. Do not load elevators beyond their rated weight capacity.
 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work, so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- M. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- N. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas, so no evidence remains of correction work.
- O. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Comply with requirements specified in Section 015639 "Temporary Tree and Plant Protection."
- F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.
- H. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- K. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.
- L. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
 - 1. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
 - 2. Paint and maintain appearance of walkway for duration of the Work.
- M. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

- N. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.
1. Construct dustproof partitions with gypsum wallboard, with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
 2. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.
 - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.
 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 4. Insulate partitions to control noise transmission to occupied areas.
 5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
 6. Protect air-handling equipment.
 7. Provide walk-off mats at each entrance through temporary partition.
- O. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

- A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.
- B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
1. Protect porous materials from water damage.
 2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard and replace stored or installed material that begins to grow mold.

7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for [48] <Insert time period> hours are considered defective and require replacing.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for [48] <Insert time period> hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within [48] <Insert time period> hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for requests for substitutions.
 - 2. Section 014200 "References" for applicable industry standards for products specified.
 - 3. Section 01770 "Closeout Procedures" for submitting warranties.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
 - 3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.
 - 1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating

comparable products of additional manufacturers named in the specification. Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.

- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.
- D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:
 - 1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
 - 2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.
- E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."
- F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Resolution of Compatibility Disputes between Multiple Contractors:
 - a. Contractors are responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - b. If a dispute arises between the multiple contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

3. See individual identification Sections in Divisions 21, 22, 23, and 26 for additional equipment identification requirements.

1.5 COORDINATION

- A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.
- C. Storage:
 1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
 2. Store products to allow for inspection and measurement of quantity or counting of units.
 3. Store materials in a manner that will not endanger Project structure.
 4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
 5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 7. Protect stored products from damage and liquids from freezing.
 8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 – PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Submit additional documentation required by Architect in order to establish equivalency of intended products. Unless otherwise indicated, evaluation of "or equal" product status is by the Architect, whose determination is final.
- B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."
 2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience **will** be considered.
 - a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."
 4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.
 - a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
 - b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.
 5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience **will** be considered.
 - a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."
 6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
 - b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.
 7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether another product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for request to use another product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.
- E. Sustainable Product Selection: Where Specifications require product to meet sustainable product characteristics, select products complying with indicated requirements. Comply with requirements in Division 01 sustainability requirements Section and individual Specification Sections.

1. Select products for which sustainable design documentation submittals are available from manufacturer.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:
 1. Evidence that requested product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of requested product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 3. Evidence that requested product provides specified warranty.
 4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.
- B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Section 013300 "Submittal Procedures."
 1. Form of Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.
- D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by the Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 – EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner's portion of the Work.
 - 6. Coordination of Owner-installed products.
 - 7. Progress cleaning.
 - 8. Starting and adjusting.
 - 9. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting surveys.
 - 2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 PREINSTALLATION MEETINGS

- A. Cutting and Patching Conference: Conduct conference at Project site.
 - 1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Inform Architect of scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:
 - a. Contractor's superintendent.

- b. Trade supervisor responsible for cutting operations.
 - c. Trade supervisor(s) responsible for patching of each type of substrate.
 - d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.
2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

B. Layout Conference: Conduct conference at Project site.

- 1. Prior to establishing layout of new and existing perimeter and structural column grid(s), review building location requirements. Review benchmark, control point, and layout and dimension requirements. Inform Architect of scheduled meeting. Require representatives of each entity directly concerned with Project layout to attend, including the following:
 - a. Contractor's superintendent.
 - b. Professional surveyor responsible for performing Project surveying and layout.
 - c. Professional surveyor responsible for performing site survey serving as basis for Project design.
- 2. Review meanings and intent of dimensions, notes, terms, graphic symbols, and other layout information indicated on the Drawings.
- 3. Review requirements for including layouts on Shop Drawings and other submittals.
- 4. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For **land surveyor**.
- B. Certified Surveys: Submit **two** copies signed by **land surveyor**.
- C. Certificates: Submit certificate signed by **land surveyor**, certifying that location and elevation of improvements comply with requirements.
- D. Cutting and Patching Plan: Submit plan describing procedures at least **10** days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- E. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.6 CLOSEOUT SUBMITTALS

- A. Final Property Survey: Submit **10** copies showing the Work performed and record survey data.

1.7 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Professional Engineer Qualifications: Refer to Section 014000 "Quality Requirements."
- C. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. **Operational elements include the following:**
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Plumbing piping systems.
 - f. Mechanical systems piping and ducts.
 - g. Control systems.
 - h. Communication systems.
 - i. Fire-detection and -alarm systems.
 - j. Conveying systems.
 - k. Electrical wiring systems.
 - l. Operating systems of special construction.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. **Other construction elements include but are not limited to the following:**
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in

Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.
- C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Architect promptly.
- B. Engage a land surveyor experienced in laying out the Work, using the following accepted surveying practices:
 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 2. Establish limits on use of Project site.
 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 4. Inform installers of lines and levels to which they must comply.
 5. Check the location, level and plumb, of every major element as the Work progresses.
 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 - 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb, and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces, unless otherwise indicated on Drawings.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.
- F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.
- J. Repair or remove and replace damaged, defective, or nonconforming Work.
 - 1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.6 CUTTING AND PATCHING

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of Work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to **[minimize]** **[prevent]** interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review intended procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 COORDINATION OF OWNER'S PORTION OF THE WORK

- A. Site Access: Provide access to Project site for Owner's construction personnel and Owner's separate contractors.
 1. Provide temporary facilities required for Owner-furnished, Contractor-installed and Owner-furnished, Owner-installed products.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel and Owner's separate contractors.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include Owner's construction personnel and Owner's separate contractors at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

- a. Use containers intended for holding waste materials of type to be stored.
- 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.10 PROTECTION AND REPAIR OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- D. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Requirements:
 - 1. Section 012900 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
 - 2. Section 013233 "Photographic Documentation" for submitting Final Completion construction photographic documentation.
 - 3. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
 - 4. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 5. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 DEFINITIONS

- A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.5 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest-control inspection.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.7 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 - 5. Submit testing, adjusting, and balancing records.
 - 6. Submit sustainable design submittals not previously submitted.
 - 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 6. Advise Owner of changeover in utility services.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.8 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
 5. Submit Final Completion photographic documentation.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.9 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor, listed by room or space number.
 - 2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 - 4. Submit list of incomplete items in the following format:
 - a. MS Excel Electronic File: Architect will return annotated file.
 - b. PDF Electronic File: Architect will return annotated file.
 - c. Web-Based Project Software Upload: Utilize software feature for creating and updating list of incomplete items (punch list).
 - d. Three Paper Copies: Architect will return two copies.

1.10 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
 - 1. Submit by uploading to web-based project software site.
- E. Warranties in Paper Form:
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- F. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 – EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
 - i. Vacuum and mop concrete.
 - j. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - k. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - l. Remove labels that are not permanent.
 - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

- p. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - l. Clean HVAC system in compliance with NADCA ACR. Provide written report on completion of cleaning.
 - q. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - r. Clean strainers.
 - s. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste-disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations required by Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:
 - 1. Submit by uploading to web-based project software site. Enable reviewer comments on draft submittals.
 - 2. Submit three paper copies. Architect will return two copies.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.
- E. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no

designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
 - 1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
 - 2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
 - 3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
 - 1. Type of emergency.
 - 2. Emergency instructions.
 - 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.

2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- C. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.
- J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for final property survey.
 - 2. Section 017700 "Closeout Procedures" for general closeout procedures.
 - 3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal:
 - I. Submit one paper-copy set(s) of marked-up record prints.
 - II. Submit PDF electronic files of scanned record prints and one set(s) of file prints.
 - III. Submit Record Digital Data Files and one set(s) of plots.
 - IV. Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - I. Submit three paper-copy set(s) of marked-up record prints.
 - II. Submit PDF electronic files of scanned Record Prints and three set(s) of file prints.
 - III. Print each drawing, whether or not changes and additional information were recorded.
 - c. Final Submittal:
 - I. Submit one paper-copy set(s) of marked-up record prints.
 - II. Submit Record Digital Data Files and three set(s) of Record Digital Data File plots.
 - III. Plot each drawing file, whether or not changes and additional information were recorded.

- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report weekly indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Work Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 - 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 - 4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - 5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
 2. Format: DWG, Version, Microsoft Windows operating system.
 3. Format: Annotated PDF electronic file with comment function enabled.
 4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 5. Refer instances of uncertainty to Architect for resolution.
 6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Format: Submit record specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- C. Format: Submit Record Product Data as annotated PDF electronic file.
 - 1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as **PDF electronic file**.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 2. Demonstration and training video recordings.
- B. Allowances: Furnish demonstration and training instruction time under the demonstration and training allowance as specified in Section 012100 "Allowances."
- C. Unit Price for Instruction Time: Length of instruction time will be measured by actual time spent performing demonstration and training in required location. No payment will be made for time spent assembling educational materials, setting up, or cleaning up. See requirements in Section 012200 "Unit Prices."

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of requested dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For **facilitator**.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit **two** copies within **seven** days of end of each training module.

1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Date of video recording.
2. Transcript: Prepared and bound in format matching operation and maintenance manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
3. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
4. At completion of training, submit complete training manual(s) for Owner's use prepared in same **PDF file** format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.
- D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 1. Inspect and discuss locations and other facilities required for instruction.
 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 3. Review required content of instruction.
 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.
 - g. Warranties and bonds.
 - h. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 - 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.

- m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
 - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 3. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner with at least seven days' advance notice.

- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of oral performance-based test.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode with vibration reduction technology.
 - 1. Submit video recordings by uploading to web-based Project software site.
 - 2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
 - 3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.
 - 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the following for each Contractor involved on the Project, arranged according to Project Manual table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. Email address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
 - 1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
 - 1. Furnish additional portable lighting as required.

- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 – PRODUCTS

PART 3 – EXECUTION

END OF SECTION 017900

SECTION 09 57 53 - SECURITY CEILING ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Metal security ceiling assemblies.

1.2 COORDINATION

- A. Detention Specialist: Coordinate with Section 013513.16 "Special Project Procedures for Detention Facilities" for requirements of this Section that are to be performed by Detention Specialist or other entity.
- B. Coordinate layout and installation of security ceiling assemblies with other construction that penetrates ceilings or is supported by them, including electrical work, HVAC equipment, fire-suppression system, and partition assemblies.
- C. Prior Approval of Alternates - Unless otherwise provided for in the Contract documents, alternate product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of an alternate substitution is contingent upon the Architect's review of the substitution for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
- D. Submittals which do not provide adequate data for the product evaluation will not be considered. The substituted product must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers, Factory Mutual classified acoustical performance, panel design, size, composition, color, and finish; suspension system component profiles and sizes; compliance with the referenced standards.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For the following products, of sizes indicated below:
 - 1. Security Ceiling Panel Units: Full cross section by 12 inches long for each type of panel for owner's approval.
 - 2. Perimeter Supports, Closures, and Exposed Molding: 12 inches long for each type.
 - 3. Suspension System: 12 inches long.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Layout of panels, joint pattern, and transitions.
 - 2. Suspension system members.
 - 3. Method of attaching hangers to building structure.
 - 4. Size and location of access panels.
 - 5. Ceiling-mounted items including light fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
- B. Qualification Data: For Installer.
- C. Product Test Reports: For each security ceiling assembly, for tests performed by a qualified testing agency.
- D. Attachment Device Test Reports: Indicating capability to sustain, without failure, load indicated without pulling out from substrate.
- E. Field quality-control reports.
- F. Examination reports documenting inspection of substrates, areas, and conditions.
- G. Anchor inspection reports documenting inspections of built-in and cast-in anchors.
- H. Field quality-control certification signed by Contractor.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Security Ceiling Panels: Full-size units equal to one (1) percent of amount installed.
 - 2. Suspension System Components: Quantity of each grid and exposed component equal to one (1) percent of amount installed.
 - 3. Tools: Where applicable provide two (2) sets of tools for installing and removing security fasteners, packaged for easy handling and storage.

1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide ceiling panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify ceiling components with appropriate markings of applicable testing and inspecting organization.

1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.

a. Flame Spread: 25 or less.

b. Smoke Developed: 50 or less.

C. Installer Qualifications: An entity approved by manufacturer.

D. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate security performance and aesthetic effects, and to set quality standards for materials and execution.

1. Build mockup 48" by 72" of each type of security ceiling assembly. Include ceiling panels, suspension system, perimeter support, lighting unit, duct penetration, and accessories.

2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver security ceiling panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Handle security ceiling panels, suspension system components, and accessories carefully to avoid damaging units and finishes in any way.

1.8 WARRANTY

A. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.

b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.

c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Warranty Period: Ceiling panel 3 years and ceiling grid (if applicable) 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Security ceiling assemblies to withstand normal thermal movement and structural loads without failure, including permanent deformation of security ceiling assembly components including pans and suspension system; noise or metal fatigue caused by vibration, deflection, and displacement of security ceiling units; and permanent damage to fasteners and anchors.
- B. Acoustical Performance: Provide security ceiling assemblies with acoustical ratings indicated, as determined in accordance with ASTM E1264 and the following:
 - 1. Noise Reduction Coefficient (NRC): ASTM C423 and ASTM E795 in Type E-400 mounting.
 - 2. Wind Loads: As indicated on Drawings.

2.2 METAL PANEL SECURITY CEILING ASSEMBLY

- A. Provide a complete, integrated assembly, including security ceiling panels, concealed suspension system, perimeter supports, and accessories.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Gordon Incorporated; WinLok Accessible Security Panel Ceiling System with concealed WinLok Spring Clips/Brackets or comparable product by one of the following:
 - a. Armstrong World Industries, Inc.
 - b. Kane Incorporated.
- B. Panels: Fabricated from a single sheet of metal, with formed upturned edges on all four sides designed to continuously engage with and lock under rectangular bulb of suspension system.
 - 1. Aluminum Panels: Nominal sheet thickness of 0.064 inch (14 ga.) OR GREATER
 - 2. Panel Size: **24 by 72 inches**
 - 3. Perforation Pattern: R564-732DG10, 5/64" HOLES ON 7/32" 45 DEGREE DIAGONAL CENTERS WITH 10-PERCENT OPEN AREA.
 - 4. Noise Reduction Coefficient (NRC): **0.80**
- C. Sound-Absorptive Pads: Provide 1" X 1.5PCF **Class A fire-rated** sound-absorptive pads for placement over ceiling panels.
- D. Security Ceiling Light Fixtures: System compatible fit; independently securely supported.

- E. Directional Security Diffusers: System compatible fit; independently securely supported.
- F. Suspension System: ASTM C635/C635M, heavy-duty exposed system consisting of snap-in main runners supported by hangers attached to building structure.
 - 1. Provide system complete with main runners, splice plates, connector and alignment clips, hangers, trim, seismic- and wind-load clips and struts, and other suspension components required to support security ceiling units and other security ceiling-supported construction.
 - 2. Extruded Aluminum Main Runners and Cross Tees
 - 3. Compression Struts / Angle Struts
- G. Perimeter Supports: Wall-mounted channel moldings and wall angles.
- H. Materials:
 - 1. Aluminum Extrusions: ASTM B221 (ASTM B221M). Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength.
 - 2. Aluminum Sheet and Plate: ASTM B209 (ASTM B209M) Alloy 3003-H14

2.3 FABRICATION

- A. Panels: Form metal panels from sheet metals selected for their surface flatness, smoothness, and free from surface blemishes where exposed to view in finished unit. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, or variations in flatness exceeding those permitted by referenced standards for stretcher-level metal sheet.

2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.5 ALUMINUM FINISHES

- A. Polyester Powder-Coat Finish: AAMA 2604 except with a minimum dry film thickness of 2 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 - 1. Color and Gloss: SECURITY WHITE – PDR-60127 – GLOSS SATIN 50+/-, LRV-76.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of security ceiling assemblies.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations of security ceiling assembly connections before security ceiling assembly installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of security ceiling assemblies.
- D. Inspect built-in and cast-in anchor installations before installing security ceiling assemblies to verify that anchor installations comply with requirements. Prepare inspection reports.
 - 1. Repair, or remove and replace, anchors where inspections indicate noncompliance with specified requirements. Reinspect after repair or replacement.
 - 2. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.
- E. Verify locations and layouts of security ceiling assemblies with those indicated on reflected ceiling plans and coordination drawings.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordination: Furnish layouts for cast-in-place anchors, clips, and other security ceiling anchors whose installation is specified in other Sections.
 - 1. Furnish cast-in-place anchors and similar devices to other trades for installation well in advance of time needed for coordinating other work.

- B. Measure each security ceiling area and establish layout of security ceiling panels to balance border widths at opposite edges of each security ceiling. Avoid using less-than-half-width panels at borders and comply with layout shown on reflected ceiling plans and coordination drawings.

3.3 GENERAL INSTALLATION

- A. Comply with CISCA's "Ceiling Systems Handbook" for installation of security ceiling assemblies, manufacturer's written instructions, and approved Shop Drawings.
- B. Install perimeter supports around perimeter of security ceiling area.
- C. Install accessories, where indicated, and as required to comply with performance requirements.
 - 1. Sound-Absorptive Pads: For security ceiling panels indicated, provide sound-absorptive pads of width and length to completely fill the inside of each security ceiling panel.
 - a. Install sound-absorptive pads.

3.4 FIELD QUALITY CONTROL

- A. Inspect installed products to verify compliance with requirements. Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.
- B. Remove and replace security ceiling assemblies where inspections indicate that work does not comply with specified requirements.
- C. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.

3.5 CLEANING

- A. Clean ceiling system in accordance with manufacturer's written instructions.
- B. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented and bent units.

END OF SECTION 09 57 53

SECTION 22 05 00 - COMMON WORK RESULTS FOR PLUMBING

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.
- B. 2021 International Plumbing Code with City Of Dallas Amendments.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Piping materials and installation instructions common to most piping systems.
 - 2. Dielectric fittings.
 - 3. Mechanical sleeve seals.
 - 4. Sleeves.
 - 5. Escutcheons.
 - 6. Grout.
 - 7. Equipment installation requirements common to equipment sections.
 - 8. Painting and finishing.
 - 9. Supports and anchorages.

1.3 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspace, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Concealed, Interior Installations: Concealed from view and protected from contact by building occupants. Examples include above ceilings and in chases.
- D. The following are industry abbreviations for plastic materials:
 - 1. ABS: Acrylonitrile-butadiene-styrene plastic.
 - 2. PE: Polyethylene plastic.
 - 3. PVC: Polyvinyl chloride plastic.

E. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.
2. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Dielectric fittings.
2. Mechanical sleeve seals.
3. Escutcheons.

1.5 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.7 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for plumbing installations.

B. Coordinate installation of required supporting devices.

C. Coordinate requirements for access panels and doors for plumbing items requiring access that are concealed behind finished surfaces.

1.8 AS-BUILT DRAWINGS

A. DEFINITIONS

1. Contractor Markups – Drawings that are marked and annotated to show the project As-Built and constructed by the contractor. They are part of the working as-built set.
2. As-Built Drawings – The amended “As-designed” drawing revised to show the project as the contractor built and constructed it. The revisions from Contractor Markups and field inspection notes are transferred to the Final as-built set of drawings. The final as-built drawings include modifications during construction, field requested changes, shop drawing modifications, and contractor designs,

B. SUBMITTALS

Record As-Built Drawings: Contractor shall maintain on-site 2 sets of as-built Contract Drawings, in Contractor Field Office. Working as-built drawings shall be kept current on a weekly basis and at least one paper set of as-built drawings shall be available on the jobsite at all times. Note that MEPCE will not provide plumbing CAD files to the Contractor.

- a. Changes to Drawings, including those that involve only narrative, shall be clearly and neatly marked in red pen or pencil, and shall be noted on appropriate drawings. Changes to the Contract Drawings include:
 1. Changes to material or equipment for substitutions approved through the Architect/Engineer’s submittal process.
 2. Where contract drawings or specifications show options or alternates, only the option selected for construction shall be shown on the final as-built prints. Cross out such words and phrases as “approved equal” and list specifically the material provided. This shall include actual make and model number of equipment installed, as well as voltage and MCA.
 3. Shop drawing information.
 4. RFIs and Change Order information.
 5. Changes made by the Inspector to accommodate field conditions.
 6. Actual location, kinds and sizes of all existing and new utility lines, especially underground lines within the construction area. Measurements shall be shown for all change of direction points and all surface or underground components such as valves, manholes, drop inlets, clean outs, meters, etc.
 7. Changes in location of equipment and architectural features.
 8. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler and light systems.
 9. All construction changes that result from the final inspection.

- b. General Contractor shall note each entry with a notation referencing source of information (Example: RFI #94, CO #3, or field notes of same).
 - 1. As-built record drawings shall be updated no less frequently than once per week.
 - 2. Verification of current as-built record drawing status is included in the monthly payment approval process that shall be noted in the inspector's log notes.
 - 3. Individual(s) responsible for the verification of the as-built process shall be identified to the Architect/Engineer.
- c. When completed, scanned pdf copies of the as-built drawings shall be sent to the Owner and Architect/Engineer for final approval. Compliance and delivery of the final as-built drawings will be enforced through the approval of progress payments. The quality of the final as-built drawings will be reflected in the construction contractor's performance evaluation.

C. MARK-UP GUIDELINE

- 1. Frequently use written explanation on As-Built drawings to describe changes. Do not rely totally on graphic means to convey the revision.
- 2. Legibility of lettering and digit values shall be clean and clear and readable from a scanned copy.
- 3. Whenever a revision is made, make changes to affect related section views, details, legend, plans and elevation view, schedules, notes and call-out designations, and mark accordingly to avoid conflicting data on all other sheets.
- 4. When changes are required on small-scale drawings or on drawings with limited area available, large-scale inserts shall be drawn or sketched, with leaders to the location where applicable.
- 5. When attached prints (or sketches) are provided with marked-up print, indicate whether:
 - a. Entire drawing shall be added to contract drawings or
 - b. Whether the contract drawings shall be changed to agree, or
 - c. For reference only to further details not required for initial design.
- 6. Make the comments on the drawing complete without reference to letters, memo's or materials that are not also a part of the As-Built. For instance, do not just say, "As per Change Order #12", when the actual change order states, "Changed water pipe from 2-1/2" to 3". This also applies for changes as per the Architect/Engineer, Owner or Inspector.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for 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, the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 22 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

- A. Refer to individual Division 22 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
 1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
 - a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
 - b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
 2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
- C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.
- D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- E. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.
- F. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.4 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
1. Available Manufacturers:
 - a. Capitol Manufacturing Co.
 - b. Central Plastics Company.
 - c. Eclipse, Inc.
 - d. Epco Sales, Inc.
 - e. Hart Industries, International, Inc.
 - f. Watts Industries, Inc.; Water Products Div.
 - g. Zurn Industries, Inc.; Wilkins Div.
 - h. Or approved equal.
- D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.
1. Available Manufacturers:
 - a. Capitol Manufacturing Co.
 - b. Central Plastics Company.
 - c. Epco Sales, Inc.
 - d. Watts Industries, Inc.; Water Products Div.
 - e. Or approved equal.
- E. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
1. Available Manufacturers:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Central Plastics Company.
 - d. Pipeline Seal and Insulator, Inc.
 - e. Or approved equal.
 2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.
- F. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.
1. Available Manufacturers:
 - a. Calpico, Inc.

- b. Lochinvar Corp.
 - c. Or approved equal.
- G. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).
 - 1. Available Manufacturers:
 - a. Perfection Corp.
 - b. Precision Plumbing Products, Inc.
 - c. Sioux Chief Manufacturing Co., Inc.
 - d. Victaulic Co. of America.
 - e. Or approved equal.

2.5 MECHANICAL SLEEVE SEALS

- A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.
 - 1. Available Manufacturers:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Metraflex Co.
 - d. Pipeline Seal and Insulator, Inc.
 - e. Or approved equal.
 - 2. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
 - 3. Pressure Plates: Stainless steel. Include two for each sealing element.
 - 4. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.6 SLEEVES

- A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.
- B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
 - 1. Underdeck Clamp: Clamping ring with set screws.

2.7 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
- C. One-Piece, Cast-Brass Type: With set screw.
 - 1. Finish: Polished chrome-plated.
- D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
 - 1. Finish: Polished chrome-plated and rough brass.
- E. One-Piece, Stamped-Steel Type: With set screw or spring clips and chrome-plated finish.
- F. Split-Plate, Stamped-Steel Type: With exposed-rivet hinge, set screw or spring clips, and chrome-plated finish.
- G. One-Piece, Floor-Plate Type: Cast-iron floor plate.
- H. Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

2.8 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
 - 1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
 - 2. Design Mix: 5000-psi, 28-day compressive strength.
 - 3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 PLUMBING DEMOLITION

- A. Disconnect, demolish, and remove plumbing systems, equipment, and components indicated to be removed.
 - 1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - 2. Equipment to Be Removed: Disconnect and cap services and remove equipment.

3. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
- B. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements and Division 22 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping to permit valve servicing.
- G. Install piping at indicated slopes.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install piping to allow application of insulation.
- K. Select system components with pressure rating equal to or greater than system operating pressure.
- L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:
 1. New Piping:
 - a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
 - b. Insulated Piping: One-piece, stamped-steel type with spring clips.

- c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.
 - d. Bare Piping in Unfinished Service Spaces: One-piece, stamped-steel type with concealed or exposed-rivet hinge and set screw or spring clips..
 - e. Bare Piping in Equipment Rooms: One-piece, stamped-steel type with set screw or spring clips..
- 2. Existing Piping: Use the following:
 - a. Insulated Piping: Split-plate, stamped-steel type with concealed or exposed-rivet hinge and spring clips.
 - b. Bare Piping at Wall and Floor Penetrations in Finished Spaces: Split-plate, stamped-steel type with concealed hinge and spring clips.
 - c. Bare Piping in Unfinished Service Spaces: Split-plate, stamped-steel type with concealed or exposed-rivet hinge and set screw or spring clips.
 - d. Bare Piping in Equipment Rooms: Split-plate, stamped-steel type with set screw or spring clips.
 - e. Bare Piping at Floor Penetrations in Equipment Rooms: Split-casting, floor-plate type.
- M. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
 - 1. Cut sleeves to length for mounting flush with both surfaces.
 - 2. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:
 - a. Steel Pipe Sleeves: For pipes smaller than NPS 6.
 - b. Steel Sheet Sleeves: For pipes NPS 6 and larger, penetrating gypsum-board partitions.
 - 3. Seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint.
- N. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Install steel pipe for sleeves smaller than 6 inches in diameter.
 - 2. Install cast-iron "wall pipes" for sleeves 6 inches and larger in diameter.
 - 3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- O. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials.

3.3 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 22 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.
- F. 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 unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.4 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 - 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 - 3. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.5 PAINTING

- A. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.6 ERECTION OF METAL SUPPORTS AND ANCHORAGES

- A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor plumbing materials and equipment.
- B. Field Welding: Comply with AWS D1.1.

3.7 GROUTING

- A. Mix and install grout for plumbing equipment base bearing surfaces, pump and other equipment base plates, and anchors.
- B. Clean surfaces that will come into contact with grout.
- C. Provide forms as required for placement of grout.
- D. Avoid air entrapment during placement of grout.
- E. Place grout, completely filling equipment bases.
- F. Place grout on concrete bases and provide smooth bearing surface for equipment.
- G. Place grout around anchors.
- H. Cure placed grout.

END OF SECTION 22 05 00

SECTION 22 05 19 - THERMOMETERS AND GAGES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Thermometers.
 - 2. Gages.
 - 3. Test plugs.
- B. Related Sections:
 - 1. Division 22 Section "Domestic Water Piping" for domestic and fire-protection water service meters inside the building.
 - 2. Division 23 Section "Facility Natural-Gas Piping" for gas meters.

1.3 DEFINITIONS

- A. CR: Chlorosulfonated polyethylene synthetic rubber.
- B. EPDM: Ethylene-propylene-diene terpolymer rubber.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated; include performance curves.
- B. Shop Drawings: Schedule for thermometers and gages indicating manufacturer's number, scale range, and location for each.
- C. Product Certificates: For each type of thermometer and gage, signed by product manufacturer.

PART 2 - PRODUCTS

2.1 DIRECT-MOUNTING, VAPOR-ACTUATED DIAL THERMOMETERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide comparable product by one of the following:
 - 1. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
 - 2. Trerice, H. O. Co.
 - 3. Weiss Instruments, Inc.
 - 4. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
 - 5. Or approved equal.
- B. Case: Dry type, drawn steel or cast aluminum, 4-1/2-inch diameter.
- C. Element: Bourdon tube or other type of pressure element.
- D. Movement: Mechanical, connecting element and pointer.
- E. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
- F. Pointer: Red metal.
- G. Window: Glass.
- H. Ring: Brass.
- I. Connector: Adjustable type, 180 degrees in vertical plane, 360 degrees in horizontal plane, with locking device.
- J. Thermal System: Liquid- or mercury-filled bulb in copper-plated steel, aluminum, or brass stem for thermowell installation and of length to suit installation.
- K. Accuracy: Plus or minus 1 percent of range or plus or minus 1 scale division to maximum of 1.5 percent of range.

2.2 REMOTE-MOUNTING, VAPOR-ACTUATED DIAL THERMOMETERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AMETEK, Inc.; U.S. Gauge Div.
 - 2. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
 - 3. Marsh Bellofram.
 - 4. Miljoco Corp.
 - 5. Palmer - Wahl Instruments Inc.
 - 6. REO TEMP Instrument Corporation.
 - 7. Tel-Tru Manufacturing Company.

8. Terice, H. O. Co.
 9. Weiss Instruments, Inc.
 10. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
 11. Winters Instruments.
- B. Case: Dry type, drawn steel or cast aluminum, 4-1/2-inch diameter with holes or bracket for panel mounting.
 - C. Element: Bourdon tube or other type of pressure element.
 - D. Movement: Mechanical, connecting element and pointer.
 - E. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
 - F. Pointer: Red metal.
 - G. Window: Glass.
 - H. Ring: Brass.
 - I. Connector: Bottom or Back union type.
 - J. Thermal System: Liquid- or mercury-filled bulb in copper-plated steel, aluminum, or brass stem for thermowell installation and of length to suit installation.
 - K. Accuracy: Plus or minus 1 percent of range or plus or minus 1 scale division to maximum of 1.5 percent of range.

2.3 BIMETALLIC-ACTUATED DIAL THERMOMETERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
 2. Ernst Gage Co.
 3. Eugene Ernst Products Co.
 4. Marsh Bellofram.
 5. Miljoco Corp.
 6. NANMAC Corporation.
 7. Noshok, Inc.
 8. Palmer - Wahl Instruments Inc.
 9. REO TEMP Instrument Corporation.
 10. Tel-Tru Manufacturing Company.
 11. Terice, H. O. Co.
 12. Weiss Instruments, Inc.
 13. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
 14. WIKA Instrument Corporation.
 15. Winters Instruments.

- B. Description: Direct-mounting, bimetallic-actuated dial thermometers complying with ASME B40.3.
- C. Case: Dry Liquid-filled type, stainless steel with 5-inch diameter.
- D. Element: Bimetal coil.
- E. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
- F. Pointer: Red metal.
- G. Window: Glass.
- H. Ring: Stainless steel.
- I. Connector: Adjustable angle type.
- J. Stem: Metal, for thermowell installation and of length to suit installation.
- K. Accuracy: Plus or minus 1 percent of range or plus or minus 1 scale division to maximum of 1.5 percent of range.

2.4 THERMOWELLS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AMETEK, Inc.; U.S. Gauge Div.
 - 2. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
 - 3. Ernst Gage Co.
 - 4. Marsh Bellofram.
 - 5. Miljoco Corp.
 - 6. NANMAC Corporation.
 - 7. Noshok, Inc.
 - 8. Palmer - Wahl Instruments Inc.
 - 9. REO TEMP Instrument Corporation.
 - 10. Tel-Tru Manufacturing Company.
 - 11. Trerice, H. O. Co.
 - 12. Weiss Instruments, Inc.
 - 13. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
 - 14. WIKA Instrument Corporation.
 - 15. Winters Instruments.
- B. Manufacturers: Same as manufacturer of thermometer being used.
- C. Description: Pressure-tight, socket-type metal fitting made for insertion into piping and of type, diameter, and length required to hold thermometer.

2.5 PRESSURE GAGES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AMETEK, Inc.; U.S. Gauge Div.
 2. Ashcroft Commercial Instrument Operations; Dresser Industries; Instrument Div.
 3. Ernst Gage Co.
 4. Eugene Ernst Products Co.
 5. KOBOLD Instruments, Inc.
 6. Marsh Bellofram.
 7. Miljoco Corp.
 8. Noshok, Inc.
 9. Palmer - Wahl Instruments Inc.
 10. REO TEMP Instrument Corporation.
 11. Terice, H. O. Co.
 12. Weiss Instruments, Inc.
 13. Weksler Instruments Operating Unit; Dresser Industries; Instrument Div.
 14. WIKA Instrument Corporation.
 15. Winters Instruments.
- B. Direct-Mounting, Dial-Type Pressure Gages: Indicating-dial type complying with ASME B40.100.
1. Case: Dry type, drawn steel or cast aluminum, 4-1/2-inch diameter.
 2. Pressure-Element Assembly: Bourdon tube, unless otherwise indicated.
 3. Pressure Connection: Brass, NPS 1/4, bottom-outlet type unless back-outlet type is indicated.
 4. Movement: Mechanical, with link to pressure element and connection to pointer.
 5. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
 6. Pointer: Red metal.
 7. Window: Glass.
 8. Ring: Brass.
 9. Accuracy: Grade A, plus or minus 1 percent of middle half scale.
 10. Vacuum-Pressure Range: 30-in. Hg of vacuum to 15 psig of pressure.
 11. Range for Fluids under Pressure: Two times operating pressure.
- C. Remote-Mounting, Dial-Type Pressure Gages: ASME B40.100, indicating-dial type.
1. Case: Dry type, drawn steel or cast aluminum, 4-1/2-inch diameter with holes for panel mounting.
 2. Pressure-Element Assembly: Bourdon tube, unless otherwise indicated.
 3. Pressure Connection: Brass, NPS 1/4, bottom-outlet type unless back-outlet type is indicated.
 4. Movement: Mechanical, with link to pressure element and connection to pointer.
 5. Dial: Satin-faced, nonreflective aluminum with permanently etched scale markings.
 6. Pointer: Red metal.

7. Window: Glass.
8. Ring: Brass.
9. Accuracy: Grade A, plus or minus 1 percent of middle half scale.
10. Vacuum-Pressure Range: 30-in. Hg of vacuum to 15 psig of pressure.
11. Range for Fluids under Pressure: Two times operating pressure.

D. Pressure-Gage Fittings:

1. Valves: NPS 1/4 brass or stainless-steel needle type.
2. Snubbers: ASME B40.5, NPS 1/4 brass bushing with corrosion-resistant, porous-metal disc of material suitable for system fluid and working pressure.

2.6 TEST PLUGS

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

1. Flow Design, Inc.
2. MG Piping Products Co.
3. National Meter, Inc.
4. Peterson Equipment Co., Inc.
5. Sisco Manufacturing Co.
6. Trerice, H. O. Co.
7. Watts Industries, Inc.; Water Products Div.

B. Minimum Pressure and Temperature Rating: 150 psig at 200 deg F .

C. Core Inserts: One or two self-sealing rubber valves.

1. Insert material for water service at 20 to 200 deg F shall be CR.
2. Insert material for water service at minus 30 to plus 275 deg F shall be EPDM.

PART 3 - EXECUTION

3.1 THERMOMETER APPLICATIONS

A. Install thermometers in the outlet of each domestic, hot-water storage tank. Install to be easily visible without using a ladder.

B. Install thermometers at suction and discharge of each pump.

C. Provide the following temperature ranges for thermometers:

1. Domestic Hot Water: 30 to 180 deg F, with 2-degree scale divisions with 1-degree scale divisions
2. Domestic Cold Water: 30 to 130 deg F, with 2-degree scale divisions.

3.2 GAGE APPLICATIONS

- A. Install dry-case-type pressure gages for discharge of each pressure-reducing valve.
- B. Install pressure gages at suction and discharge of each pump.

3.3 INSTALLATIONS

- A. Install direct-mounting thermometers and adjust vertical and tilted positions.
- B. Install remote-mounting dial thermometers on panel, with tubing connecting panel and thermometer bulb supported to prevent kinks. Use minimum tubing length.
- C. Install thermowells with socket extending to center of pipe and in vertical position in piping tees where thermometers are indicated.
- D. Install direct-mounting pressure gages in piping tees with pressure gage located on pipe at most readable position.
- E. Install remote-mounting pressure gages on panel.
- F. Install needle-valve and snubber fitting in piping for each pressure gage.
- G. Install test plugs in tees in piping.
- H. Install permanent indicators on walls or brackets in accessible and readable positions.
- I. Install connection fittings for attachment to portable indicators in accessible locations.
- J. Install thermometers and gages adjacent to machines and equipment to allow service and maintenance for thermometers, gages, machines, and equipment.
- K. Adjust faces of thermometers and gages to proper angle for best visibility.

END OF SECTION 22 05 19

SECTION 220523.14 - CHECK VALVES FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions.

1.2 SUMMARY

- A. Section Includes:
 - 1. Bronze lift check valves.
 - 2. Bronze swing check valves.
 - 3. Bronze swing check valves, press ends.

1.3 DEFINITIONS

- A. CWP: Cold working pressure.
- B. EPDM: Ethylene propylene-diene terpolymer rubber.
- C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of valve.
 - 1. Certification that products comply with NSF 61.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Use the following precautions during storage:
 - 1. Maintain valve end protection.
 - 2. Store valves indoors and maintain at higher-than-ambient-dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR VALVES

- A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.
- B. ASME Compliance:
 - 1. ASME B16.18 for solder joint.
 - 2. ASME B31.9 for building services piping valves.
- C. Drinking Water System Components - Health Effects and Drinking Water System Components - Lead Content Compliance: NSF 61 and NSF 372.
- D. Bronze valves shall be made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted.
- E. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- F. Valve Sizes: Same as upstream piping unless otherwise indicated.
- G. Valve Drain Connections: MSS SP-45.

2.2 BRONZE LIFT CHECK VALVES

- A. Bronze Lift Check Valves with Bronze Disc, Class 125:
 - 1. Description:
 - a. Standard: MSS SP-80, Type 1.
 - b. CWP Rating: 200 psig.
 - c. Body Design: Vertical flow.
 - d. Body Material: ASTM B61 or ASTM B62, bronze.
 - e. Ends: Threaded or soldered. See valve schedule articles.
 - f. Disc: Bronze.
- B. Bronze Lift Check Valves with Nonmetallic Disc, Class 125:
 - 1. Description:
 - a. Standard: MSS SP-80, Type 2.
 - b. CWP Rating: 200 psig.
 - c. Body Design: Vertical flow.
 - d. Body Material: ASTM B61 or ASTM B62, bronze.
 - e. Ends: Threaded or soldered. See valve schedule articles.
 - f. Disc: NBR, PTFE.

2.3 BRONZE SWING CHECK VALVES

A. Bronze Swing Check Valves with Bronze Disc, Class 125:

1. Description:

- a. Standard: MSS SP-80, Type 3.
- b. CWP Rating: 200 psig.
- c. Body Design: Horizontal flow.
- d. Body Material: ASTM B62, bronze.
- e. Ends: Threaded or soldered. See valve schedule articles.
- f. Disc: Bronze.

B. Bronze Swing Check Valves with Nonmetallic Disc, Class 125:

1. Description:

- a. Standard: MSS SP-80, Type 4.
- b. CWP Rating: 200 psig.
- c. Body Design: Horizontal flow.
- d. Body Material: ASTM B62, bronze.
- e. Ends: Threaded or soldered. See valve schedule articles.
- f. Disc: PTFE.

C. Bronze Swing Check Valves with Bronze Disc, Class 150:

1. Description:

- a. Standard: MSS SP-80, Type 3.
- b. CWP Rating: 300 psig.
- c. Body Design: Horizontal flow.
- d. Body Material: ASTM B62, bronze.
- e. Ends: Threaded or soldered. See valve schedule articles.
- f. Disc: Bronze.

D. Bronze Swing Check Valves with Nonmetallic Disc, Class 150:

1. Description:

- a. Standard: MSS SP-80, Type 4.
- b. CWP Rating: 300 psig.
- c. Body Design: Horizontal flow.
- d. Body Material: ASTM B62, bronze.
- e. Ends: Threaded or soldered. See valve schedule articles.
- f. Disc: PTFE.

E. Bronze Swing Check Valves, Press Ends:

1. Description:
 - a. Standard: MSS SP-80 and MSS SP-139.
 - b. CWP Rating: Minimum 200 psig.
 - c. Body Design: Horizontal flow.
 - d. Body Material: ASTM B584, bronze.
 - e. Ends: Press.
 - f. Press Ends Connection Rating: Minimum 200 psig.
 - g. Disc: Brass or bronze.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- C. Do not attempt to repair defective valves; replace with new valves.

3.2 VALVE INSTALLATION

- A. Locate valves for easy access and provide separate support where necessary.
- B. Install valves in horizontal piping with stem at or above center of pipe.
- C. Install valves in position to allow full stem movement.
- D. Check Valves: Install check valves for proper direction of flow.
 1. Swing Check Valves: In horizontal position with hinge pin level.
 2. Lift Check Valves: With stem upright and plumb.

3.3 ADJUSTING

- A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.4 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. If valve applications are not indicated, use the following:

1. Pump-Discharge Check Valves:
 - a. NPS 2 and Smaller: Bronze swing check valves with or nonmetallic disc.
- B. If valves with specified CWP ratings are unavailable, the same types of valves with higher CWP ratings may be substituted.
- C. End Connections:
 1. For Copper Tubing, NPS 2 and Smaller: Threaded or soldered or press-ends.

3.5 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE

- A. Pipe NPS 2 and Smaller:
 1. Bronze swing check valves with nonmetallic disc, Class 125, with soldered end connections.
 2. Bronze swing check valves with press-end connections.

END OF SECTION 220523.14

SECTION 22 05 23 - GENERAL-DUTY VALVES FOR PLUMBING PIPING

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 general-duty valves:
 - 1. Copper-alloy ball valves.
 - 2. Bronze check valves.
 - 3. Spring-loaded, lift-disc check valves.
- B. Related Sections include the following:
 - 1. Division 22 Section "Identification for Plumbing Piping and Equipment" for valve tags and charts.
 - 2. Division 22 piping Sections for specialty valves applicable to those Sections only.

1.3 DEFINITIONS

- A. The following are standard abbreviations for valves:
 - 1. CWP: Cold working pressure.
 - 2. EPDM: Ethylene-propylene-diene terpolymer rubber.
 - 3. NBR: Acrylonitrile-butadiene rubber.
 - 4. PTFE: Polytetrafluoroethylene plastic.
 - 5. TFE: Tetrafluoroethylene plastic.

1.4 SUBMITTALS

- A. Product Data: For each type of valve indicated. Include body, seating, and trim materials; valve design; pressure and temperature classifications; end connections; arrangement; dimensions; and required clearances. Include list indicating valve and its application. Include rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories.

1.5 QUALITY ASSURANCE

- A. ASME Compliance for Ferrous Valves: ASME B16.10 and ASME B16.34 for dimension and design criteria.
- B. NSF Compliance: NSF 61 for valve materials for potable-water service.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 - 1. Protect internal parts against rust and corrosion.
 - 2. Protect threads, flange faces, grooves, and weld ends.
 - 3. Set ball and plug valves open to minimize exposure of functional surfaces.
 - 4. Block check valves in either closed or open position.
- B. Use the following precautions during storage:
 - 1. Maintain valve end protection.
 - 2. Store valves indoors and maintain at higher than ambient dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 VALVES, GENERAL

- A. Refer to Part 3 "Valve Applications" Article for applications of valves.
- B. Bronze Valves: NPS 2 and smaller with threaded ends, unless otherwise indicated.
- C. Bronze Valves: NPS 2 and smaller with Veiga Pro-Press, unless otherwise indicated.
- D. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- E. Valve Sizes: Same as upstream pipe, unless otherwise indicated.

- F. Valve Actuators:
 - 1. Lever Handle: For quarter-turn valves NPS 6 and smaller, except plug valves.
- G. Extended Valve Stems: On insulated valves.
- H. Valve Flanges: ASME B16.24 for bronze valves.
 - 1. Solder Joint: With sockets according to ASME B16.18.
 - a. Caution: Use solder with melting point below 840 deg F for angle, check, gate, and globe valves; below 421 deg F for ball valves.
 - 2. Threaded: With threads according to ASME B1.20.1.

2.3 COPPER-ALLOY BALL VALVES

- A. Manufacturers:
 - 1. One-Piece, Copper-Alloy Ball Valves:
 - a. American Valve, Inc.
 - b. Conbraco Industries, Inc.; Apollo Div.
 - c. Crane Co.; Crane Valve Group; Jenkins Valves.
 - d. Crane Co.; Crane Valve Group; Stockham Div.
 - e. DynaQuip Controls.
 - f. Grinnell Corporation.
 - g. Jamesbury, Inc.
 - h. Kitz Corporation of America.
 - i. Legend Valve & Fitting, Inc.
 - j. NIBCO INC.
 - k. Watts Industries, Inc.; Water Products Div.
 - l. Veiga Pro Press.
 - 2. Two-Piece, Copper-Alloy Ball Valves:
 - a. Conbraco Industries, Inc.; Apollo Div.
 - b. Crane Co.; Crane Valve Group; Crane Valves.
 - c. Crane Co.; Crane Valve Group; Jenkins Valves.
 - d. Crane Co.; Crane Valve Group; Stockham Div.
 - e. DynaQuip Controls.
 - f. Flow-Tek, Inc.
 - g. Grinnell Corporation.
 - h. Hammond Valve.
 - i. Honeywell Braukmann.
 - j. Jamesbury, Inc.
 - k. Jomar International, LTD.
 - l. Kitz Corporation of America.

- m. Legend Valve & Fitting, Inc.
- n. Milwaukee Valve Company.
- o. Nexus Valve Specialties.
- p. NIBCO INC.
- q. R & M Energy Systems (Borger, TX).
- r. Red-White Valve Corp.
- s. Richards Industries; Marwin Ball Valves.
- t. Watts Industries, Inc.; Water Products Div.

- B. Copper-Alloy Ball Valves, General: MSS SP-110. All ball-valves shall be full port.
- C. One-Piece, Copper-Alloy Ball Valves: Brass or bronze body with full-port, chrome-plated bronze ball, PTFE or TFE seats, and 400-psig CWP rating.
- D. Two-Piece, Copper-Alloy Ball Valves: Forged-brass body with full-port, chrome-plated bronze ball; PTFE or TFE seats; and 600-psig minimum CWP rating and blowout-proof stem.

2.4 BRONZE CHECK VALVES

A. Manufacturers:

1. Type 1, Bronze, Vertical Lift Check Valves with Metal Disc:

- a. Cincinnati Valve Co.
- b. Crane Co.; Crane Valve Group; Crane Valves.
- c. Crane Co.; Crane Valve Group; Jenkins Valves.
- d. Red-White Valve Corp.

2. Type 3, Bronze, Swing Check Valves with Metal Disc:

- a. American Valve, Inc.
- b. Cincinnati Valve Co.
- c. Crane Co.; Crane Valve Group; Crane Valves.
- d. Crane Co.; Crane Valve Group; Jenkins Valves.
- e. Crane Co.; Crane Valve Group; Stockham Div.
- f. Grinnell Corporation.
- g. Hammond Valve.
- h. Kitz Corporation of America.
- i. Legend Valve & Fitting, Inc.
- j. Milwaukee Valve Company.
- k. NIBCO INC.
- l. Powell, Wm. Co.
- m. Red-White Valve Corp.
- n. Walworth Co.
- o. Watts Industries, Inc.; Water Products Div.

B. Bronze Check Valves, General: MSS SP-80.

- C. Type 3, Class 150, Bronze, Swing Check Valves: Bronze body with bronze disc and seat.
- D. Type 4, Class 150, Bronze, Swing Check Valves: Bronze body with nonmetallic disc and bronze seat.

2.5 SPRING-LOADED, LIFT-DISC CHECK VALVES

A. Manufacturers:

- 1. Type I, Wafer Lift-Disc Check Valves:
 - a. Mueller Steam Specialty.
- 2. Type II, Compact-Wafer, Lift-Disc Check Valves:
 - a. Durabla Fluid Technology, Inc.
 - b. Flomatic Valves.
 - c. GA Industries, Inc.
 - d. Grinnell Corporation.
 - e. Hammond Valve.
 - f. Metraflex Co.
 - g. Milwaukee Valve Company.
 - h. Mueller Steam Specialty.
 - i. Multiplex Manufacturing Co.
 - j. NIBCO INC.
 - k. SSI Equipment, Inc.
 - l. Val-Matic Valve & Mfg. Corp.
 - m. Valve and Primer Corp.
- 3. Type IV, Threaded Lift-Disc Check Valves:
 - a. Check-All Valve Mfg. Co.
 - b. Durabla Fluid Technology, Inc.
 - c. Grinnell Corporation.
 - d. Legend Valve & Fitting, Inc.
 - e. Metraflex Co.
 - f. Milwaukee Valve Company.
 - g. Mueller Steam Specialty.
 - h. NIBCO INC.
 - i. Watts Industries, Inc.; Water Products Div.

- B. Lift-Disc Check Valves, General: FCI 74-1, with spring-loaded bronze or alloy disc and bronze or alloy seat.
- C. Type IV, Class 125, Threaded Lift-Disc Check Valves: Threaded style with bronze shell and threaded ends.

- D. Type IV, Class 150, Threaded Lift-Disc Check Valves: Threaded style with bronze shell and threaded ends.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine piping system for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- C. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- D. Examine threads on valve and mating pipe for form and cleanliness.
- E. Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
- F. Do not attempt to repair defective valves; replace with new valves.

3.2 VALVE APPLICATIONS

- A. Refer to piping Sections for specific valve applications. If valve applications are not indicated, use the following:
 - 1. Shutoff Service: Ball valves.
 - 2. Throttling Service: Ball valves.
 - 3. Pump Discharge: Spring-loaded, lift-disc check valves.
- B. If valves with specified CWP ratings are not available, the same types of valves with higher CWP ratings may be substituted.
- C. Domestic Water Piping: Use the following types of valves:
 - 1. Ball Valves, NPS 2 and Smaller: Two or Three-piece, 150 CWP rating, copper alloy.

2. Lift Check Valves, NPS 2 and Smaller: Type 2, Class 150, horizontal or vertical, bronze.
 3. Swing Check Valves, NPS 2 and Smaller: Type 4, Class 150, bronze.
 4. Spring-Loaded, Lift-Disc Check Valves, NPS 2 and Smaller: Type IV, Class 150.
- D. Select valves, except wafer and flangeless types, with the following end connections:
1. For Copper Tubing, NPS 2 and Smaller: Solder-joint or threaded ends.

3.3 VALVE INSTALLATION

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
- C. Locate valves for easy access and provide separate support where necessary.
- D. Install valves in horizontal piping with stem at or above center of pipe.
- E. Install valves in position to allow full stem movement.
- F. Install check valves for proper direction of flow and as follows:
 1. Swing Check Valves: In horizontal position with hinge pin level.
 2. Lift Check Valves: With stem upright and plumb.

3.4 JOINT CONSTRUCTION

- A. Refer to Division 22 Section "Common Work Results for Plumbing" for basic piping joint construction.
- B. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.

3.5 ADJUSTING

- A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

END OF SECTION 22 05 23

SECTION 22 05 29 - HANGERS AND SUPPORTS FOR PLUMBING PIPING EQUIPMENT

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 hangers and supports for plumbing system piping and equipment:
 - 1. Steel pipe hangers and supports.
 - 2. Thermal-hanger shield inserts.
 - 3. Fastener systems.

1.3 DEFINITIONS

- A. MSS: Manufacturers Standardization Society for The Valve and Fittings Industry Inc.
- B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.4 SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel pipe hangers and supports.
 - 2. Thermal-hanger shield inserts.
 - 3. Powder-actuated fastener systems.
- B. Welding certificates.

1.5 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code—Steel.

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. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

- A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.
- B. Available Manufacturers:
 - 1. AAA Technology & Specialties Co., Inc.
 - 2. Bergen-Power Pipe Supports.
 - 3. B-Line Systems, Inc.; a division of Cooper Industries.
 - 4. Carpenter & Paterson, Inc.
 - 5. Empire Industries, Inc.
 - 6. ERICO/Michigan Hanger Co.
 - 7. Globe Pipe Hanger Products, Inc.
 - 8. Grinnell Corp.
 - 9. GS Metals Corp.
 - 10. National Pipe Hanger Corporation.
 - 11. PHD Manufacturing, Inc.
 - 12. PHS Industries, Inc.
 - 13. Piping Technology & Products, Inc.
 - 14. Tolco Inc.
- C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.
- D. Nonmetallic Coatings: Plastic coating, jacket, or liner.
- E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 THERMAL-HANGER SHIELD INSERTS

- A. Description: 100-psig minimum, compressive-strength insulation insert encased in sheet metal shield.
- B. Available Manufacturers:

1. Carpenter & Paterson, Inc.
 2. ERICO/Michigan Hanger Co.
 3. PHS Industries, Inc.
 4. Pipe Shields, Inc.
 5. Rilco Manufacturing Company, Inc.
 6. Value Engineered Products, Inc.
- C. Insulation-Insert Material for Cold Piping: ASTM C 552, Type II cellular glass with vapor barrier.
- D. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate or ASTM C 552, Type II cellular glass.
- E. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- F. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.4 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used. Note: Obtain written permission from Structural Engineer, Architect or Owner before using these fasteners on structural members.
1. Available Manufacturers:
 - a. Hilti, Inc.
 - b. ITW Ramset/Red Head.
 - c. Masterset Fastening Systems, Inc.
 - d. MKT Fastening, LLC.
 - e. Powers Fasteners.
- B. Mechanical-Expansion Anchors: Insert-wedge-type stainless steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used. Note: Obtain written permission from Structural Engineer, Architect or Owner before using these fasteners on structural members.
1. Available Manufacturers:
 - a. B-Line Systems, Inc.; a division of Cooper Industries.
 - b. Empire Industries, Inc.
 - c. Hilti, Inc.
 - d. ITW Ramset/Red Head.
 - e. MKT Fastening, LLC.
 - f. Powers Fasteners.

2.5 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
 - 1. Properties: Nonstaining, noncorrosive, and nongaseous.
 - 2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use padded hangers for piping that is subject to scratching.
- F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
 - 2. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24, requiring clamp flexibility and up to 4 inches of insulation.
 - 3. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes, NPS 1/2 to NPS 24, if little or no insulation is required.
 - 4. Pipe Hangers (MSS Type 5): For suspension of pipes, NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
 - 5. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated stationary pipes, NPS 3/4 to NPS 8.
 - 6. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.

7. Clips (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.
- G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.
- H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
 2. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
 3. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.
- I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
 2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction to attach to top flange of structural shape.
 3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
 4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
 5. C-Clamps (MSS Type 23): For structural shapes.
 6. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
 7. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
 8. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
 9. Malleable Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
 10. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
 11. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.
- J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
 2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.

3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- K. Use powder-actuated fasteners or mechanical-expansion anchors (with permission) instead of building attachments where required in concrete construction.

3.2 HANGER AND SUPPORT INSTALLATION

- A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.
- B. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.
- C. Fastener System Installation:
 1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
 2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- D. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.
- E. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- F. Install lateral bracing with pipe hangers and supports to prevent swaying.
- G. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
- H. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- I. Pipe Slopes: Install hangers and supports to provide maximum pipe deflections allowed by ASME B31.9 (for building services piping) are not exceeded.
- J. Insulated Piping: Comply with the following:
 1. Attach clamps and spacers to piping.

- a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
 - b. Do not exceed pipe stress limits according to ASME B31.9 for building services piping.
2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
 - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
3. Shield Dimensions for Pipe: Not less than the following:
 - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
 - b. NPS 4: 12 inches long and 0.06 inch thick.
4. Insert Material: Length at least as long as protective shield.
5. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.
- 6.

3.3 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.4 PAINTING

- A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 22 05 29

SECTION 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions.

1.2 SUMMARY

- A. Section Includes:
 - 1. Pipe labels.
 - 2. Stencils.
 - 3. Valve tags.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For color, letter style, and graphic representation required for each identification material and device.
- C. Valve numbering scheme.
- D. Valve Schedules: For each piping system to include in maintenance manuals.

1.4 COORDINATION

- 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 identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 PIPE LABELS

- A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, size 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. 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.

2.2 STENCILS

- A. Stencils: Prepared with letter sizes according to ASME A13.1 for piping; and minimum letter height of 3/4 inch for access panel and door labels, equipment labels, and similar operational instructions.
 - 1. Stencil Material: Fiberboard or metal.
 - 2. Stencil Paint: Exterior, gloss, acrylic enamel black unless otherwise indicated. Paint may be in pressurized spray-can form.
 - 3. Identification Paint: Exterior, acrylic enamel in colors according to ASME A13.1 unless otherwise indicated.

2.3 VALVE TAGS

- A. Valve Tags: Stamped or engraved with 1/4-inch (6.4-mm) letters for piping system abbreviation and 1/2-inch (13-mm) numbers.
 - 1. Tag Material: Brass, 0.032-inch, Stainless steel, 0.025-inch, Aluminum, 0.032-inch or anodized aluminum, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
 - 2. Fasteners: Brass wire-link or wire link chain or S-hook.
- B. Valve Schedules: For each piping system, on 8-1/2-by-11-inch (A4) bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.
 - 1. Valve-tag schedule shall be included in operation and maintenance data.

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 PIPE LABEL INSTALLATION

- A. Stenciled Pipe Label Option: Stenciled labels may be provided instead of manufactured pipe labels, at Installer's option. Install stenciled pipe labels with painted, color-coded bands or rectangles, complying with ASME A13.1, on each piping system.
 - 1. Identification Paint: Use for contrasting background.
 - 2. Stencil Paint: Use for pipe marking.
- B. 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. Where flow pattern is not obvious, mark each pipe at branch.
 - 3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
 - 4. Near major equipment items and other points of origination and termination.
 - 5. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
 - 6. On piping above removable acoustical and security ceilings.
 - 7. Install label parallel to pipe.
- C. Pipe Label Color Schedule:
 - 1. Domestic Water Piping:
 - a. Background Color: Green.
 - b. Letter Color: White.

3.3 VALVE-TAG INSTALLATION

- A. Install tags on valves in piping systems, except check valves; shutoff valves. List tagged valves in a valve schedule.
- B. Valve-Tag Application Schedule: Tag valves according to size, shape, and color scheme and with captions similar to those indicated in the following subparagraphs:

1. Valve-Tag Size and Shape:
 - a. Hot Water: 1-1/2 inches round.
2. Valve-Tag Color:
 - a. Hot Water: Green.
3. Letter Color:
 - a. Hot Water: White.

END OF SECTION 22 05 53

SECTION 22 07 00 - PLUMBING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Insulation Materials:
 - a. Flexible elastomeric.
 - b. Mineral fiber.
 - 2. Insulating cements.
 - 3. Adhesives.
 - 4. Sealants.
 - 5. Field-applied jackets.
 - 6. Tapes.
 - 7. Securements.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include thermal conductivity, thickness, and jackets (both factory and field applied, if any).
 - 1.
- B. Qualification Data: For qualified Installer.
- C. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.
- D. Application Schedule: Provide schedule of intended application for each product indicated. Schedule to include pipe system, pipe size, insulation material, and insulation thickness for each application.
 - 1. Example application schedule (Note: sizes and materials listed are examples only. Refer to specifications Part 2 – Products and Part 3 – Execution for full description of required materials.)

PIPE SYSTEM	PIPE SIZE	INSULATION MATERIAL	INSULATION THICKNESS
Domestic Hot Water	NPS 1-1/4" and smaller	Mineral-Fiber	1"
Domestic Hot Water	NPS 1-1/2" and larger	Mineral-Fiber	1-1/2"

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program
- B. When fire-performance characteristics are important requirements, verify surface-burning characteristics of insulation materials by an independent testing agency and require test report submittals.
- C. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.
 - 1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

- A. Coordinate size and location of supports, hangers, and insulation shields specified in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment."
- B. Coordinate clearance requirements with piping Installer for piping insulation application and equipment Installer for equipment insulation application. Establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.7 SCHEDULING

- A. Schedule insulation application after pressure testing systems. Insulation application may begin on segments that have satisfactory test results.
- B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

- A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- E. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Aeroflex USA Inc.; Aerocel.
 - b. Armacell LLC; AP Armaflex.
 - c. RBX Corporation; Insul-Sheet 1800 and Insul-Tube 180.

2.2 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.
- B. Cellular-Glass, Phenolic, Polyisocyanurate, and Polystyrene Adhesive: Solvent-based resin adhesive, with a service temperature range of minus 75 to plus 300 deg F.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Childers Products, Division of ITW; CP-96.
 - b. Foster Products Corporation, H. B. Fuller Company; 81-33.

C. Flexible Elastomeric and Polyolefin Adhesive: Comply with MIL-A-24179A, Type II, Class I.

1. Products: Subject to compliance with requirements, provide one of the following:

- a. Aeroflex USA Inc.; Aero seal.
- b. Armacell LCC; 520 Adhesive.
- c. Foster Products Corporation, H. B. Fuller Company; 85-75.
- d. RBX Corporation; Rubatex Contact Adhesive.

D. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Products: Subject to compliance with requirements, provide one of the following:

- a. Childers Products, Division of ITW; CP-82.
- b. Foster Products Corporation, H. B. Fuller Company; 85-20.
- c. ITW TACC, Division of Illinois Tool Works; S-90/80.
- d. Marathon Industries, Inc.; 225.
- e. Mon-Eco Industries, Inc.; 22-25.

2.3 SEALANTS

A. Joint Sealants:

1. Joint Sealants for Cellular-Glass, Phenolic, and Polyisocyanurate Products: Subject to compliance with requirements, provide one of the following:

- a. Childers Products, Division of ITW; CP-76.
- b. Foster Products Corporation, H. B. Fuller Company; 30-45.
- c. Marathon Industries, Inc.; 405.
- d. Mon-Eco Industries, Inc.; 44-05.
- e. Pittsburgh Corning Corporation; Pittseal 444.
- f. Vimasco Corporation; 750.

- 2. Materials shall be compatible with insulation materials, jackets, and substrates.
- 3. Permanently flexible, elastomeric sealant.
- 4. Service Temperature Range: Minus 100 to plus 300 deg F.
- 5. Color: White or gray.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.
 - 1. Verify that systems and equipment to be insulated have been tested and are free of defects.
 - 2. Verify that surfaces to be insulated are clean and dry.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.3 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.
- B. Install insulation materials, vapor barriers or retarders and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.
- C. Install accessories compatible with insulation materials and suitable for the service.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- G. Keep insulation materials dry during application and finishing.
- H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- I. Install insulation with least number of joints practical.
- J. Apply adhesives and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

- K. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- L. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- M. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.
- N. For above ambient services, do not install insulation to the following:
 - 1. Vibration-control devices.
 - 2. Testing agency labels and stamps.
 - 3. Nameplates and data plates.
 - 4. Manholes.
 - 5. Handholes.
 - 6. Cleanouts.

3.4 PENETRATIONS

- A. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- B. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
 - 1. Comply with requirements for fire-resistive joint sealers.
- C. Insulation Installation at Floor Penetrations:
 - 1. Pipe: Install insulation continuously through floor penetrations.
 - 2. Seal penetrations through fire-rated assemblies.

3.5 GENERAL PIPE INSULATION INSTALLATION

- A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.
- B. Insulation Installation on Fittings, Valves and Unions:
 - 1. Install insulation over fittings, valves, unions, and other specialties with continuous thermal integrity, unless otherwise indicated.
 - 2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints,

- seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
 4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.
 5. Stencil or label the outside insulation jacket of each union with the word "UNION." Match size and color of pipe labels.
- C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes, vessels, and equipment. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

3.6 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
1. Install pipe insulation to outer diameter of pipe flange.
 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
1. Install mitered sections of pipe insulation.
 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed valve covers manufactured of same material as pipe insulation when available.
2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
3. Install insulation to flanges as specified for flange insulation application.
4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.7 MINERAL-FIBER INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.

B. Insulation Installation on Pipe Fittings and Elbows:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

C. Insulation Installation on Valves and Pipe Specialties:

1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Inspect pipe, fittings, strainers, and valves, randomly selected by Owner, by removing insulation in layers in reverse order of their installation. Extent of inspection shall be limited to three locations of straight pipe and valves for each pipe service defined in the "Piping Insulation Schedule, General" Article.

- C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.9 PIPING INSULATION SCHEDULE, GENERAL

- A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

3.10 INDOOR PIPING INSULATION SCHEDULE

- A. Domestic Hot and Recirculated Hot Water:
 - 1. NPS 1-1/4 and Smaller: Insulation shall be one of the following:
 - a. Flexible Elastomeric: 1 inch thick.
 - b. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1 inch thick.
 - 2. NPS 1-1/2 and Larger: Insulation shall be one of the following:
 - a. Flexible Elastomeric: 1-1/2 inch thick.
 - b. Mineral-Fiber, Preformed Pipe Insulation, Type I: 1-1/2 inch thick.

END OF SECTION 22 07 00

SECTION 22 11 16 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. Related Sections include the following:
 - 1. Division 22 Section "Domestic Water Piping Specialties" for water distribution piping specialties.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing domestic water piping systems with 160 psig for domestic water service piping and 125 psig for domestic water distribution piping.

1.4 SUBMITTALS

- A. Product Data: For pipe, tube, fittings, and couplings.

1.5 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9," for potable domestic water piping and components.

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. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 PIPING MATERIALS

- A. Refer to Part 3 "Pipe and Fitting Applications" Article for applications of pipe, tube, fitting, and joining materials.
- B. Transition Couplings for Aboveground Pressure Piping: Coupling or other manufactured fitting the same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

2.3 COPPER TUBE AND FITTINGS

- A. Soft Copper Tube: ASTM B 88, Types K, water tube, annealed temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends. Furnish Class 300 flanges if required to match piping.
 - 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.

2.4 VALVES

- A. Bronze and cast-iron, general-duty valves are specified in Division 22 Section "General-Duty Valves for Plumbing Piping."
- B. Drain valves are specified in Division 22 Section "Domestic Water Piping Specialties."

PART 3 - EXECUTION

3.1 PIPE AND FITTING APPLICATIONS

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.
- B. Aboveground Domestic Water Piping: Use any of the following piping materials for each size range:
 - 1. All pipe sizes: Soft copper tube, Type K; copper pressure fittings; and soldered joints.
 - 2. NPS 1 and Smaller: Soft copper tube, Type K; copper pressure fittings; and soldered joints. Press fittings with press joints (Nibco, Viega, or Apollo)
 - 3. NPS 1-1/4 and NPS 1-1/2 : Soft copper tube, Type K; copper pressure fittings; and soldered joints.
 - 4. NPS 2: Soft copper tube, Type K ; copper pressure fittings; and soldered joints.

3.2 VALVE APPLICATIONS

- A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements shall apply:
1. Shut-off duty: Use bronze ball for piping NPS 2 and smaller.
 2. Throttling Duty: Use bronze ball valves for piping NPS 2 and smaller.
 3. Drain duty: Use bronze ball for drain valves.

3.3 PIPING INSTALLATION

- A. Basic piping installation requirements are specified in Division 22 Section "Common Work Results for Plumbing."
- B. Extend domestic water service piping for hot water return distribution piping in sizes and locations indicated.
- C. Install domestic water piping level without pitch and plumb.
- D. Perform the following steps before operation:
- Close drain valves.
 - Open shutoff valves to fully open position.
 - Remove plugs used during testing of piping and plugs used for temporary sealing of piping during installation.
- E. Check all plumbing-specialties and verify proper settings, adjustments and operation.
- F. Energize pumps and verify proper operation.

3.4 JOINT CONSTRUCTION

- A. Basic piping joint construction requirements are specified in Division 22 Section "Common Work Results for Plumbing."
- B. Soldered Joints: Use ASTM B 813, water-flushable, lead-free flux; ASTM B 32, lead-free-alloy solder; and ASTM B 828 procedure, unless otherwise indicated.
- C. Press fittings with press joints (Nibco, Viega, or Apollo) for NPS 1 and smaller.

3.5 VALVE INSTALLATION

- A. Install sectional valve as shown on drawings. Use ball valves for piping NPS 3 and smaller.
- B. Install drain valves at base of each water riser, at low points in horizontal piping, and where required to drain water piping.
 - 1. Install ball valve and hose-end drain connection at low points in water mains, risers and branches.

3.6 HANGER AND SUPPORT INSTALLATION

- A. Pipe hanger and support devices are specified in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment." Install the following:
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 - 2. Individual, Straight, Horizontal Piping Runs: According to the following:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
- B. Install supports according to Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment."
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced 1 size for double-rod hangers, to a minimum of 3/8 inch.
- E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
 - 2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.
 - 3. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
- F. Install supports for vertical copper tubing every 10 feet.
- G. Support piping and tubing not listed above according to MSS SP-69 and manufacturer's written instructions.

3.7 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect domestic water piping to water-service piping with shutoff valve.

3.8 FIELD QUALITY CONTROL

A. Inspect domestic water piping as follows:

1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
2. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
 - a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 - b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
3. Reinspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.
4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

B. Test domestic water piping as follows:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
2. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
3. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
4. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
5. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
6. Prepare reports for tests and required corrective action.

3.9 ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves.
2. Open shutoff valves to fully open position.
3. Remove plugs used during testing of piping and plugs used for temporary sealing of piping during installation.
4. Remove and clean strainer screens. Close drain valves and replace drain plugs.

5. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
 6. Check plumbing specialties and verify proper settings, adjustments, and operation.
- B. Adjust balancing valves in hot-water circulation return piping to provide adequate flow:
1. Manually adjust ball-type balancing valves in hot-water circulation return piping to provide flow of hot water in each branch.
 2. Adjust calibrated balancing valves to flows indicated.

3.10 CLEANING

- A. Clean and disinfect potable domestic water piping as follows:
1. Purge new piping and parts of existing domestic water piping that have been altered, extended, or repaired before using.
 2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, if methods are not prescribed, procedures described in either AWWA C651 or AWWA C652 or as described below:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
 - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
- B. Prepare and submit reports of purging and disinfecting activities.
- C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

END OF SECTION 22 11 16

SECTION 22 11 19 - DOMESTIC WATER PIPING SPECIALTIES

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 domestic water piping specialties:
 - 1. Balancing valves.
 - 2. Drain valves.

1.3 PERFORMANCE REQUIREMENTS

- A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig, unless otherwise indicated.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.
- C. Operation and Maintenance Data: For domestic water piping specialties to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. NSF Compliance:
 - 1. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9."

PART 2 - PRODUCTS

2.1 BALANCING VALVES

A. Memory-Stop Balancing Valves :

1. Standard: MSS SP-110 for two-piece, copper-alloy ball valves.
2. Pressure Rating: 400-psig minimum CWP.
3. Size: NPS 2 or smaller.
4. Body: Copper alloy.
5. Port: Standard or full port.
6. Ball: Chrome-plated brass.
7. Seats and Seals: Replaceable.
8. End Connections: Solder joint or threaded.

2.2 DRAIN VALVES

A. Ball-Valve-Type, Hose-End Drain Valves:

1. Standard: MSS SP-110 for standard-port, two-piece ball valves.
2. Pressure Rating: 400-psig minimum CWP.
3. Size: NPS 3/4.
4. Body: Copper alloy.
5. Ball: Chrome-plated brass.
6. Seats and Seals: Replaceable.
7. Handle: Vinyl-covered steel.
8. Inlet: Threaded or solder joint.
9. Outlet: Threaded, short nipple with garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

2.3 AIR VENTS

A. Welded-Construction Automatic Air Vents:

1. Body: Stainless steel.
2. Pressure Rating: 150-psig minimum pressure rating.
3. Float: Replaceable, corrosion-resistant metal.
4. Mechanism and Seat: Stainless steel.
5. Size: NPS 3/8 minimum inlet.
6. Inlet and Vent Outlet End Connections: Threaded.

PART 3 - EXECUTION

3.1 INSTALLATION

- #### **A.**
- Refer to Division 22 Section "Common Work Results for Plumbing" for piping joining materials, joint construction, and basic installation requirements.

- B. Install water hammer arresters in water piping according to PDI-WH 201.

3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping and specialties.

3.3 LABELING AND IDENTIFYING

- A. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Division 22 Section "Identification for Plumbing Piping and Equipment."

3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and prepare test reports:
- B. Remove and replace malfunctioning domestic water piping specialties and retest as specified above.

END OF SECTION 22 11 19

DALLAS COUNTY
HENRY WADE JUVENILE JUSTICE CENTER
HOT WATER PIPING AND CEILING
REPLACEMENT

2600 LONE STAR DRIVE, DALLAS, TX 75212
Dallas County Facilities Management

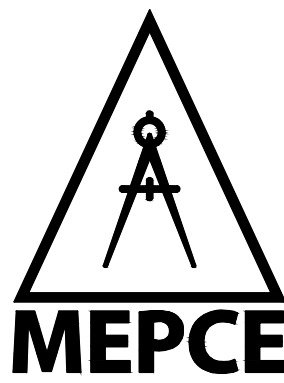


ISSUE FOR BID
JULY 18, 2024

SHEET NUMBER	SHEET TITLE	ISSUE FOR BID
AD1.0A	CEILING DEMOLITION PLAN - LEVEL 1 - AREA A	YES
AD1.0B	CEILING DEMOLITION PLAN - LEVEL 1 - AREA B	YES
AD1.0C	CEILING DEMOLITION PLAN - LEVEL 1 - AREA C	YES
AD1.0D	CEILING DEMOLITION PLAN - LEVEL 1 - AREA D	YES
AD1.1D	CEILING DEMOLITION PLAN - LEVEL 2 - AREA D	YES
AD1.0E	CEILING DEMOLITION PLAN - LEVEL 1 - AREA E	YES
A2.0A	REFLECTED CEILING PLAN - LEVEL 1 - AREA A	YES
A2.0B	REFLECTED CEILING PLAN - LEVEL 1 - AREA B	YES
A2.0C	REFLECTED CEILING PLAN - LEVEL 1 - AREA C	YES
A2.0D	REFLECTED CEILING PLAN - LEVEL 1 - AREA D	YES
A2.1D	REFLECTED CEILING PLAN - LEVEL 2 - AREA D	YES
A2.0E	REFLECTED CEILING PLAN - LEVEL 1 - AREA E	YES
A3.01	CEILING DETAILS	YES

SHEET NUMBER	SHEET TITLE	ISSUE FOR BID
P0.01	PLUMBING GENERAL INFORMATION	YES
P0.02	PLUMBING SCHEDULE AND DETAILS	YES
P1.0C	PLUMBING DEMOLITION PIPING PLAN - LEVEL 1 - AREA C	YES
P2.0A	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA A	YES
P2.0B	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA B	YES
P2.0C	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA C	YES
P2.0D	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA D	YES
P2.1D	PLUMBING SUPPLY PLAN - LEVEL 2 - AREA D	YES
P2.0E	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA E	YES

PREPARED BY



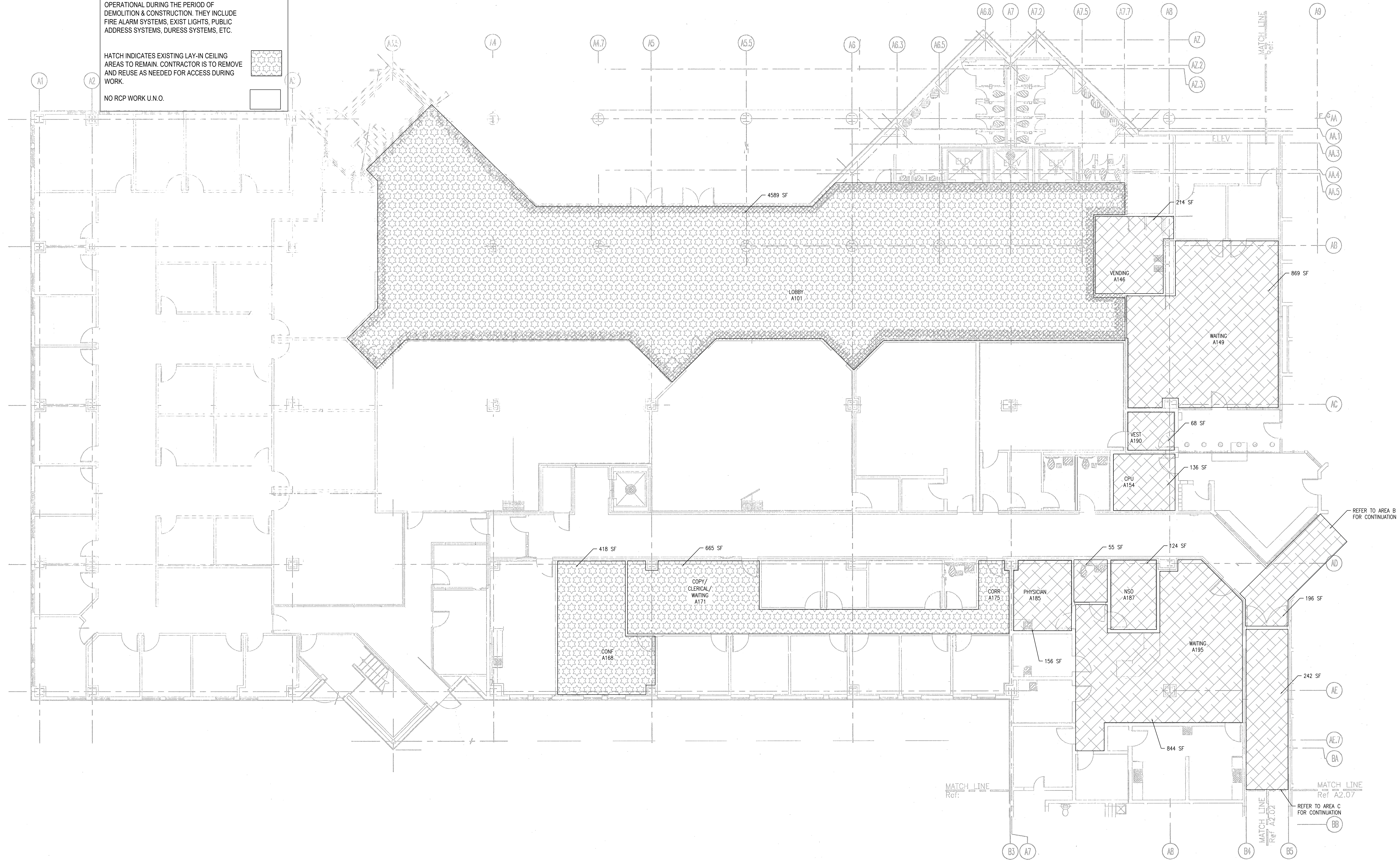
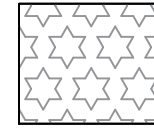
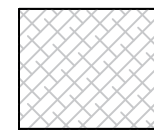
CEILING DEMOLITION LEGEND

HATCH INDICATES AREAS OF WORK FOR REMOVAL OF CEILING, TILE, GRID, SUPPORT WIRES, CLIPS, ETC. BACK TO STRUCTURE ABOVE. ALL CEILING MOUNTED FIXTURES ARE TO BE CAREFULLY REMOVED AND STORED FOR REUSE IN THE SAME LOCATIONS. THEY INCLUDE BUT NOT LIMITED TO LIGHT FIXTURES, PUBLIC ADDRESS SYSTEMS, DURESS SYSTEM, HVAC DIFFUSERS & RETURN GRILLS, CAMERAS, SPRINKLER HEADS, EMERGENCY SYSTEMS & EXIT LIGHTS, WIFI BOOSTERS, ETC. SALVAGE AND PRESERVE DUCTS, ELEC. WIRES, CONTROL WIRES, ETC. TO REMAIN. CONTRACTOR WILL SUPPORT/REATTACH ALL LOOSE WIRING AND CEILING APPURTENANCES @ 5'-0" O.C. INCLUDING FIXTURES, DUCTWORK, VENTS, CAMERAS ETC. TO REMAIN U.N.O.

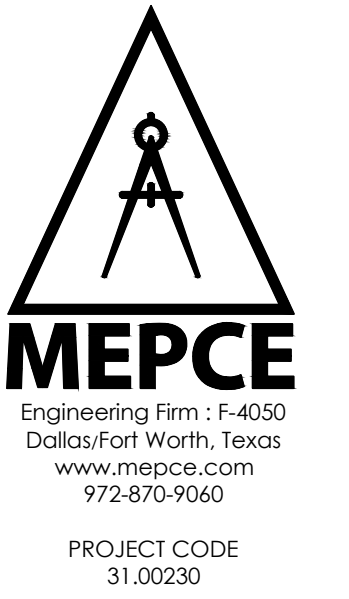
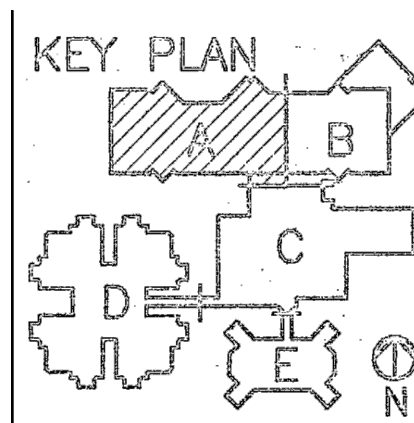
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HATCH INDICATES EXISTING LAY-IN CEILING AREAS TO REMAIN. CONTRACTOR IS TO REMOVE AND REUSE AS NEEDED FOR ACCESS DURING WORK.

NO RCP WORK U.N.O.



1 CEILING DEMOLITION PLAN - LEVEL 1 - AREA A
SCALE: 1/8" = 1'-0"



McAfee 3
ARCHITECTURE + DESIGN
9535 Forest Lane, Suite 213
Dallas, TX 75243



HENRY WADE HOT WATER SYSTEM & CEILING REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

Designer:
Drawn By:
Quality Control:

31.00230

CEILING DEMOLITION
PLAN - LEVEL 1 - AREA A

AD1.0A

**HENRY WADE HOT WATER
SYSTEM & CEILING
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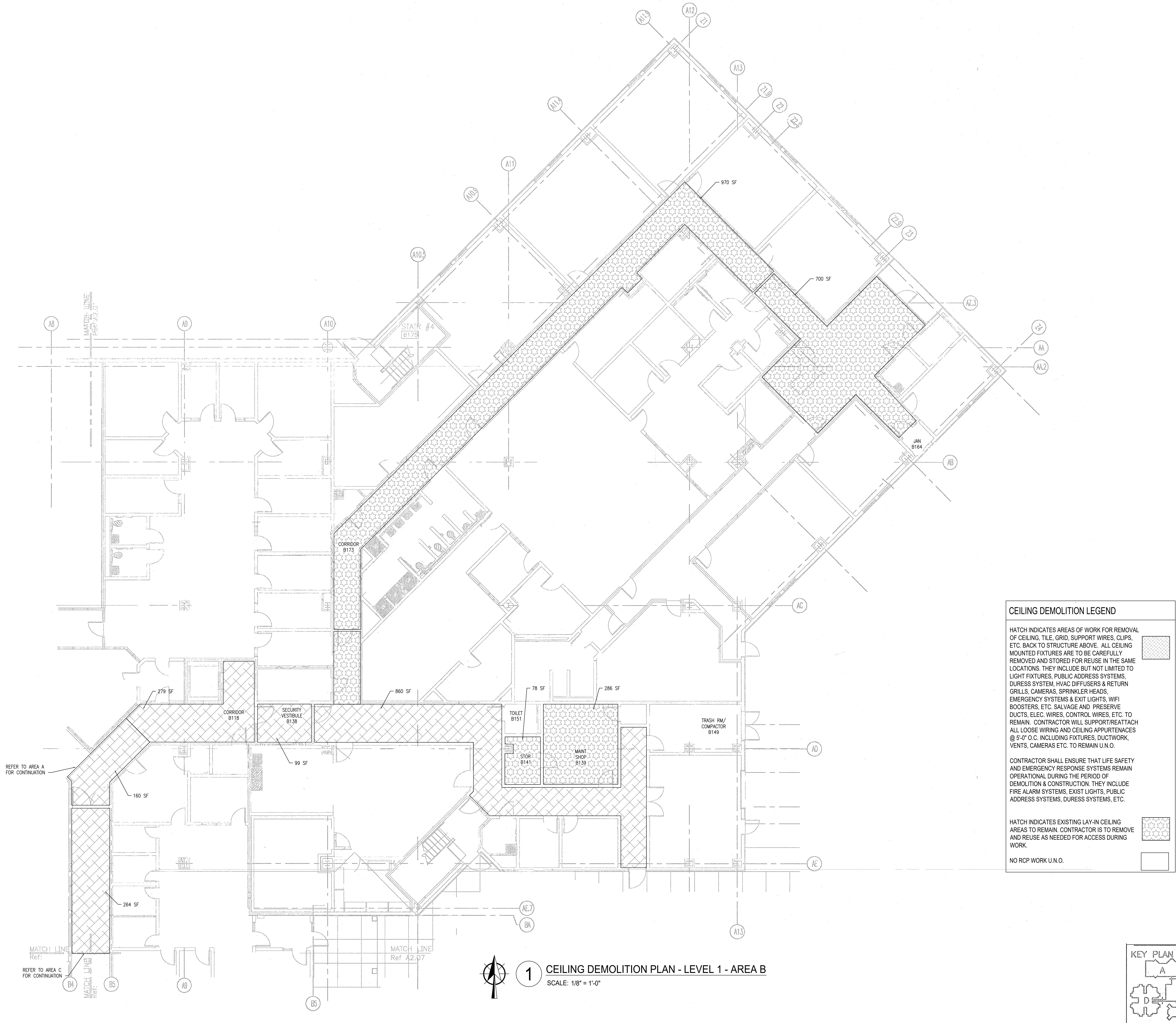
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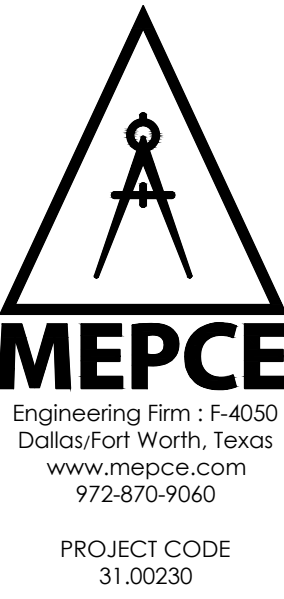
Quality Control:

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CEILING DEMOLITION
PLAN - LEVEL 1 - AREA B

AD1.0B





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CEILING DEMOLITION
PLAN - LEVEL 1 - AREA C

AD1.0C

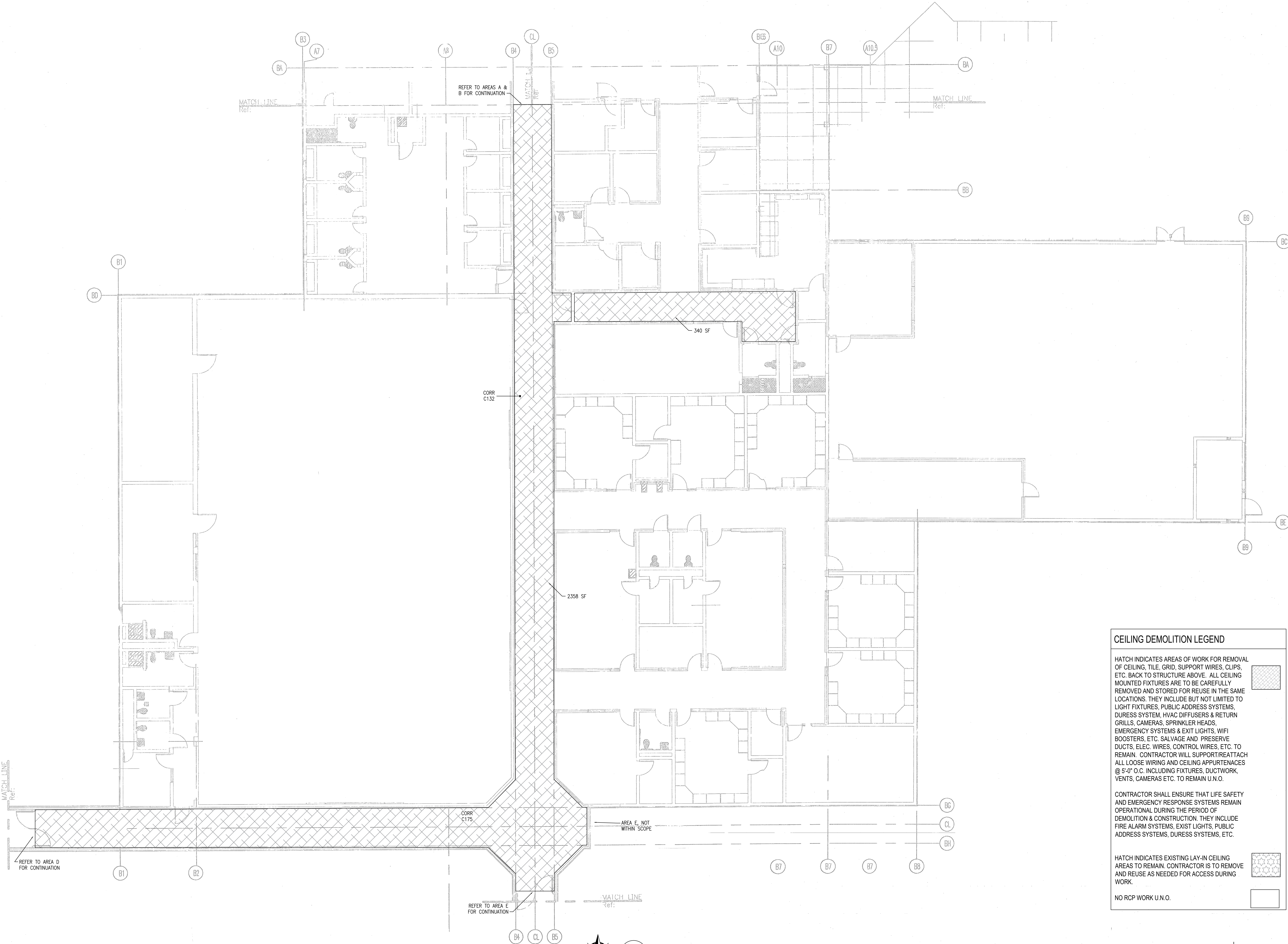
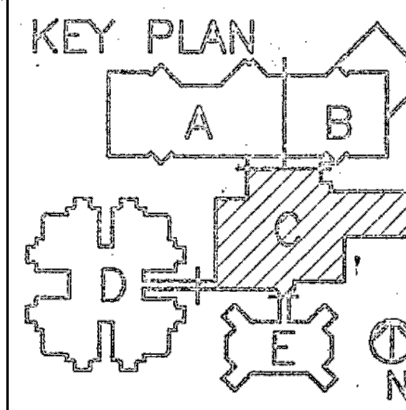
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NO RCP WORK U.N.O.



**HENRY WADE HOT WATER
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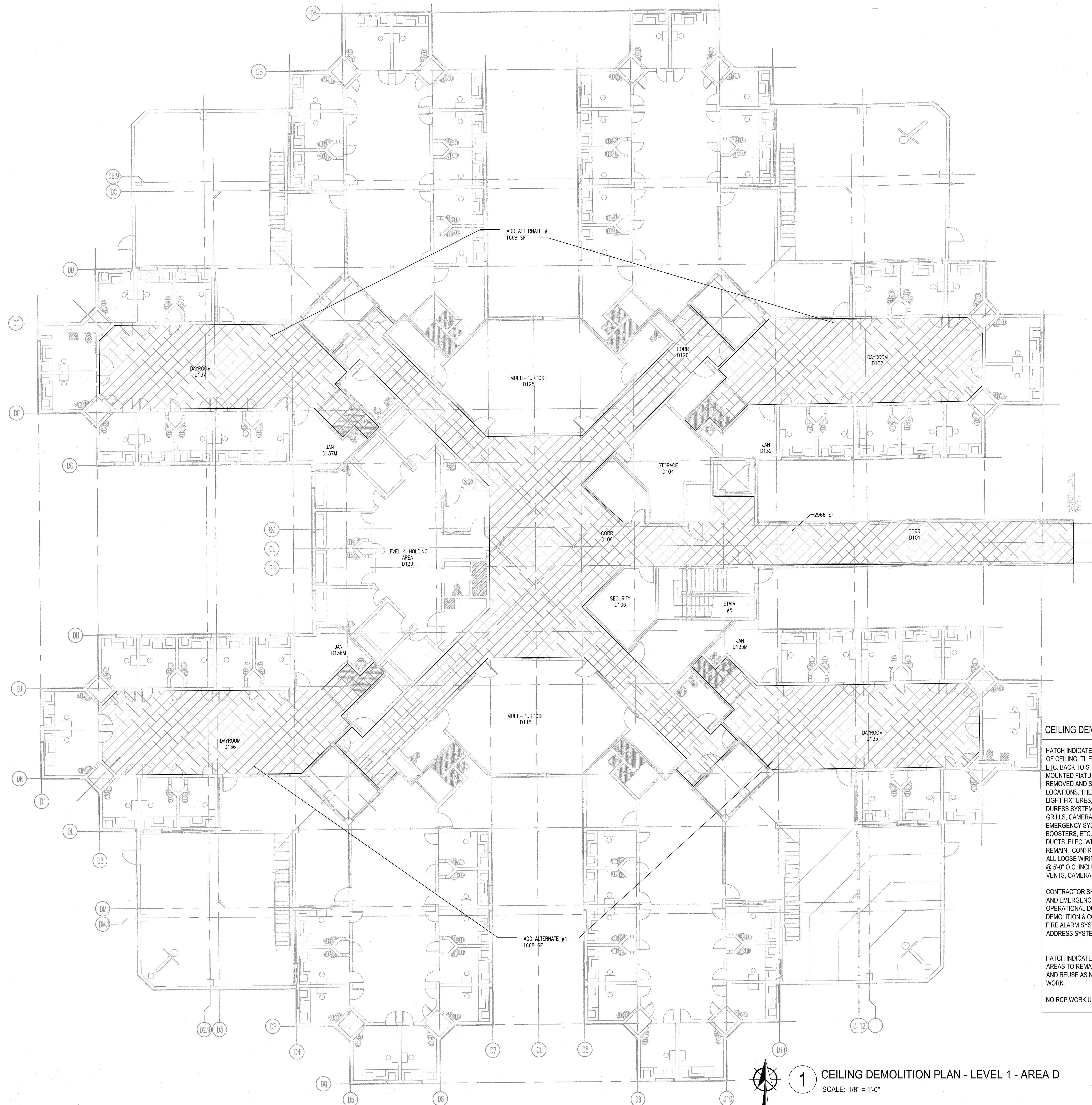
Drawn By:

Quality Control:

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CEILING DEMOLITION
PLAN - LEVEL 1 - AREA D

AD1.0D



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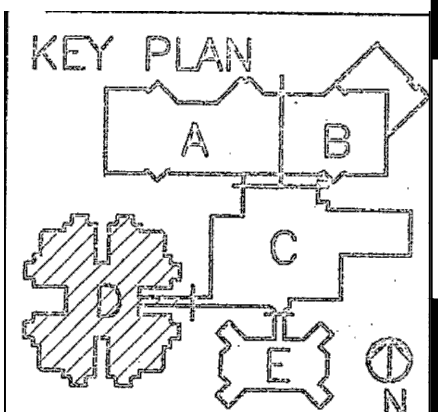
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NO RCP WORK U.N.O.



1 CEILING DEMOLITION PLAN - LEVEL 1 - AREA D
SCALE: 1/8" = 1'-0"



**HENRY WADE HOT WATER
SYSTEM & CEILING
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Revision No.

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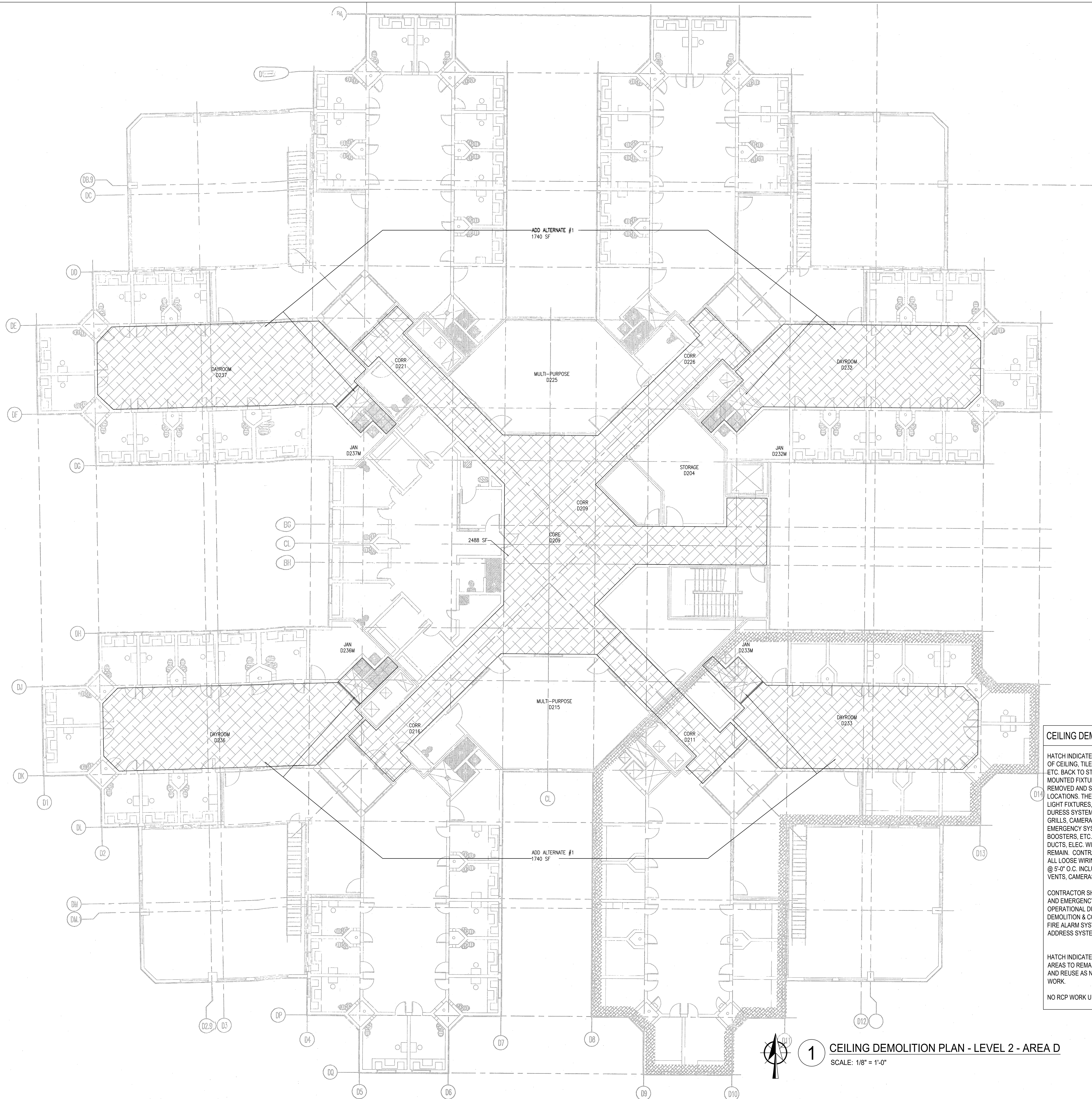
Drawn By:

Quality Control:

31.00230

CEILING DEMOLITION
PLAN - LEVEL 2 - AREA D

AD1.1D



CEILING DEMOLITION LEGEND

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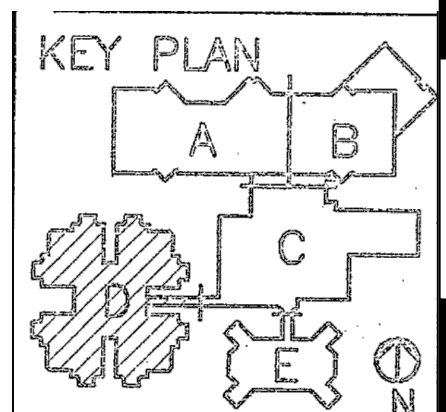
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NO RCP WORK U.N.O.



1 CEILING DEMOLITION PLAN - LEVEL 2 - AREA D
SCALE: 1/8" = 1'-0"



**HENRY WADE HOT WATER
SYSTEM & CEILING
REPLACEMENT**

ISSUED FOR BID: 07/18/2024

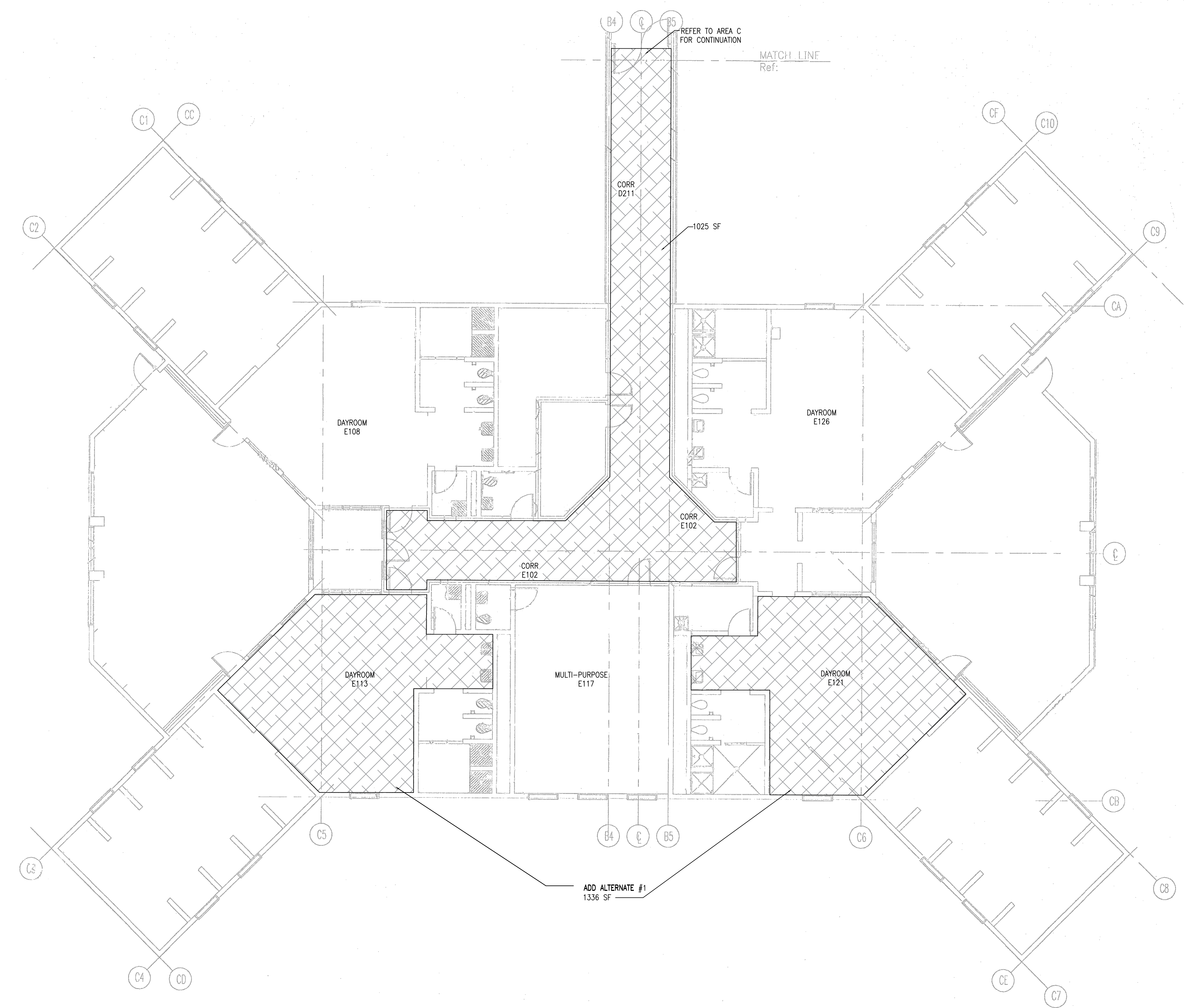
Revision No.

Designer:
Drawn By:
Quality Control:

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CEILING DEMOLITION
PLAN - LEVEL 1 - AREA E

AD1.0E



CEILING DEMOLITION LEGEND

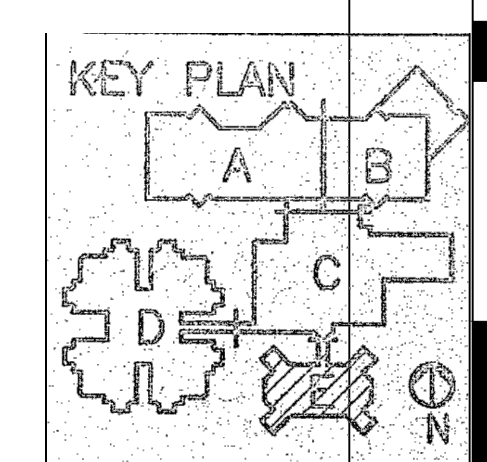
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HATCH INDICATES EXISTING LAY-IN CEILING AREAS TO REMAIN. CONTRACTOR IS TO REMOVE AND REUSE AS NEEDED FOR ACCESS DURING WORK.

NO RCP WORK U.N.O.

1 CEILING DEMOLITION PLAN - LEVEL 1 - AREA E
SCALE: 1/8" = 1'-0"



GENERAL RCP NOTES:

1. VERIFY FIELD CONDITIONS PRIOR TO START OF DEMOLITION/CONSTRUCTION, AND NOTIFY THE ARCHITECT OR ENGINEER OF ANY DISCREPANCY.
2. CONFORM TO ALL APPLICABLE BUILDING CODES AND EXECUTE WORK ONLY WHICH IS IN CONFORMANCE WITH THE CODE.
3. PROTECT EXISTING SPACES AND PROPERTIES ADJACENT TO DEMOLITION/CONSTRUCTION AREAS. ANY DEBRIS SHALL BE REMOVED FROM WORK AREAS DAILY. IF REQUIRED CLOSE OFF EXISTING SUPPLY/RETURN DUCTS FEEDING EXISTING ROOMS TO PREVENT DUST/DEBRIS ENTRY. CLEAN DUST AND DEBRIS THAT DOES ENTER ADJACENT SPACES.
4. PROTECT ALL EXISTING PORTIONS OF THE EXISTING BUILDING AND CEILING TO REMAIN DURING DEMOLITION/CONSTRUCTION. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY/ALL DAMAGES CAUSED BY HIMSELF, EMPLOYEES OR HIS SUBCONTRACTORS.

5. CONTRACTOR TO REFER TO PLUMBING DRAWINGS FOR PIPING OR FIXTURES TO REMAIN, SALVAGED FOR REUSE, OR TO BE REMOVED. ANY FIXTURES TO REMAIN WILL BE SUSPENDED IN PLACE BY APPROPRIATELY SIZED SUSPENSION WIRES AS TO NOT CAUSE FIXTURE/WIRING TO BE DAMAGED.
6. ALL TRADES SHALL CLEARLY MARK CHANGES TO PLANS (AS-BUILT CONDITIONS) IN RED ON THEIR FIELD SET OF DRAWINGS TO PROVIDE AS-BUILT DOCUMENTATION TO GENERAL CONTRACTOR AND OWNER AT THE CONCLUSION OF THE PROJECT.
7. ANY AND ALL ASBESTOS AND/OR LEAD PAINT DISCOVERED DURING DEMOLITION OR CONSTRUCTION MUST BE REPORTED TO THE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY.
8. WHERE NECESSARY, PROVIDE ADEQUATE BRACING AND SHORING TO EXISTING STRUCTURE, WALLS, MECHANICAL EQUIP, ETC. THROUGHOUT CONSTRUCTION.
9. CONTRACTOR IS TO REMOVE, STORE, AND PROTECT EXISTING NON-ATTACHED, MOVABLE CABINETS AND FURNITURE TO REMAIN (TYP). COORDINATE WITH OWNER FOR THEIR RELOCATION AND REINSTALLATION AT COMPLETION OF WORK.

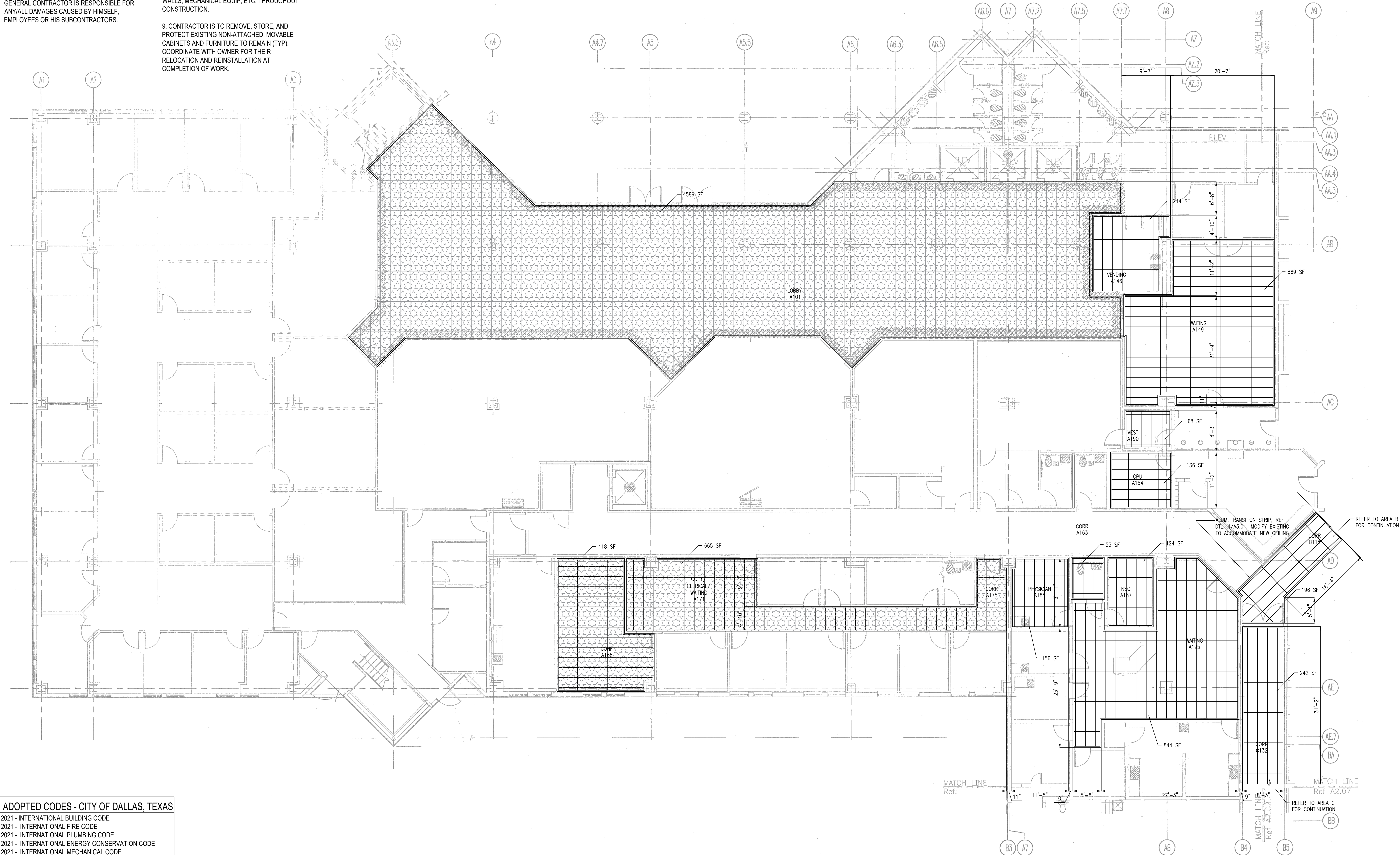
10. DURING REMOVAL OF CEILING, IF WALLS ARE DAMAGED, CONTRACTOR MUST PREP, PATCH, AND PAINT THE DAMAGED AREA TO MATCH ADJACENT EXISTING WALL.
11. CONTRACTOR IS TO THOROUGHLY CLEAN ALL EXISTING CEILING MOUNTED COMPONENTS THAT ARE TO BE REINSTALLED, INCLUDING BUT NOT LIMITED TO LIGHT FIXTURES, PUBLIC ADDRESS SYSTEMS, DURESS SYSTEM, HVAC DIFFUSERS/RETURN GRILLS, CAMERAS, SPRINKLER HEADS, EMERGENCY SYSTEMS/EXIT LIGHTS, WIFI BOOSTERS, ETC. REFER TO PLUMBING DRAWINGS AND OWNER'S FACILITY MAINTENANCE STAFF FOR EXTENT AND COORDINATION.

12. CONTRACTOR IS TO PROVIDE PHASING PLAN(S) TO DALLAS COUNTY PRIOR TO COMMENCEMENT OF WORK FOR REVIEW AND APPROVAL. ANY UPDATES TO PHASING SCHEDULES MUST BE COMMUNICATED TO DALLAS COUNTY AT LEAST TWO WEEKS AHEAD OF WORK.

13. CONTRACTOR SHALL ENSURE THAT LIFE SAFETY AND EMERGENCY RESPONSE SYSTEMS REMAIN OPERATIONAL DURING THE PERIOD OF CONSTRUCTION. THEY INCLUDE FIRE ALARM SYSTEMS, EXIST LIGHTS, PUBLIC ADDRESS SYSTEMS, DURESS SYSTEMS, ETC.

RCP LEGEND & NOTES

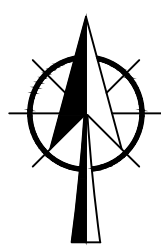
1. HATCH INDICATES NEW CONCEALED ALUMINUM PANEL SUSPENSION SECURITY CEILING SYSTEM. THE PANELS ARE TO BE PERFORMED AND ACCESSIBLE.
2. HATCH INDICATES EXISTING LAY-IN CEILING AREAS TO REMAIN. CONTRACTOR IS TO REMOVE AND REUSE AS NEEDED FOR ACCESS DURING WORK.
3. BASIS OF DESIGN IS THE WINLOK ACCESSIBLE SECURITY CEILING SYSTEM BY GORDON OR APPROVED EQUAL. PANEL SIZE BASIS OF DESIGN IS 24" WIDE X 72" LONG. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. MATCH EXISTING CEILING HEIGHTS UNLESS NOTED OTHERWISE.
6. AREAS AND SQUARE FOOTAGES INDICATED ARE NOT EXACT. CONTRACTOR SHALL FIELD VERIFY ALL AREAS PRIOR TO BIDDING AND NOTIFY ARCHITECT/ENGINEER OF DISCREPANCIES.
7. THE CONTRACTOR WHO IS AWARDED THIS PROJECT IS TO SUBMIT SHOP DRAWINGS FOR ARCHITECT/ENGINEER REVIEW AND APPROVAL PRIOR TO MATERIAL ORDERING AND INSTALLATION.



ADOPTED CODES - CITY OF DALLAS, TEXAS

- 2021 - INTERNATIONAL BUILDING CODE
- 2021 - INTERNATIONAL FIRE CODE
- 2021 - INTERNATIONAL PLUMBING CODE
- 2021 - INTERNATIONAL ENERGY CONSERVATION CODE
- 2021 - INTERNATIONAL MECHANICAL CODE
- 2021 - INTERNATIONAL EXISTING BUILDING CODE
- 2021 - INTERNATIONAL FUEL & GAS CODE
- 2020 - NATIONAL ELECTRIC CODE

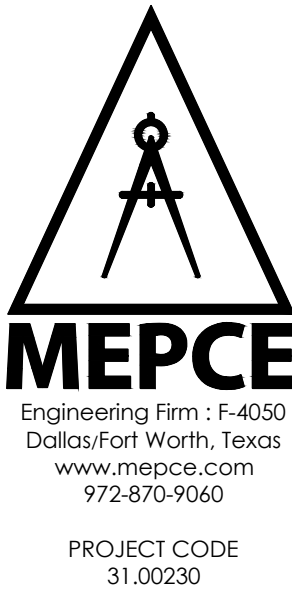
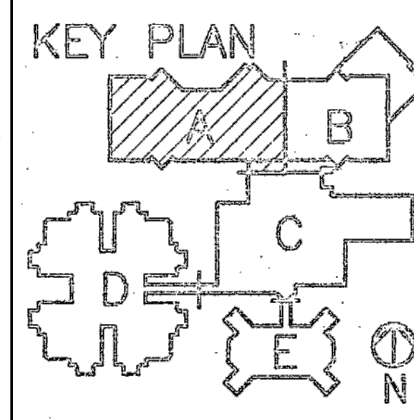
- OTHER APPLICABLE STANDARDS
- CITY OF DALLAS AMENDMENTS TO THE CODES
 - ASTM STANDARDS
 - 2012 TEXAS ACCESSIBILITY STANDARDS
 - NFPA 101
 - NFPA 13, 13R OR 13D (AUTOMATIC SPRINKLER SYSTEM)
 - NFPA 90A OR 90B (HVAC)
 - NFPA 10 (PORTABLE FIRE EXTINGUISHERS)



1

REFLECTED CEILING PLAN - LEVEL 1 - AREA A

SCALE: 1/8" = 1'-0"



ARCHITECTURE + DESIGN

9535 Forest Lane, Suite 213
Dallas, TX 75243



HENRY WADE HOT WATER
SYSTEM & CEILING
REPLACEMENT

ISSUED FOR BID: 07/18/2024

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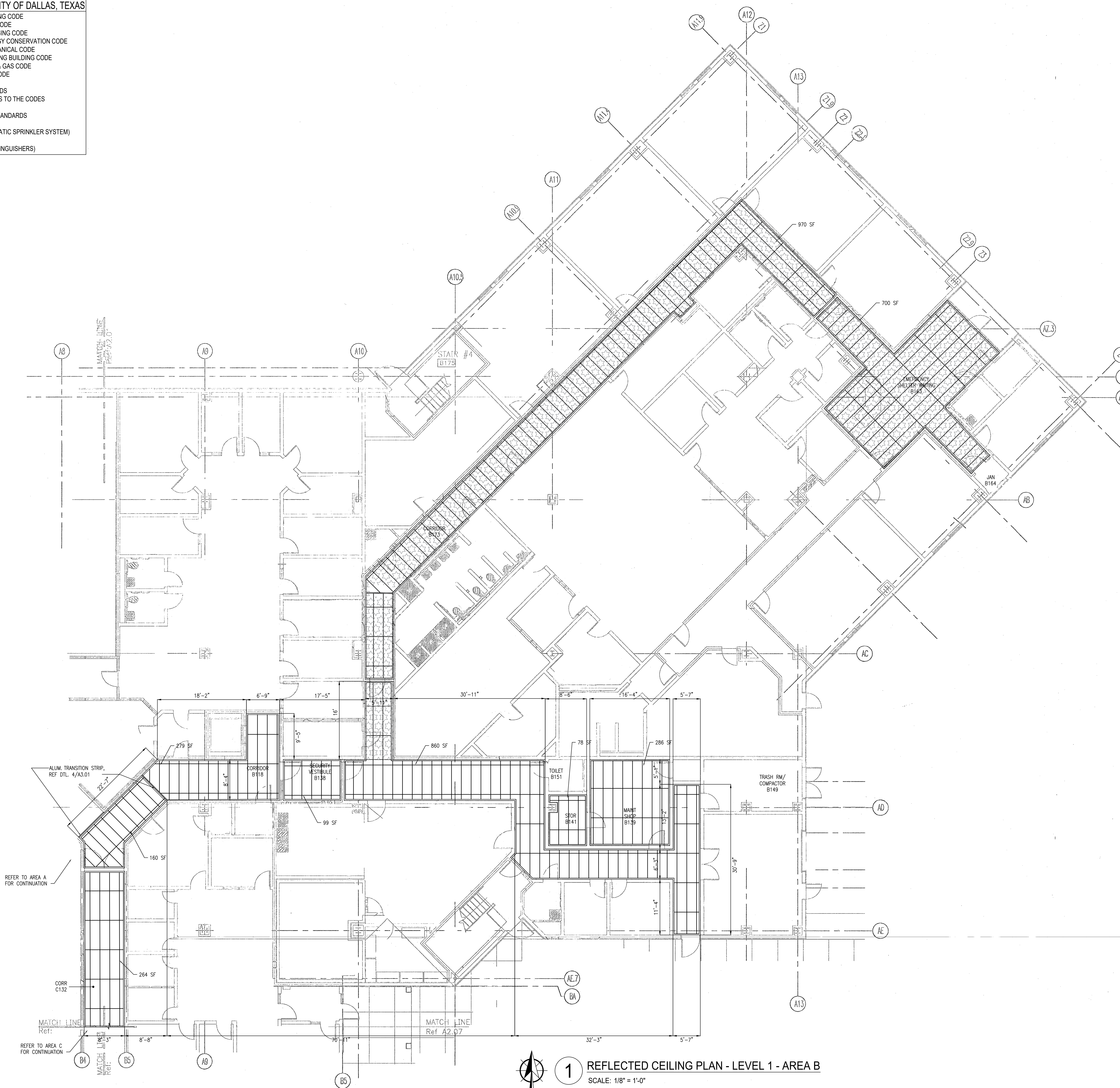
REFLECTED CEILING
PLAN - LEVEL 1 - AREA A

A2.0A

ADOPTED CODES - CITY OF DALLAS, TEXAS

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2021 - INTERNATIONAL ENERGY CONSERVATION CODE
2021 - INTERNATIONAL MECHANICAL CODE
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2020 - NATIONAL ELECTRIC CODE

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1

REFLECTED CEILING PLAN - LEVEL 1 - AREA B

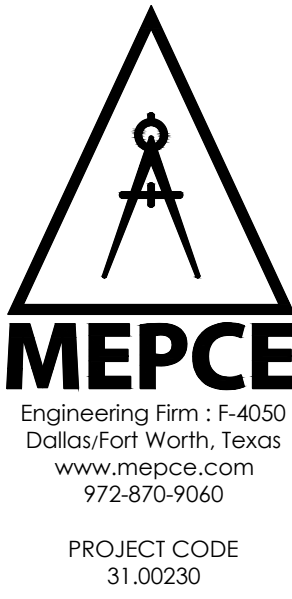
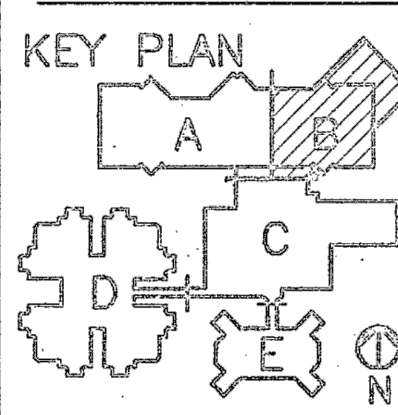
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- REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- MATCH EXISTING CEILING HEIGHTS UNLESS NOTED OTHERWISE.
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- CONFORM TO ALL APPLICABLE BUILDING CODES AND EXECUTE WORK ONLY WHICH IS IN CONFORMANCE WITH THE CODE.
- PROTECT EXISTING SPACES AND PROPERTIES ADJACENT TO DEMOLITION/CONSTRUCTION AREAS. ANY DEBRIS SHALL BE REMOVED FROM WORK AREAS DAILY, IF REQUIRED CLOSE OFF EXISTING SUPPLY/RETURN DUCTS FEEDING EXISTING ROOMS TO PREVENT DUST/DEBRIS ENTRY. CLEAN DUST AND DEBRIS THAT DOES ENTER ADJACENT SPACES.
- PROTECT ALL EXISTING PORTIONS OF THE EXISTING BUILDING AND CEILING TO REMAIN DURING DEMOLITION/CONSTRUCTION. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY/ALL DAMAGES CAUSED BY HIMSELF, EMPLOYEES OR HIS SUBCONTRACTORS.
- CONTRACTOR TO REFER TO PLUMBING DRAWINGS FOR PIPING OR FIXTURES TO REMAIN, SALVAGED FOR REUSE, OR TO BE REMOVED. ANY FIXTURES TO REMAIN WILL BE SUSPENDED IN PLACE BY APPROPRIATELY SIZED SUSPENSION WIRES AS TO NOT CAUSE FUTURE/WIRING TO BE DAMAGED.
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- CONTRACTOR IS TO REMOVE, STORE, AND PROTECT EXISTING NON-ATTACHED, MOVABLE CABINETS AND FURNITURE TO REMAIN (TYP). COORDINATE WITH OWNER FOR THEIR RELOCATION AND REINSTALLATION AT COMPLETION OF WORK.
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McAfee 3
ARCHITECTURE + DESIGN

9535 Forest Lane, Suite 213
Dallas, TX 75243



HENRY WADE HOT WATER SYSTEM & CEILING REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

Designer:

Drawn By:

Quality Control:

31.00230

REFLECTED CEILING
PLAN - LEVEL 1 - AREA B

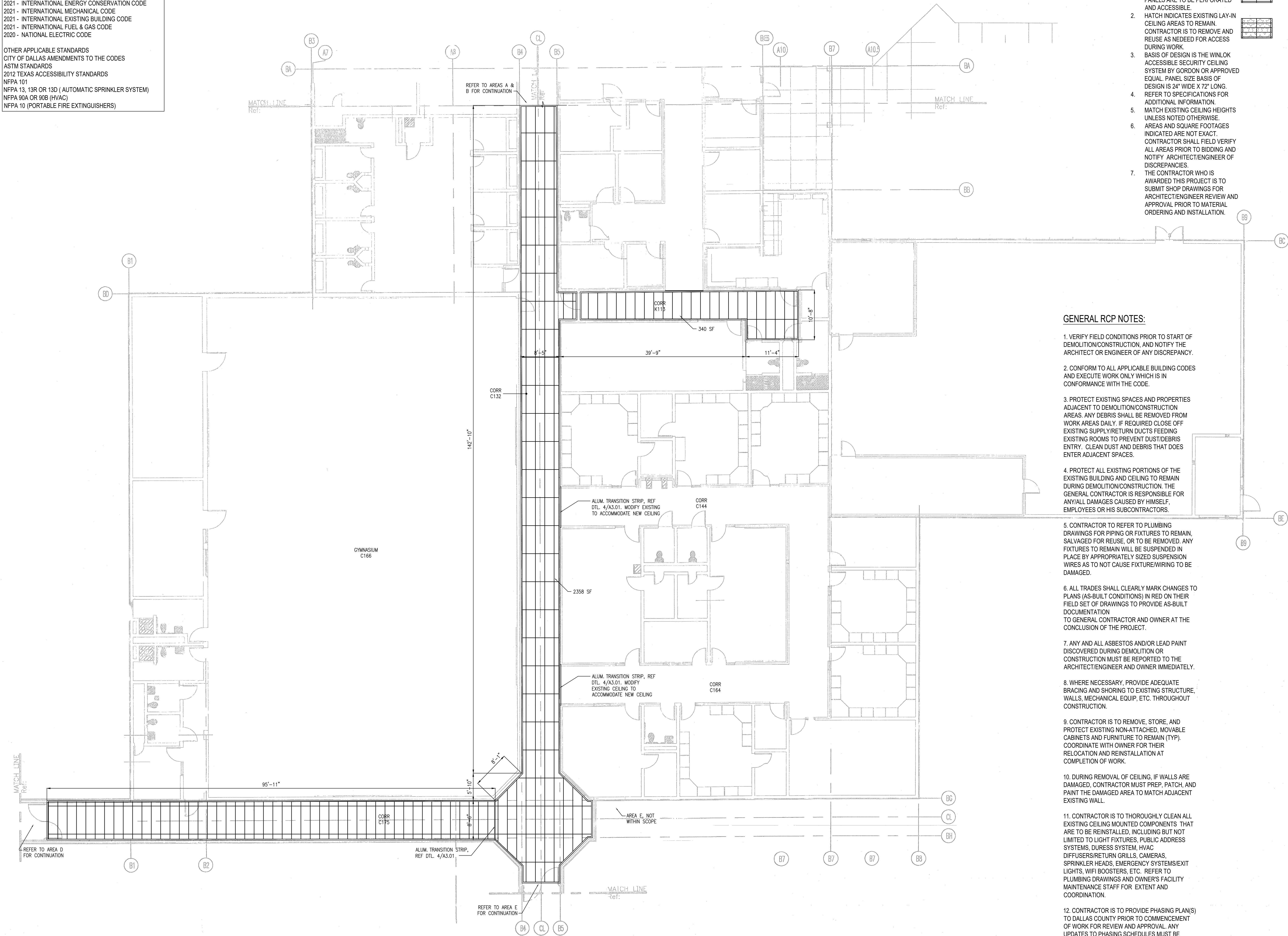
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ADOPTED CODES - CITY OF DALLAS, TEXAS

2021 - INTERNATIONAL BUILDING CODE
2021 - INTERNATIONAL FIRE CODE
2021 - INTERNATIONAL PLUMBING CODE
2021 - INTERNATIONAL ENERGY CONSERVATION CODE
2021 - INTERNATIONAL MECHANICAL CODE
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2021 - INTERNATIONAL FUEL & GAS CODE
2020 - NATIONAL ELECTRIC CODE

OTHER APPLICABLE STANDARDS

CITY OF DALLAS AMENDMENTS TO THE CODES
ASTM STANDARDS
2012 TEXAS ACCESSIBILITY STANDARDS
NFPA 101
NFPA 13, 13R OR 13D (AUTOMATIC SPRINKLER SYSTEM)
NFPA 90A OR 90B (HVAC)
NFPA 10 (PORTABLE FIRE EXTINGUISHERS)



1

PLUMBING SUPPLY PLAN - LEVEL 1 - AREA C

SCALE: 1/8" = 1'-0"

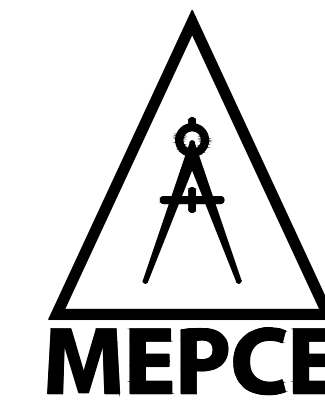
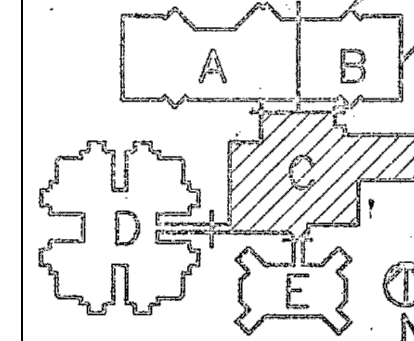
RCP LEGEND & NOTES

- HATCH INDICATES NEW CONCEALED ALUMINUM PANEL SUSPENSION SECURITY CEILING SYSTEM. THE PANELS ARE TO BE PERFORATED AND ACCESSIBLE.
- HATCH INDICATES EXISTING LAY-IN CEILING AREAS TO REMAIN. CONTRACTOR IS TO REMOVE AND REUSE AS NEEDED FOR ACCESS DURING WORK.
- BASIS OF DESIGN IS THE WINLOK ACCESSIBLE SECURITY CEILING SYSTEM BY GORDON OR APPROVED EQUAL. PANEL SIZE BASIS OF DESIGN IS 24" WIDE X 72" LONG. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
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KEY PLAN



Engineering Firm: F-4050
Dallas/Fort Worth, Texas
www.mepce.com
972-670-7060
PROJECT CODE
31.00230



ARCHITECTURE + DESIGN

9535 Forest Lane, Suite 213
Dallas, TX 75243



HENRY WADE HOT WATER SYSTEM & CEILING REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

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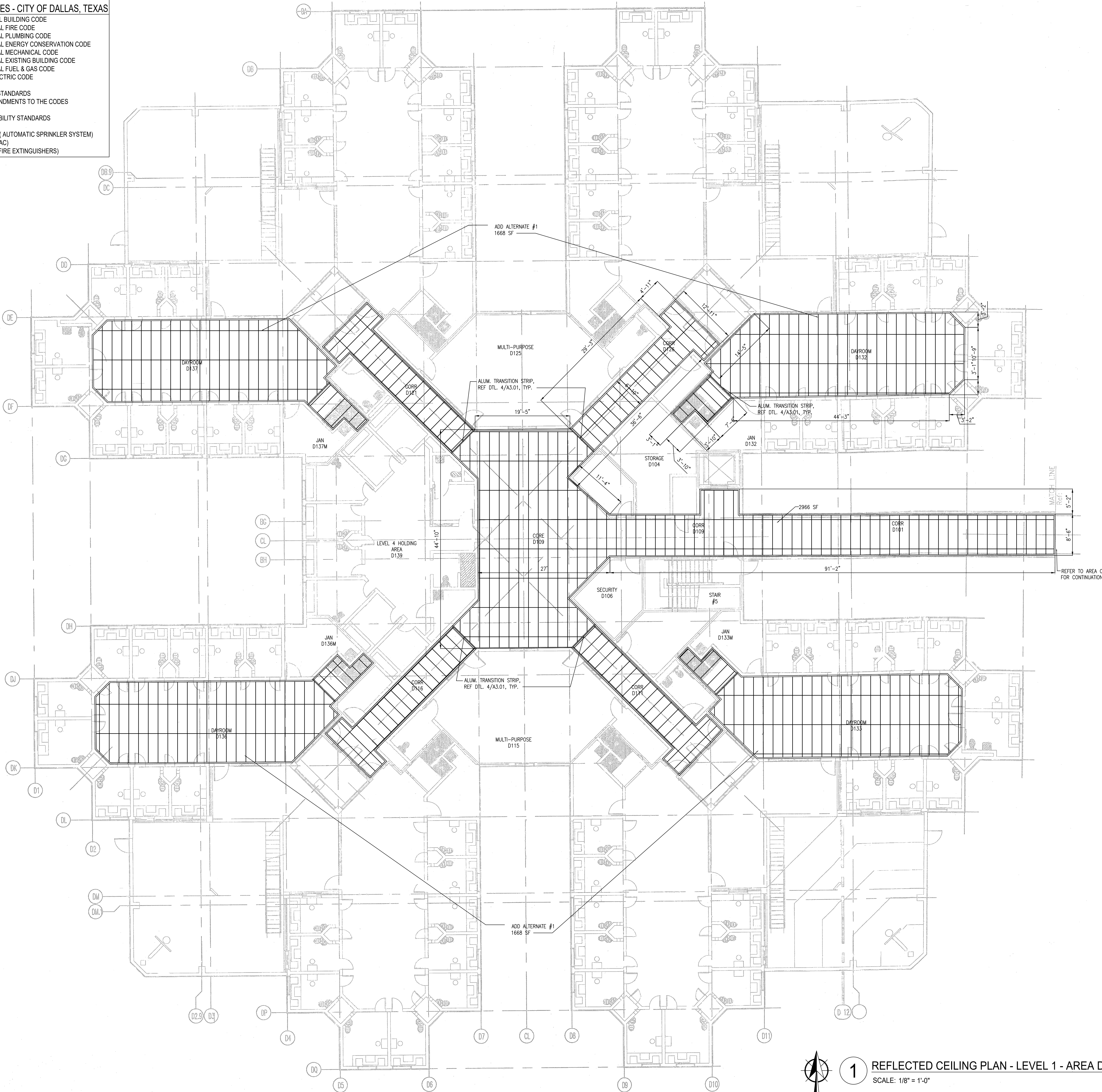
REFLECTED CEILING
PLAN - LEVEL 1 - AREA C

A2.0C

ADOPTED CODES - CITY OF DALLAS, TEXAS

2021 - INTERNATIONAL BUILDING CODE
2021 - INTERNATIONAL FIRE CODE
2021 - INTERNATIONAL PLUMBING CODE
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ASTM STANDARDS
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NFPA 101
NFPA 13, 13R OR 13D (AUTOMATIC SPRINKLER SYSTEM)
NFPA 90A OR 90B (HVAC)
NFPA 10 (PORTABLE FIRE EXTINGUISHERS)



1

REFLECTED CEILING PLAN - LEVEL 1 - AREA D

SCALE: 1/8" = 1'-0"

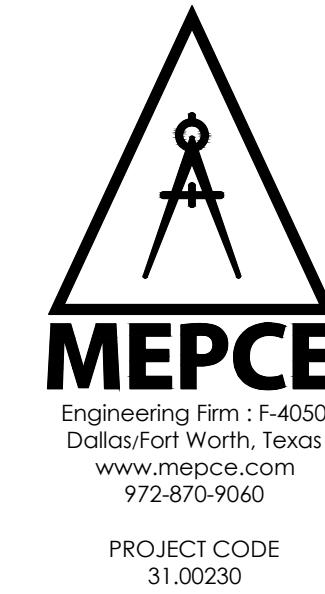
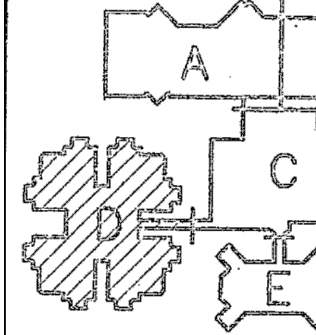
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KEY PLAN



McAfee 3
ARCHITECTURE + DESIGN

9535 Forest Lane, Suite 213
Dallas, TX 75243



HENRY WADE HOT WATER SYSTEM & CEILING REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

Designer:

Drawn By:

Quality Control:

31.00230

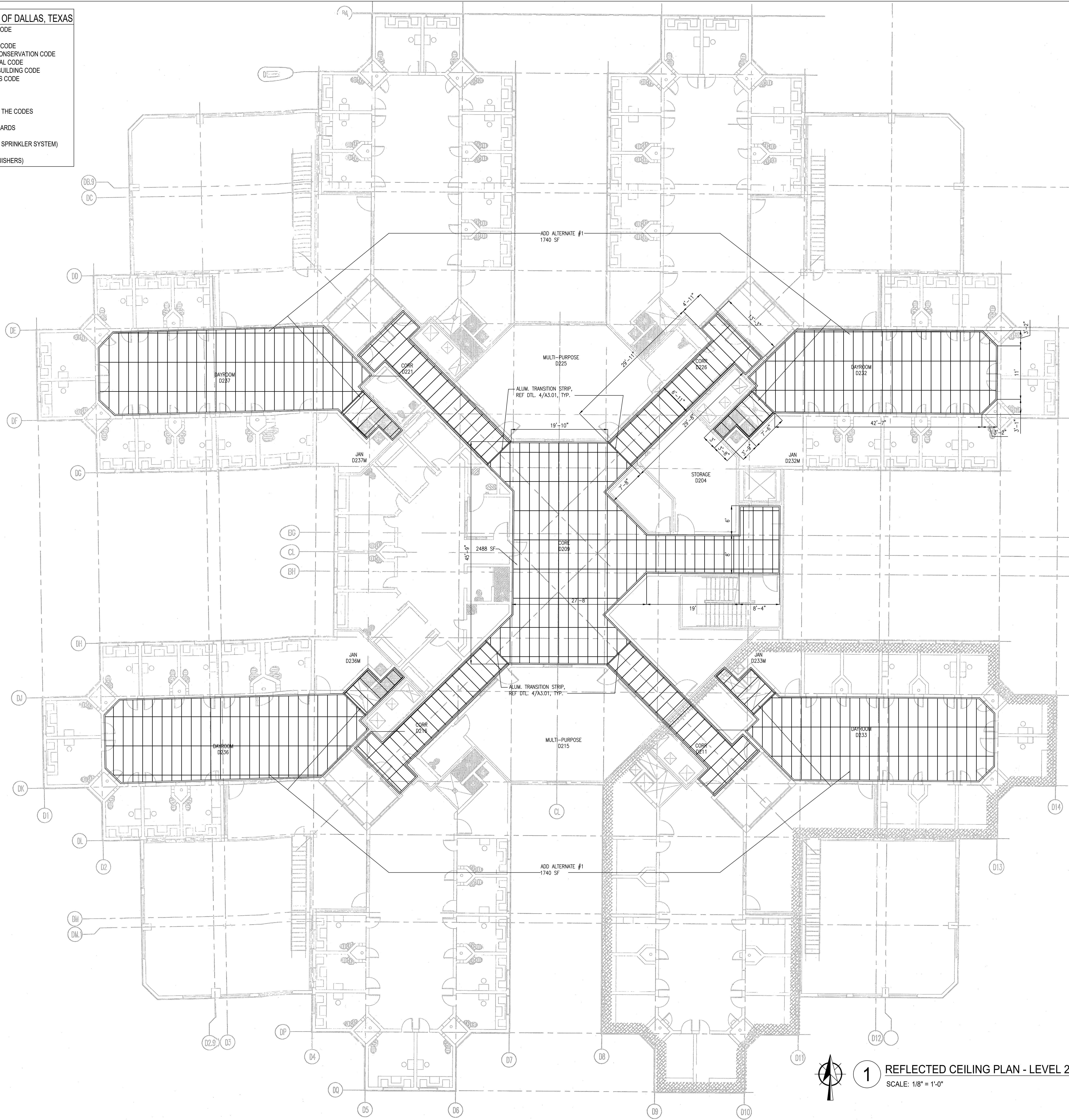
REFLECTED CEILING
PLAN - LEVEL 1 - AREA D

A2.0D

ADOPTED CODES - CITY OF DALLAS, TEXAS

2021 - INTERNATIONAL BUILDING CODE
2021 - INTERNATIONAL FIRE CODE
2021 - INTERNATIONAL PLUMBING CODE
2021 - INTERNATIONAL ENERGY CONSERVATION CODE
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OTHER APPLICABLE STANDARDS
CITY OF DALLAS AMENDMENTS TO THE CODES
ASTM STANDARDS
2012 TEXAS ACCESSIBILITY STANDARDS
NFPA 101
NFPA 13, 13R OR 13D (AUTOMATIC SPRINKLER SYSTEM)
NFPA 90A OR 90B (HVAC)
NFPA 10 (PORTABLE FIRE EXTINGUISHERS)

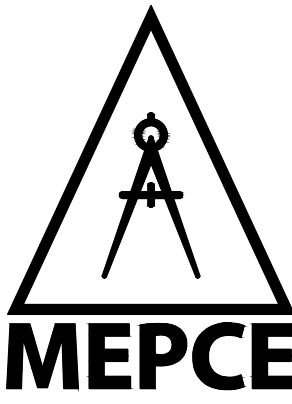


RCP LEGEND & NOTES

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Engineering Firm: F-4050
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ARCHITECTURE + DESIGN

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HENRY WADE HOT WATER
SYSTEM & CEILING
REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

Designer:

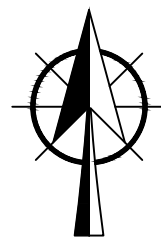
Drawn By:

Quality Control:

31.00230

REFLECTED CEILING
PLAN - LEVEL 2 - AREA D

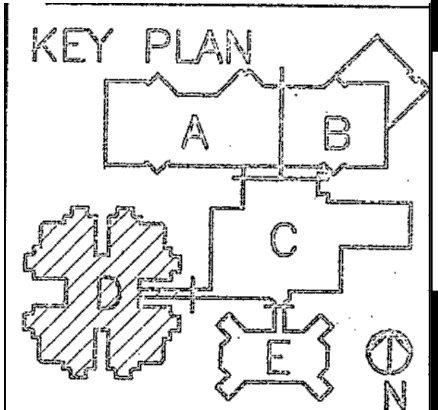
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1

REFLECTED CEILING PLAN - LEVEL 2 - AREA D

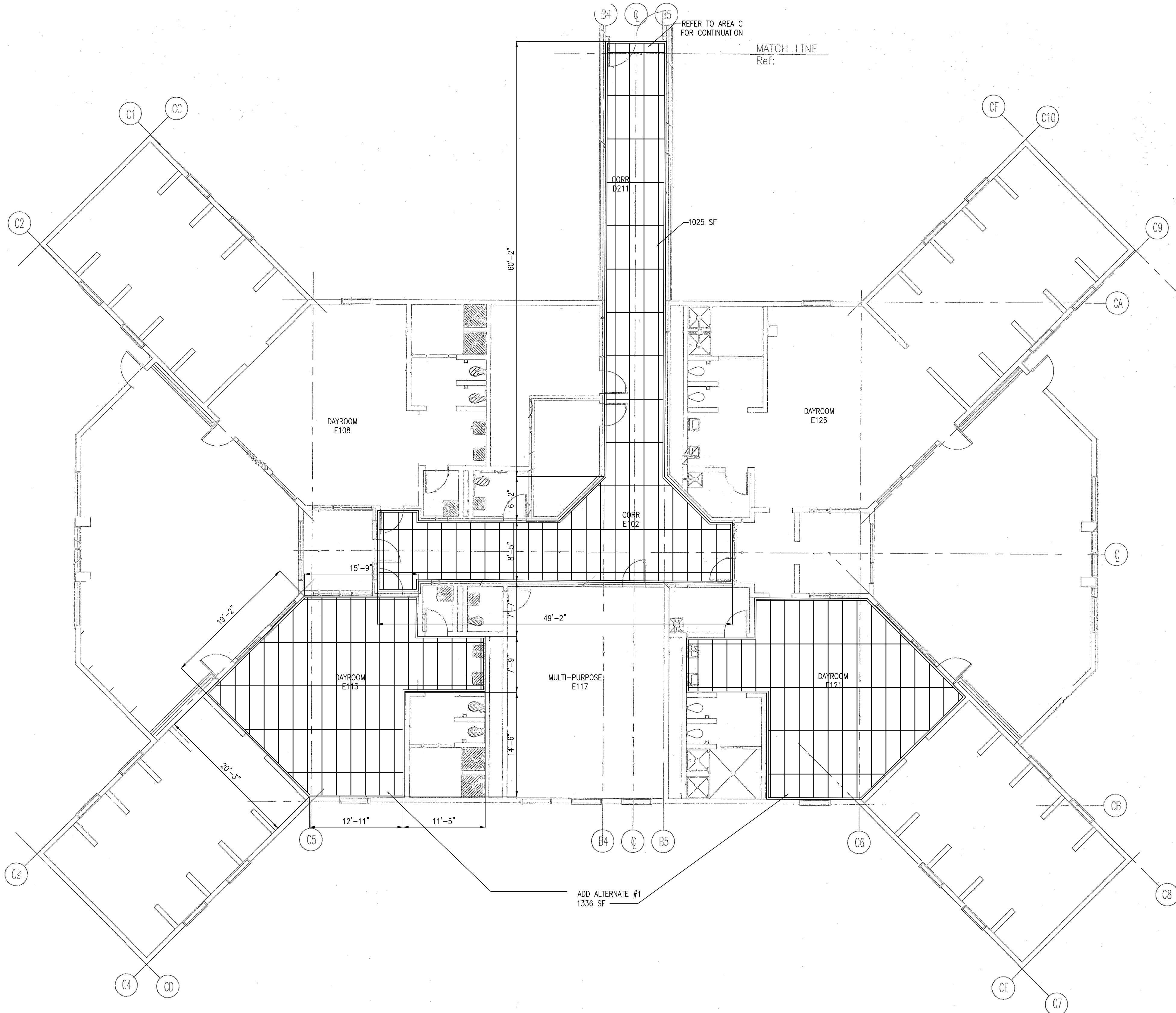
SCALE: 1/8" = 1'-0"



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1

REFLECTED CEILING PLAN - LEVEL 1 - AREA E

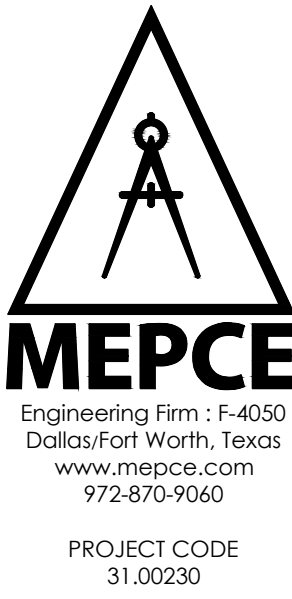
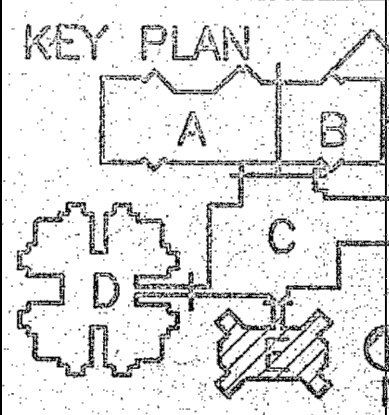
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- PROTECT ALL EXISTING PORTIONS OF THE EXISTING BUILDING AND CEILING TO REMAIN DURING DEMOLITION/CONSTRUCTION. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY/ALL DAMAGES CAUSED BY HIMSELF, EMPLOYEES OR HIS SUBCONTRACTORS.
- CONTRACTOR TO REFER TO PLUMBING DRAWINGS FOR PIPING OR FIXTURES TO REMAIN, SALVAGED FOR REUSE, OR TO BE REMOVED. ANY FIXTURES TO REMAIN WILL BE SUSPENDED IN PLACE BY APPROPRIATELY SIZED SUSPENSION WIRES AS TO NOT CAUSE FIXTURE/WIRING TO BE DAMAGED.
- ALL TRADES SHALL CLEARLY MARK CHANGES TO PLANS (AS-BUILT CONDITIONS) IN RED ON THEIR FIELD SET OF DRAWINGS TO PROVIDE AS-BUILT DOCUMENTATION TO GENERAL CONTRACTOR AND OWNER AT THE CONCLUSION OF THE PROJECT.
- ANY AND ALL ASBESTOS AND/OR LEAD PAINT DISCOVERED DURING DEMOLITION OR CONSTRUCTION MUST BE REPORTED TO THE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY.
- WHERE NECESSARY, PROVIDE ADEQUATE BRACING AND SHORING TO EXISTING STRUCTURE, WALLS, MECHANICAL EQUIP. ETC. THROUGHOUT CONSTRUCTION.
- CONTRACTOR IS TO REMOVE, STORE, AND PROTECT EXISTING NON-ATTACHED, MOVABLE CABINETS AND FURNITURE TO REMAIN (TYP). COORDINATE WITH OWNER FOR THEIR RELOCATION AND REINSTALLATION AT COMPLETION OF WORK.
- DURING REMOVAL OF CEILING, IF WALLS ARE DAMAGED, CONTRACTOR MUST PREP, PATCH, AND PAINT THE DAMAGED AREA TO MATCH ADJACENT EXISTING WALL.
- CONTRACTOR IS TO THOROUGHLY CLEAN ALL EXISTING CEILING MOUNTED COMPONENTS THAT ARE TO BE REINSTALLED, INCLUDING BUT NOT LIMITED TO LIGHT FIXTURES, PUBLIC ADDRESS SYSTEMS, DURESS SYSTEM, HVAC DIFFUSERS/RETURN GRILLS, CAMERAS, SPRINKLER HEADS, EMERGENCY SYSTEMS/EXIT LIGHTS, WIFI BOOSTERS, ETC. REFER TO PLUMBING DRAWINGS AND OWNER'S FACILITY MAINTENANCE STAFF FOR EXTENT AND COORDINATION.
- CONTRACTOR IS TO PROVIDE PHASING PLAN(S) TO DALLAS COUNTY PRIOR TO COMMENCEMENT OF WORK FOR REVIEW AND APPROVAL. ANY UPDATES TO PHASING SCHEDULES MUST BE COMMUNICATED TO DALLAS COUNTY AT LEAST TWO WEEKS AHEAD OF WORK.
- CONTRACTOR SHALL ENSURE THAT LIFE SAFETY AND EMERGENCY RESPONSE SYSTEMS REMAIN OPERATIONAL DURING THE PERIOD OF CONSTRUCTION. THEY INCLUDE FIRE ALARM SYSTEMS, EXIST LIGHTS, PUBLIC ADDRESS SYSTEMS, DURESS SYSTEMS, ETC.



ARCHITECTURE + DESIGN

9535 Forest Lane, Suite 213
Dallas, TX 75243



HENRY WADE HOT WATER
SYSTEM & CEILING
REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

Designer:

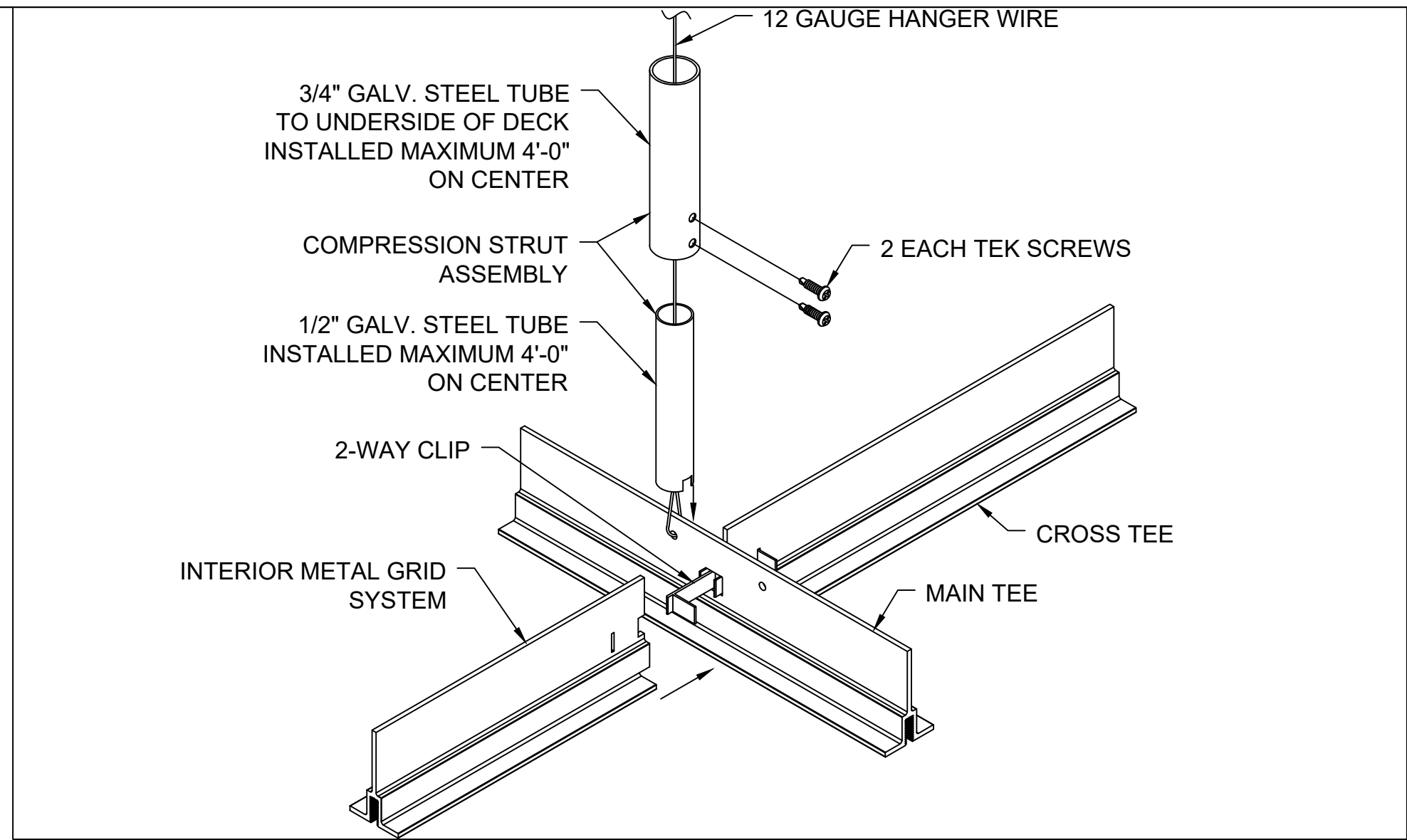
Drawn By:

Quality Control:

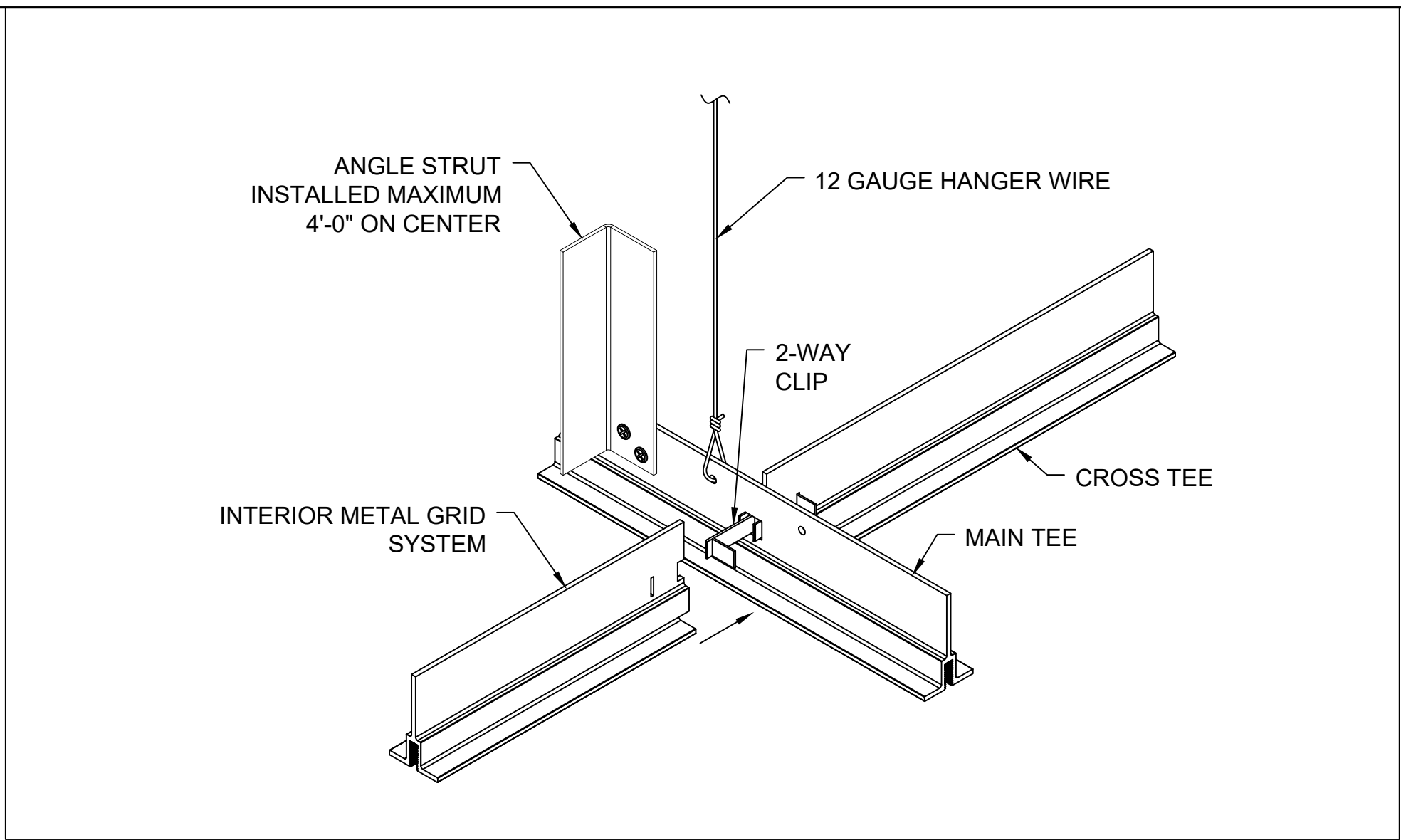
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REFLECTED CEILING
PLAN - LEVEL 1 - AREA E

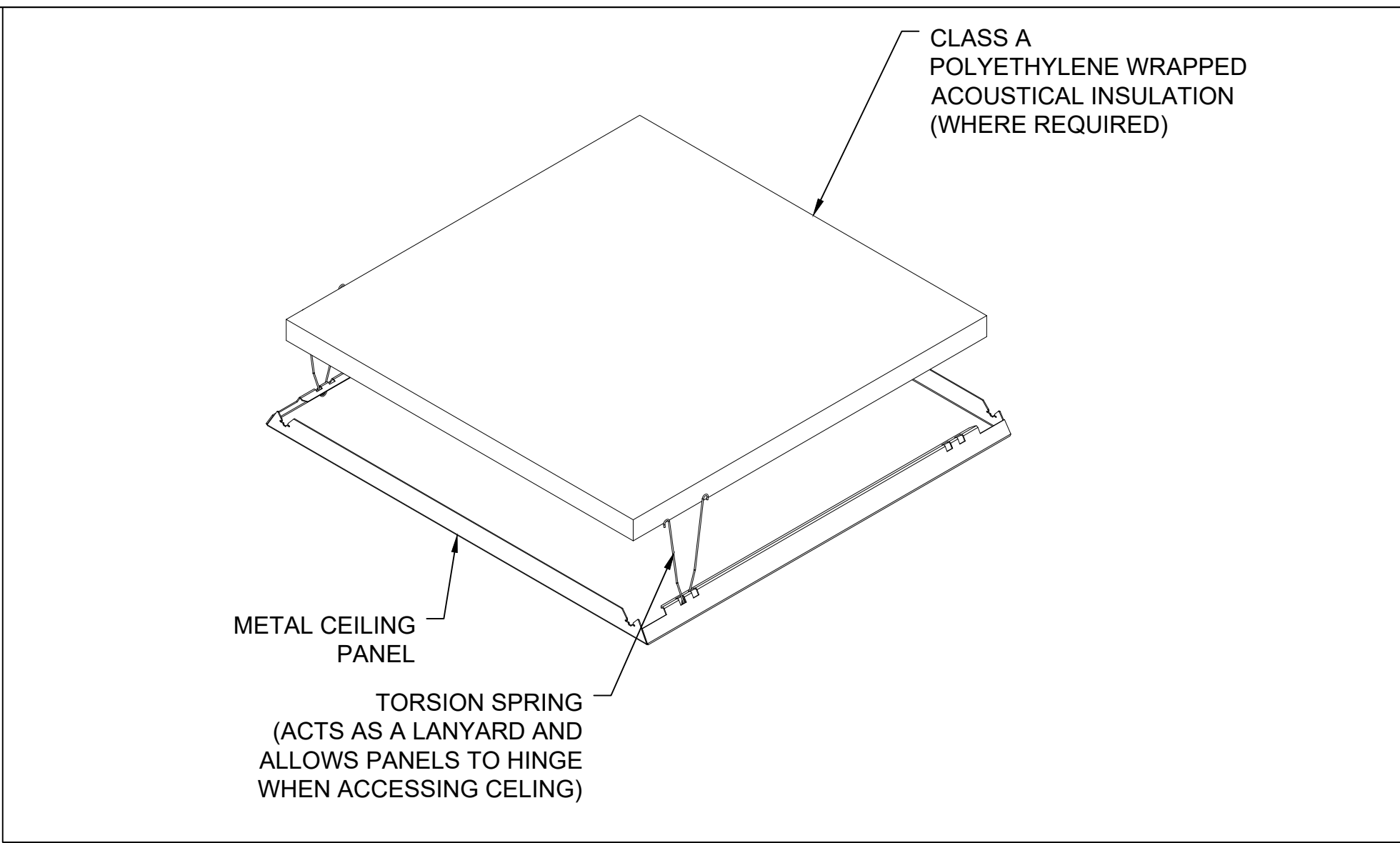
A2.0E



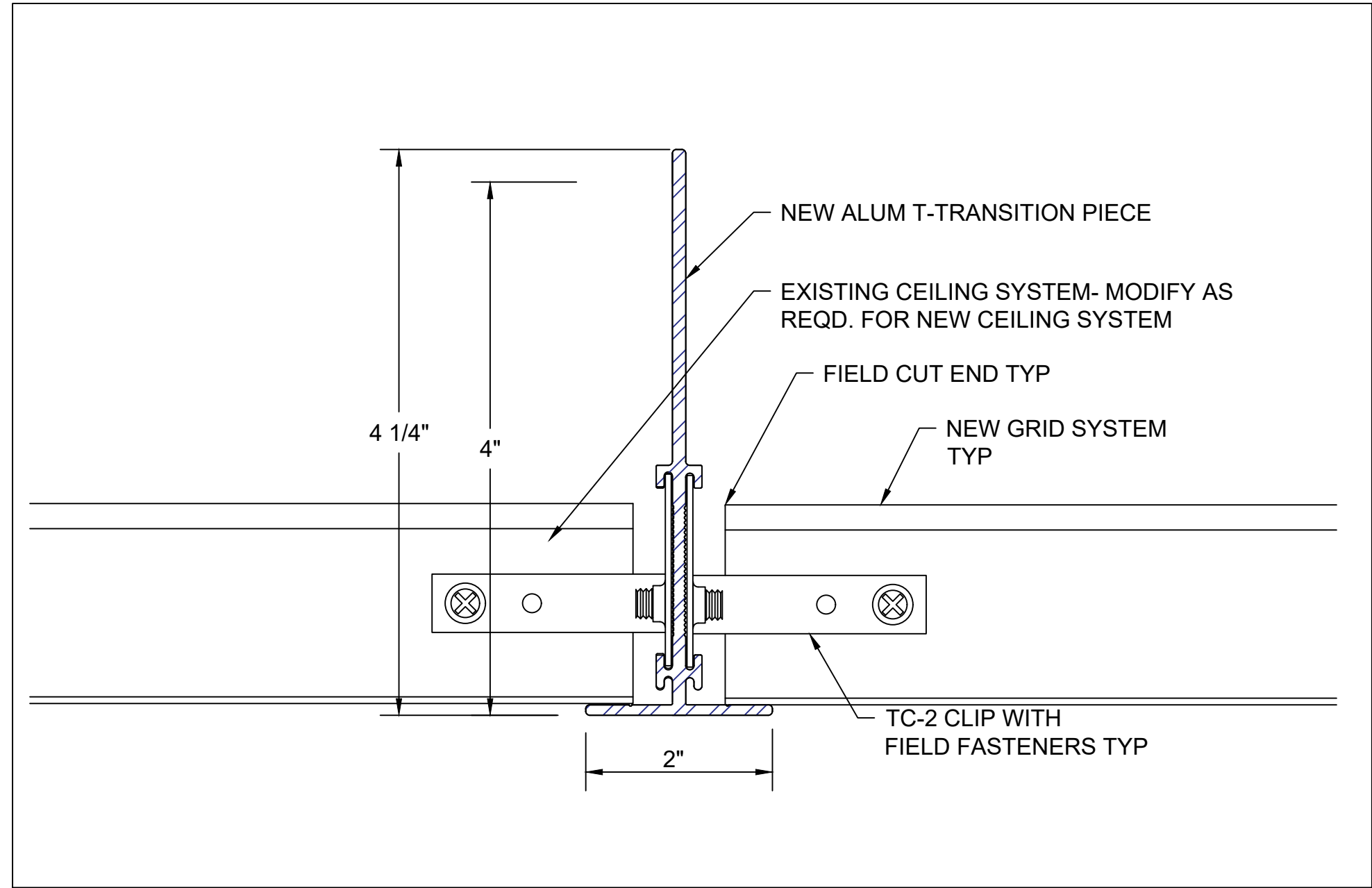
1 COMPRESSION STRUT GRID ASSEMBLY DETAIL
SCALE: NO SCALE



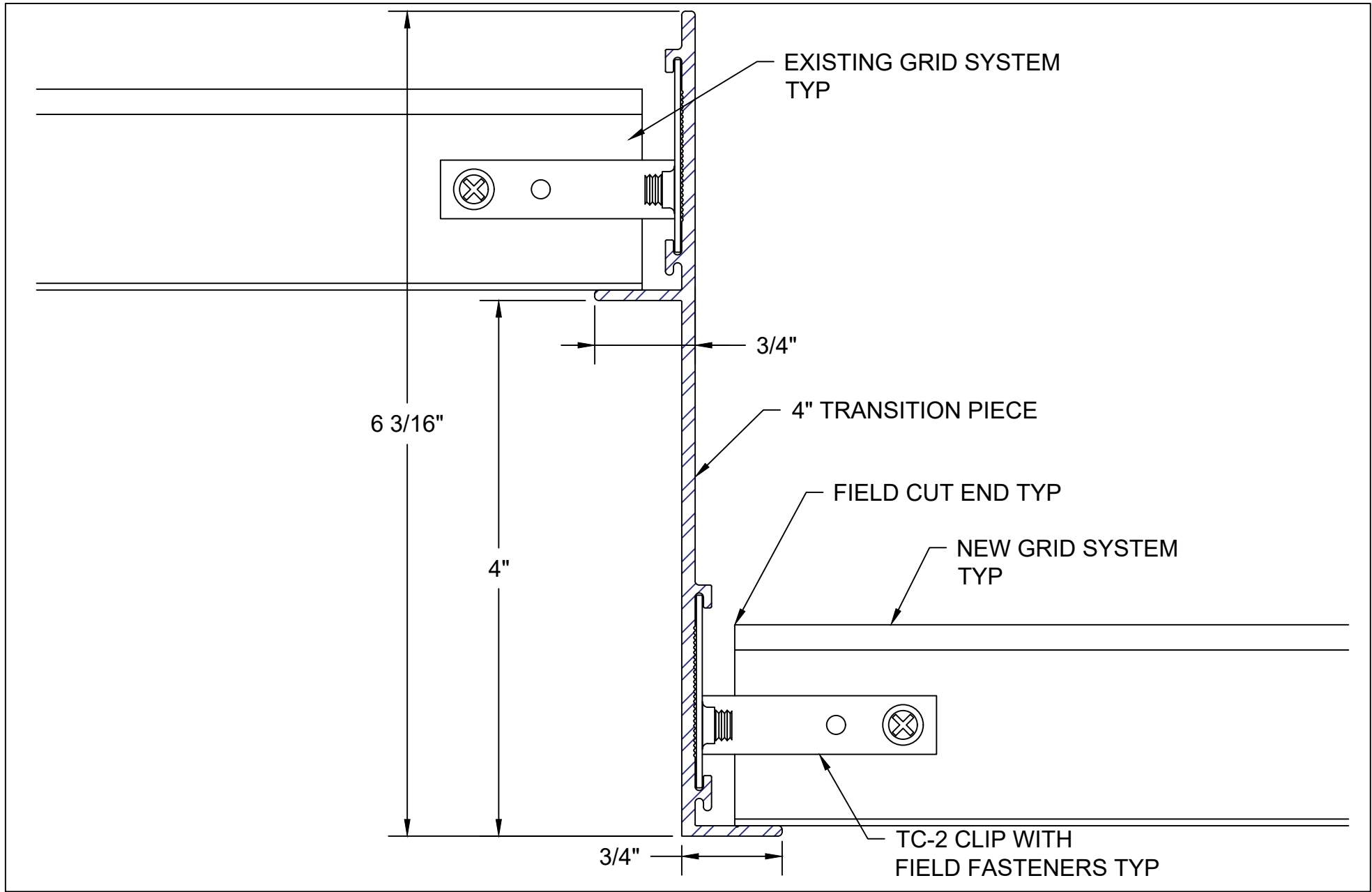
2 ANGLE STRUT GRID ASSEMBLY DETAIL
SCALE: NO SCALE



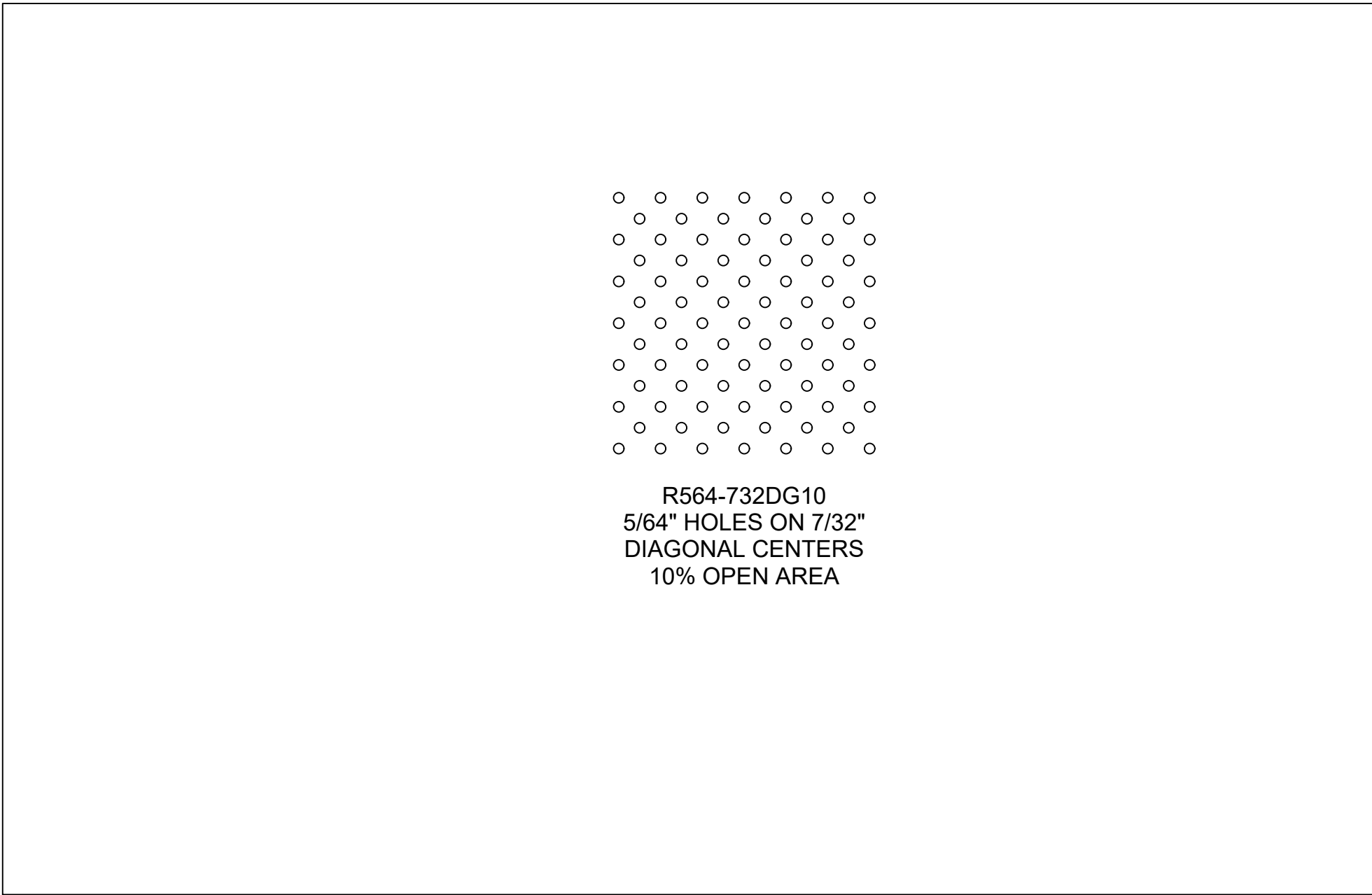
3 CEILING PANEL ASSEMBLY DETAIL
SCALE: NO SCALE



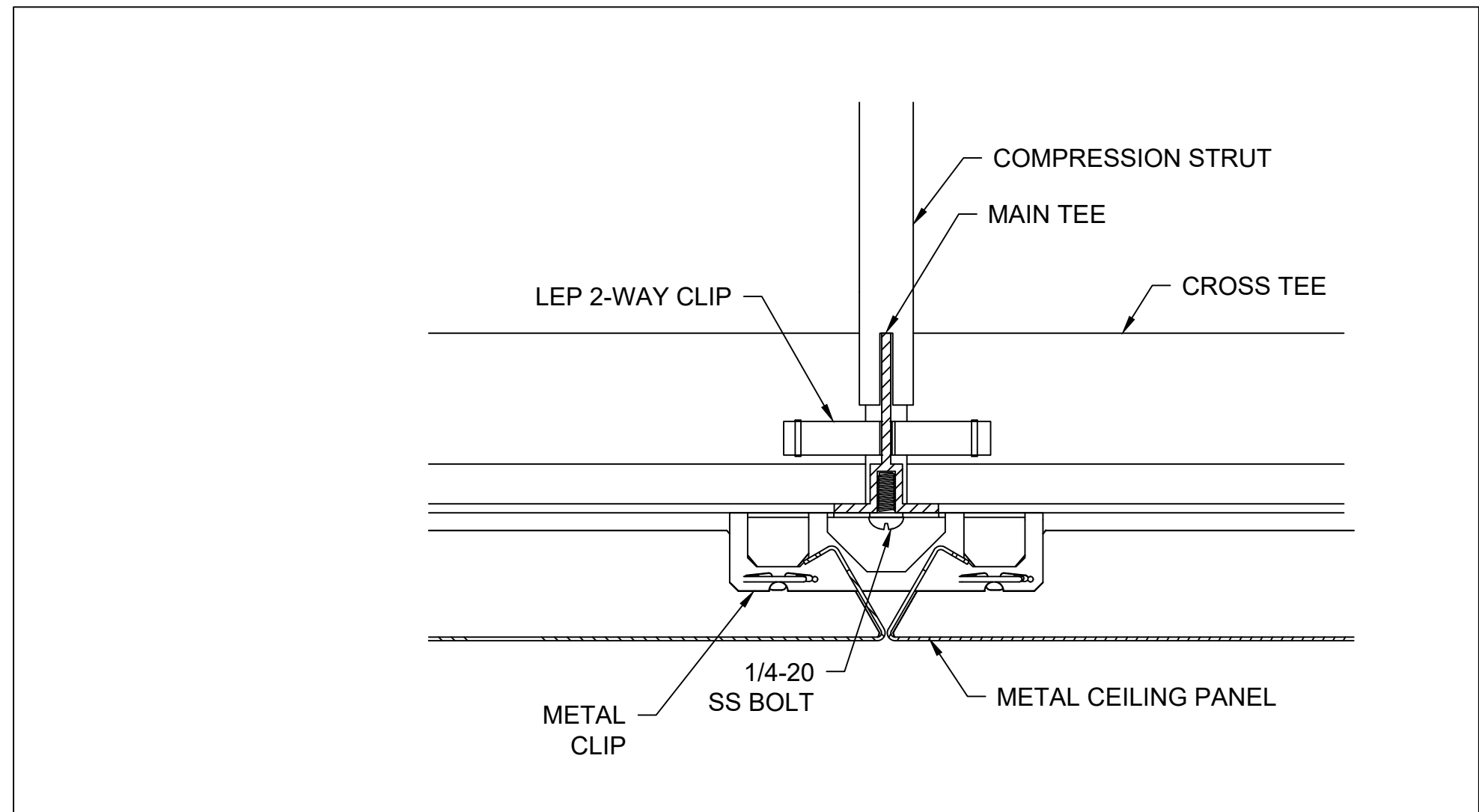
4 CEILING TRANSITION DETAIL (SAME ELEVATION)
SCALE: 1" = 1'-0"



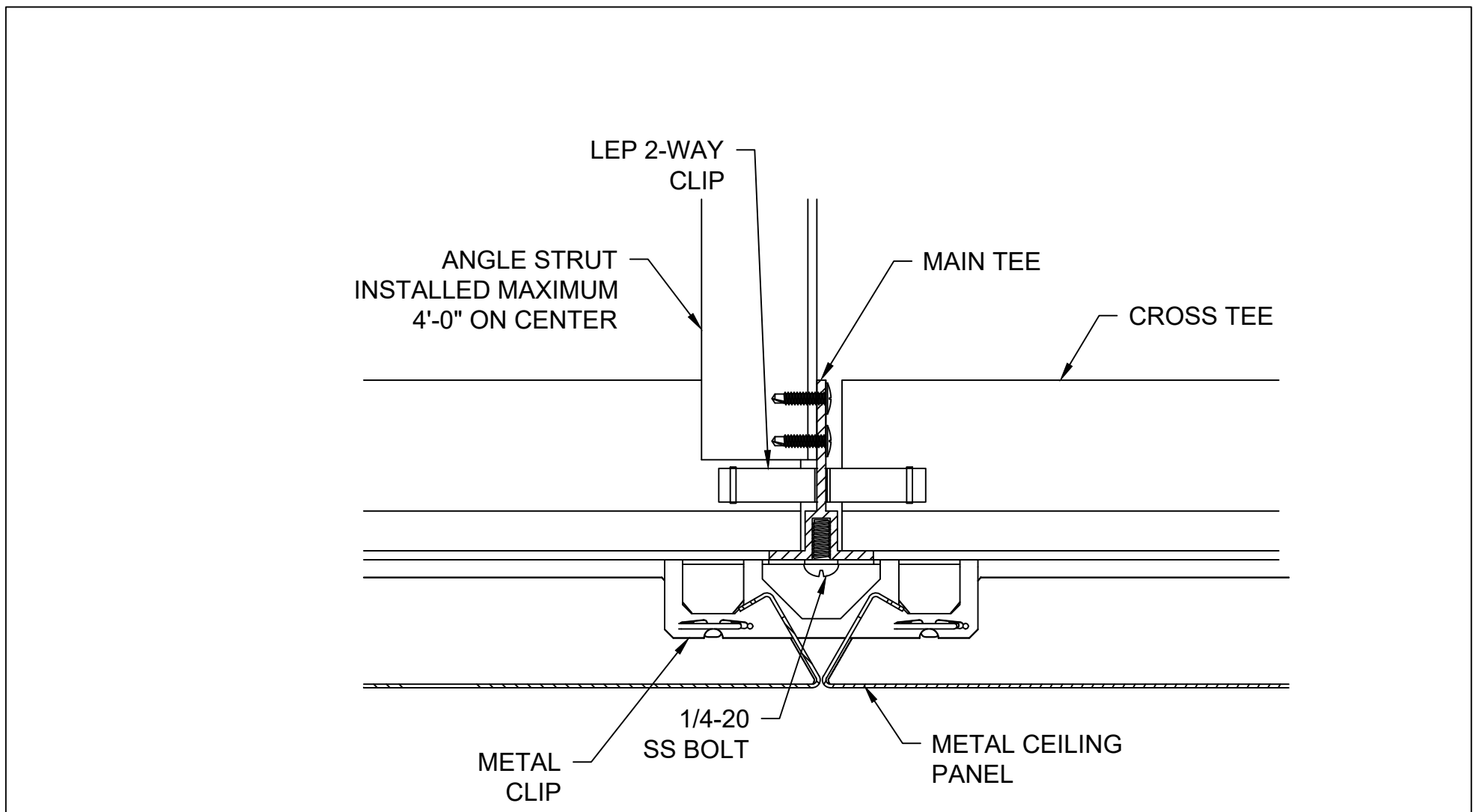
5 CEILING TRANSITION DETAIL (DIFFERENT ELEVATIONS)
SCALE: 1" = 1'-0"



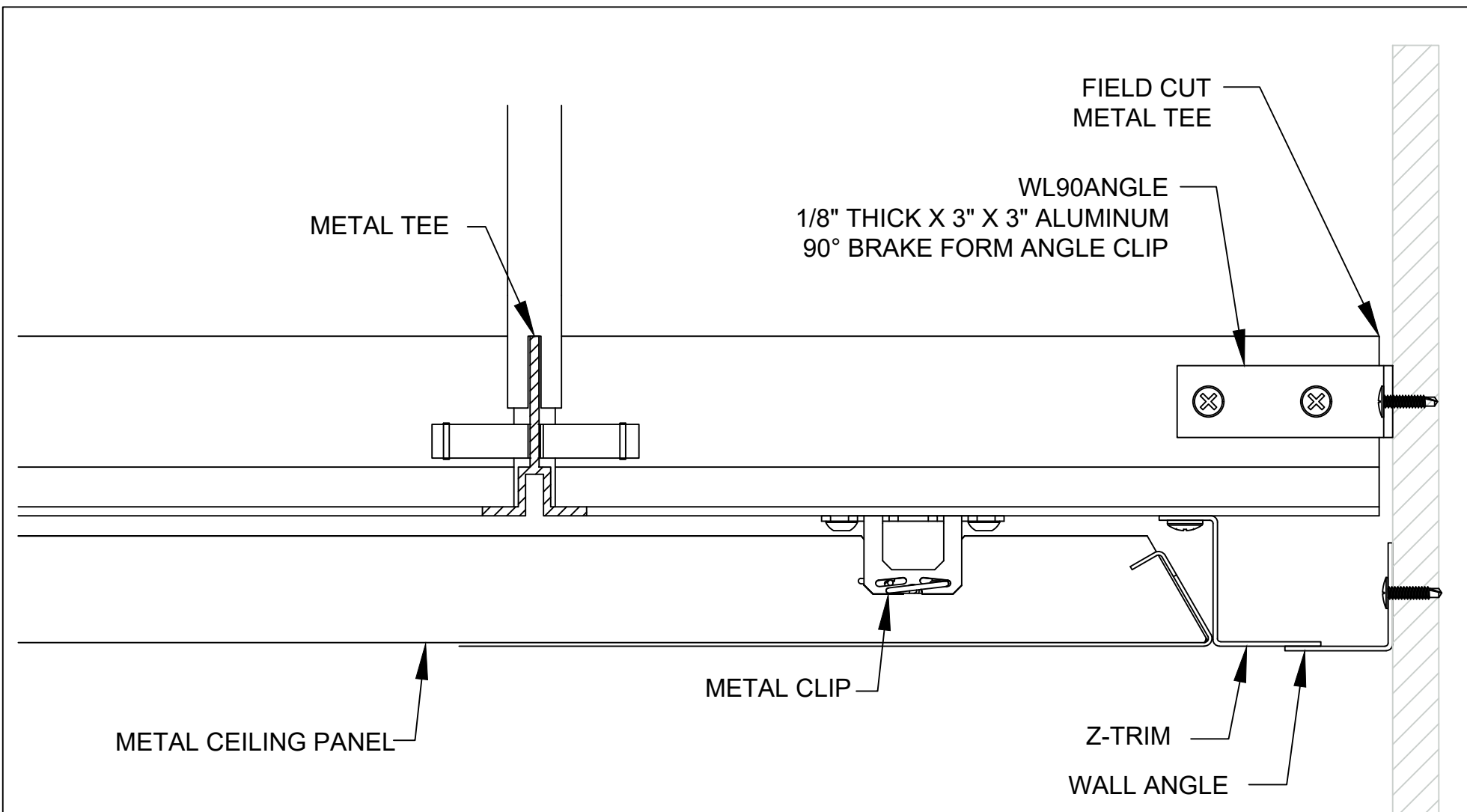
6 CEILING PANEL PERFORATION OPTIONS DETAIL
SCALE: NO SCALE



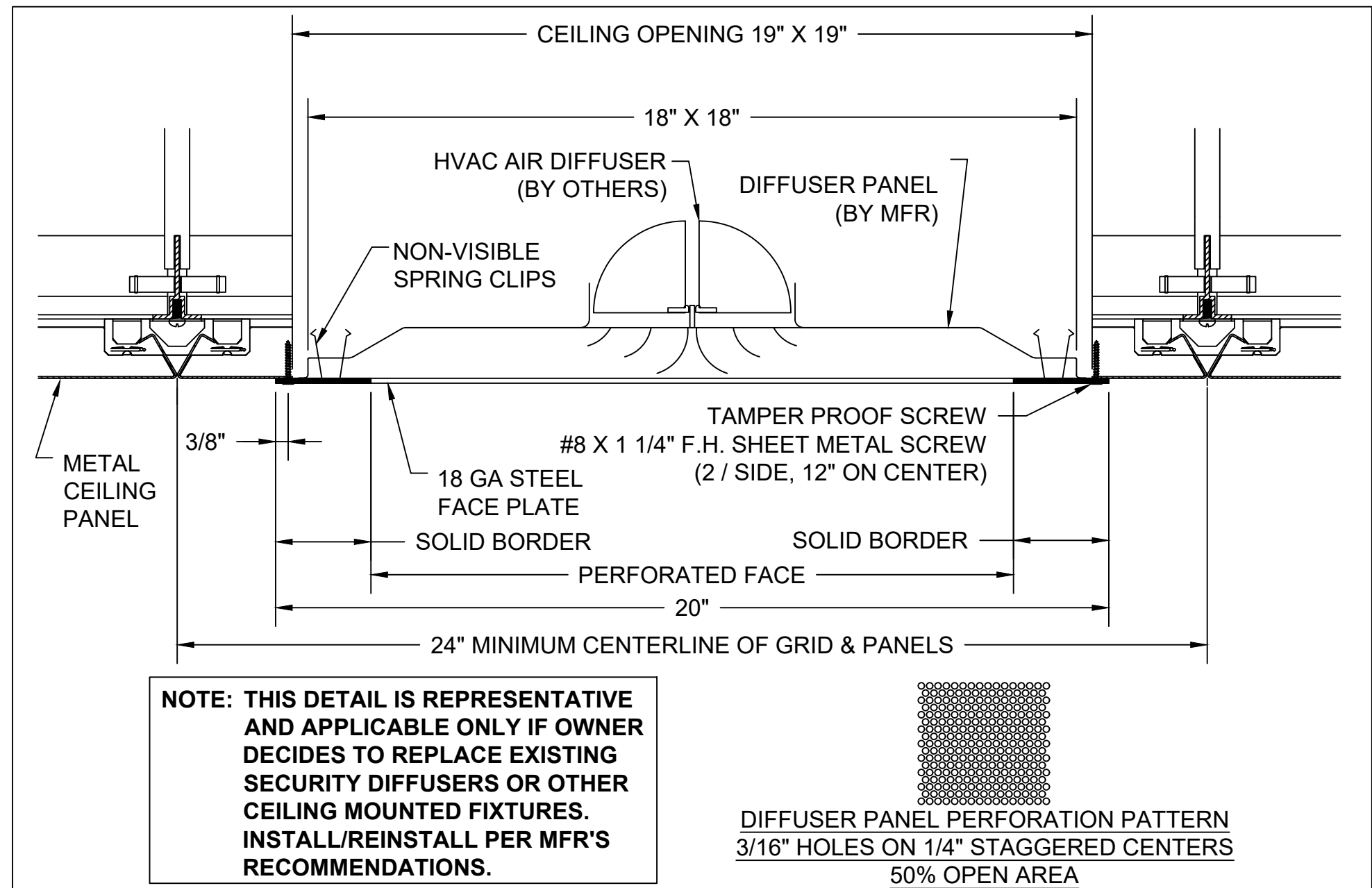
7 COMPRESSION STRUT PANEL JOINT SECTION DETAIL
SCALE: 1" = 1'-0"



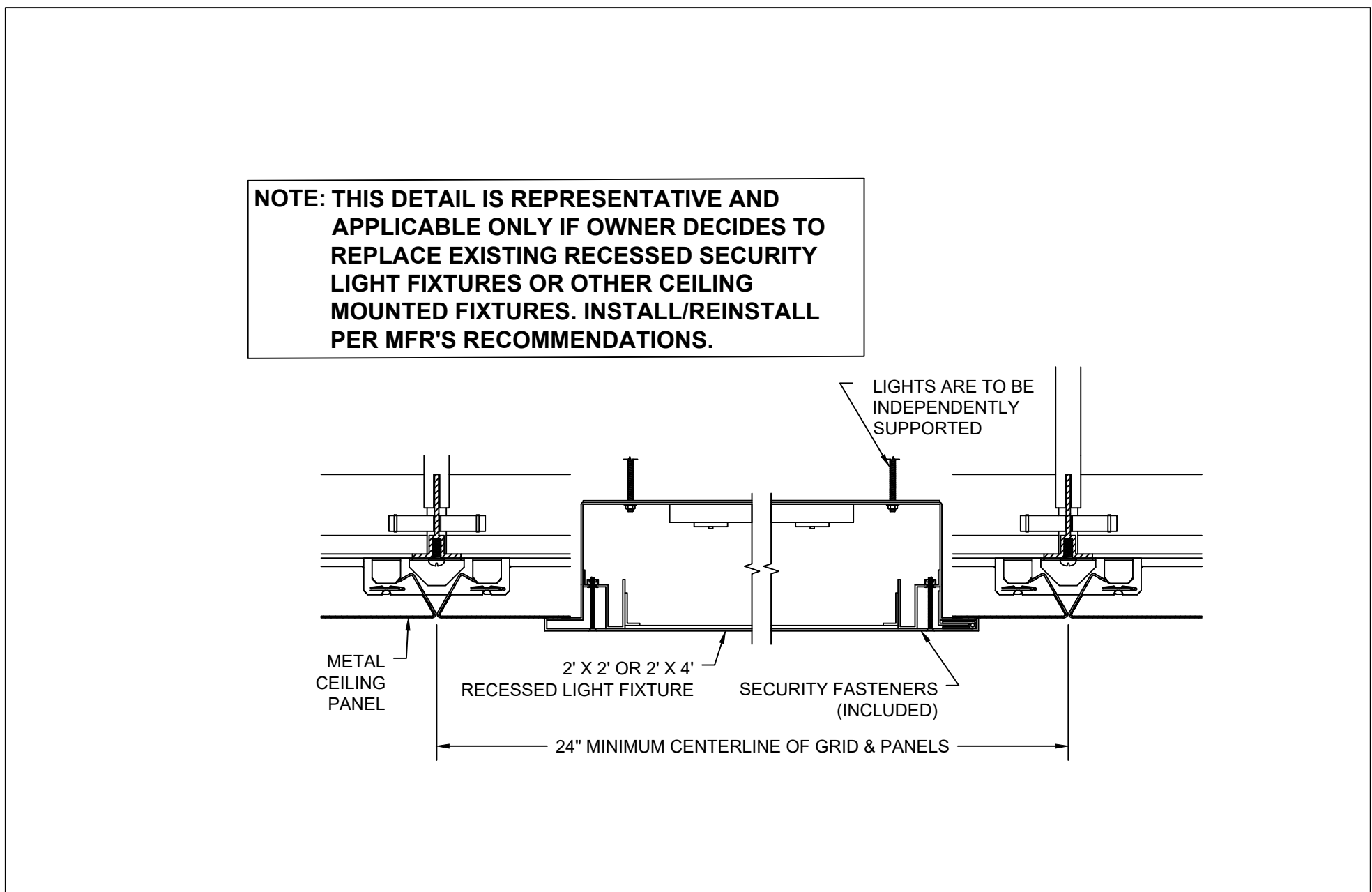
8 ANGLE STRUT PANEL JOINT SECTION DETAIL
SCALE: 1" = 1'-0"



9 FLOATING PERIMETER SECTION DETAIL
SCALE: 1" = 1'-0"



10 HVAC CEILING DIFFUSER SECTION DETAIL
SCALE: 1" = 1'-0"



11 RECESSED LIGHT FIXTURE SECTION DETAIL
SCALE: 1" = 1'-0"

NOTE: THESE DETAILS ARE REPRESENTATIVE AND VARIES WITH MANUFACTURERS/SYSTEM. GC SHALL SUBMIT SHOP DRAWINGS BASED ON THE SELECTED MANUFACTURER/SYSTEM FOR ARCHITECT REVIEW AND APPROVAL PRIOR TO ORDERING AND INSTALLATION. THE SELECTED PRODUCTS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.

DEMOLITION GENERAL NOTES
1. COMPLY WITH GOVERNING EPA NOTIFICATION REGULATIONS BEFORE BEGINNING SELECTIVE DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
2. MAINTAIN FIRE-PROTECTION FACILITIES IN SERVICE DURING SELECTIVE DEMOLITION OPERATIONS.
3. REMOVE, REPLACE, PATCH, AND REPAIR MATERIALS AND SURFACES CUT OR DAMAGED DURING SELECTIVE DEMOLITION, BY METHODS AND WITH MATERIALS SO AS NOT TO VOID EXISTING WARRANTIES.
4. VERIFY THAT UTILITIES HAVE BEEN DISCONNECTED AND CAPPED BEFORE PROCEEDING TO DEMOLITION.
5. MAINTAIN SYSTEMS TO REMAIN AND PROTECT THEM AGAINST DAMAGE DURING SELECTIVE DEMOLITION OPERATIONS.
6. LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS SERVING AREAS TO BE SELECTIVELY DEMOLISHED.
7. IF SERVICES/SYSTEMS ARE REQUIRED TO BE REMOVED, RELOCATED, OR ABANDONED, BEFORE PROCEEDING WITH SELECTIVE DEMOLITION PROVIDE TEMPORARY SERVICES/SYSTEMS THAT BYPASS AREA OF SELECTIVE DEMOLITION AND THAT MAINTAIN CONTINUITY OF SERVICES/SYSTEMS TO OTHER PARTS OF BUILDING.
8. CUT-OFF PIPE OR CONDUIT IN WALLS OR PARTITIONS TO BE REMOVED. CAP, VALVE, OR PLUG AND SEAL REMAINING PORTION OF PIPE OR CONDUIT AFTER BYPASSING.
9. REMOVE AIR-CONDITIONING EQUIPMENT WITHOUT RELEASING REFRIGERANTS.
10. ANY WORK INVOLVING A SERVICE SUSPENSION SHALL BE SCHEDULED AT LEAST 48 HOURS IN ADVANCE WITH THE OWNER. OBTAIN WRITTEN APPROVAL FROM THE OWNER WHEN INTERRUPTION OF SERVICES IS UNAVOIDABLE.
11. PERFORM NO WORK IN ANY BUILDING WHICH WOULD INTERFERE WITH ITS USE DURING NORMAL HOURS OF OCCUPANCY, UNLESS SPECIAL PERMISSION IS GRANTED BY THE OWNER. INCLUDED ARE OPERATIONS WHICH WOULD CAUSE OBJECTIONABLE NOISE OR SERVICE INTERRUPTIONS. COORDINATE WORKING HOURS WITH DALLAS COUNTY.
12. DO NOT CUT ANY STRUCTURAL MEMBER UNLESS SPECIFIC WRITTEN PERMISSION IS PROVIDED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
13. WHERE OPENINGS ARE CUT IN FIRE-RATED WALLS OR FLOORS, SEAL THE ANNULAR SPACE BETWEEN THE WORK INSTALLED AND THE FIRE-RATED CONSTRUCTION. SEALANT, AS APPLIED, SHALL BE FIRE-RATED TO MAINTAIN THE FIRE RATING OF THE CONSTRUCTION PENETRATED, AND SHALL BE APPROVED BY THE ARCHITECT.
14. CONTRACTOR SHALL COORDINATE PHASING WITH FACILITIES. SCOPE OF WORK REQUIRES CLOSE COORDINATION TO ENSURE THE SAFETY OF THE CONSTRUCTION TEAM, FACILITY STAFF, AND JUVENILES, IT IS IMPERATIVE THAT THIS IS CONSIDERED AT ALL TIMES IN THE CONSTRUCTION PHASING PLAN. CONTRACTOR SHALL INCLUDE A DISCOVERY PHASE TO DETERMINE SCOPE OF PHASING AND CONTRACTIBILITY AS WELL AS WEEKLY MEETINGS DURING CONSTRUCTION WITH FACILITY STAFF.

DIVISION 22 - PLUMBING SPECIFICATIONS
1. ALL POTABLE WATER PIPING SHALL BE TYPE K COPPER WITH LEAD FREE SOLDER JOINTS. 3/4" STAINLESS STEEL PIPING IS ALSO ALLOWED WITH WELDED OR MECHANICAL JOINTS. PIPING SHALL BE PRESSURE TESTED. CAP AND SUBJECT PIPING TO STATIC WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. USE PURGING AND DESINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IF METHODS ARE NOT PRESCRIBED, PROCEDURES DESCRIBED IN EITHER ANWA C651 OR ANWA C652. VALVES FOR POTABLE WATER SHALL BE BRONZE OR STAINLESS STEEL BY WATTS, WOODFORD, STOCKHAM, KITZ OR APPROVED EQUAL. PROVIDE WATER HAMMER ARRESTORS BY WADE, PPS OR ZURN. LOCATE WATER HAMMER ARRESTORS IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. POTABLE HOT WATER PIPING SHALL BE INSULATED WITH A MINIMUM R VALUE OF 5.56, OR 1.5" OF FIBERGLASS. POTABLE COLD WATER SHALL BE INSULATED WITH 1/2" THICK ARMAFLEX OR FIBERGLASS INSULATION. WHEN INSULATED PIPING PASSES THROUGH A WALL, CEILING OR FLOOR, THE INSULATION SHALL BE CONTINUOUS THROUGHOUT THE PENETRATION. INDOOR INSULATED PIPING SHALL HAVE A WHITE, ALL-SERVICE JACKET. OUTDOOR PIPING INSULATED SHALL HAVE AN EMBOSSED ALUMINUM JACKET. HORIZONTAL PORTIONS OF RAIN LEADERS SHALL BE INSULATED WITH 1" THICK ARMAFLEX OR 1.5" THICK FOAM GLASS.
3. ALL ABOVEGROUND PIPING SHALL BE SUPPORTED FROM THE BUILDING'S STRUCTURE ONLY. PIPING SHALL BE ROUTED PARALLEL WITH THE BUILDING'S LINES.
4. VALVES SHALL BE BY AMERICAN, CRANE, GRINNELL, HAMMOND OR NIBCO. HORIZONTAL VALVES SHALL BE INSTALLED WITH VALVE STEM UPRIGHT OR AT A MAXIMUM OF 45 DEGREES FROM VERTICAL LINE.
5. CONTRACTOR SHALL PROVIDE (4) COPIES OF SUBMITTALS FOR ALL FIXTURES AND EQUIPMENT INSTALLED ON THE PROJECT, INCLUDING BUT NOT LIMITED TO: PLUMBING FIXTURES, VALVES, PIPING, VALVES, HANGERS, INSULATION AND FITTINGS.
6. ALL PLUMBING WORK SHALL BE AS PER ALL PERTINENT CODES AND STANDARDS.
7. ALL PLUMBING EQUIPMENT SUCH AS WATER HEATERS, PUMPS, STORAGE TANKS, OR MIXING VALVES SHALL BE PROVIDED WITH A NAMEPLATE, MATCHING THE TAG ON THE DRAWINGS. NAME PLATE SHALL BE CORROSION-PROOF AND WITH LETTERS MINIMUM OF 0.5" TALL. LABELS SHALL BE BY SETON AND SHALL MATCH ANSI Z35.5.
8. ALL PIPING AND EQUIPMENT SHALL BE SUPPORTED BY STRUCTURAL BEAMS, JOISTS AND/OR COLUMNS ONLY.
9. CONTRACTOR SHALL PROVIDE (2) COPIES OF AS-BUILT DRAWINGS TO OWNER AFTER ACCEPTANCE OF PROJECT.
10. ALL EQUIPMENT AND DEVICES INSTALLED ABOVE A HARD CEILING OR WITHIN WALL SHALL HAVE AN ACCESS PANEL LARGE ENOUGH TO REMOVE AND REPLACE EQUIPMENT OR DEVICE. REFER TO PLUMBING SUPPLY PLANS FOR ACCESS PANEL SIZE. PANEL SHALL BE SUBJECT TO APPROVAL BY ARCHITECT.

SHEET NUMBER	SHEET TITLE	ISSUE FOR BID
AD1.0A	CEILING DEMOLITION PLAN - LEVEL 1 - AREA A	YES
AD1.0B	CEILING DEMOLITION PLAN - LEVEL 1 - AREA B	YES
AD1.0C	CEILING DEMOLITION PLAN - LEVEL 1 - AREA C	YES
AD1.0D	CEILING DEMOLITION PLAN - LEVEL 1 - AREA D	YES
AD1.1D	CEILING DEMOLITION PLAN - LEVEL 2 - AREA D	YES
AD1.0E	CEILING DEMOLITION PLAN - LEVEL 1 - AREA E	YES
A2.0A	REFLECTED CEILING PLAN - LEVEL 1 - AREA A	YES
A2.0B	REFLECTED CEILING PLAN - LEVEL 1 - AREA B	YES
A2.0C	REFLECTED CEILING PLAN - LEVEL 1 - AREA C	YES
A2.0D	REFLECTED CEILING PLAN - LEVEL 1 - AREA D	YES
A2.1D	REFLECTED CEILING PLAN - LEVEL 2 - AREA D	YES
A2.0E	REFLECTED CEILING PLAN - LEVEL 1 - AREA E	YES
A3.01	CEILING DETAILS	YES

SHEET NUMBER	SHEET TITLE	ISSUE FOR BID
P0.01	PLUMBING GENERAL INFORMATION	YES
P0.02	PLUMBING SCHEDULE AND DETAILS	YES
P1.0C	PLUMBING DEMOLITION PIPING PLAN - LEVEL 1 - AREA C	YES
P2.0A	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA A	YES
P2.0B	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA B	YES
P2.0C	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA C	YES
P2.0D	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA D	YES
P2.1D	PLUMBING SUPPLY PLAN - LEVEL 2 - AREA D	YES
P2.0E	PLUMBING SUPPLY PLAN - LEVEL 1 - AREA E	YES

PLUMBING GENERAL NOTES
1. THE PLUMBING LAYOUT SHOWN ON THESE DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE CONDITIONS AT THE JOB SITE AND ALL THE OTHER TRADES INVOLVED.
2. THE CONTRACTOR SHALL FURNISH ALL NECESSARY PIPING, FITTINGS, VALVES, HARDWARE, SUPPORTS AND ACCESSORIES REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF ALL THE PLUMBING FIXTURES AS REQUIRED BY CODE, (INCLUDING ALL HANDICAPPED CODE AND "ADA" & "TAS" REQUIREMENTS.)
3. DO NOT SCALE LOCATIONS OR PARTITIONS FROM THIS DRAWING. THE CONTRACTOR SHALL REFER TO THE MANUFACTURER'S CUT-SHEETS, ROUGHING-IN DIMENSIONS, ARCHITECTURAL DRAWINGS, DETAILS, SPECIFICATIONS AND ALL OTHER INFORMATION RELATED TO THIS PROJECT, AS REQUIRED.
4. ALL NEW PIPING SHALL BE INSULATED AS PER SPECIFICATIONS.
5. THE CONTRACTOR SHALL COORDINATE ALL THE FLOOR AND PARTITION PENETRATIONS WITH JOISTS, GRADE BEAMS AND SLEEVES AS REQUIRED WITH STRUCTURAL ENGINEER BEFORE DRILLING OR CORE-BORING.
6. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS WITH A CODE APPROVED FIRE RATED MATERIAL AS REQUIRED TO MAINTAIN THE FIRE SEPARATION BETWEEN FLOORS/ROOF REQUIRED BY THE ARCHITECTURAL DRAWINGS.
7. THE CONTRACTOR SHALL SUBMIT MANUFACTURER'S SPECIFICATIONS AND CUT-SHEETS FOR ALL THE FIXTURES, FITTINGS AND COMPONENTS AS REQUIRED FOR FINAL APPROVAL BY THE ENGINEER BEFORE PURCHASING OR INSTALLING THEM.
8. THE FIXTURE SPECIFICATIONS (MANUFACTURER, MODEL, COLOR, TRIMS, ETC.) SHALL BE AS PER THE ARCHITECTS/ENGINEERS DRAWINGS AND SCHEDULES/SPECIFICATIONS.
9. THE CONTRACTOR SHALL TEST ALL NEW PIPING AND FIXTURES FOR PROPER OPERATION AND SHALL MAKE ALL NECESSARY REPAIRS AS REQUIRED TO PROVIDE A COMPLETE WORKING SYSTEM.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL THE AREAS AFFECTED BY HIS WORK TO THEIR ORIGINAL CONDITION AS REQUIRED BY THE ARCHITECT OR ENGINEER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE JOB-SITE AS REQUIRED BY THE LOCAL CODES AND REGULATIONS AND AS REQUIRED BY THE STATE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING, PERMITTING, AND CONDUCTING ALL THE INSPECTIONS AND TESTS REQUIRED BY THE LOCAL CODES, REGULATIONS AND AS REQUIRED BY THE STATE REPRESENTATIVE OR COMMISSIONING SPECIFICATIONS. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE OF COMMISSIONING INSPECTION TO ARCHITECT OR ENGINEER.
13. ALL WORK AND INSTALLATION SHALL BE DONE BY A LICENSED CONTRACTOR WITH EXPERIENCE IN THE WORK REQUIRED FOR THIS PROJECT.
14. ALL EQUIPMENT SHALL BE SUPPORTED FROM STRUCTURAL MEMBERS. NO WEIGHT CAN BE PLACED ON THE ROOFING MATERIALS OR INSULATION.
15. CONTRACTOR SHALL SAW-CUT ALL SLAB PENETRATIONS AND ENSURE THAT THEY ARE PROPERLY SEALED AND REMAIN WATERTIGHT.
16. CONTRACTOR SHALL ENSURE THAT ALL SLAB PENETRATIONS WITHIN THE SPACE ARE PROPERLY SEALED AND REMAIN WATERTIGHT.
17. ALL PIPING, CLAMPS, SUPPORTS, ETC. SHALL BE FASTENED TO JOISTS OR BEAMS. DO NOT ATTACH ANYTHING DIRECTLY TO THE DECK, CEILING SUPPORT SYSTEM OR DUCTWORK ABOVE.
18. ALL PIPING, VALVES, FITTINGS AND FIXTURES IN CONTACT WITH DOMESTIC WATER SHALL BE LEAD-FREE.
19. CONTRACTOR SHALL FURNISH AND INSTALL A PRESSURE REDUCING VALVE (PRV) IN THE POTABLE WATER LINE IF THE STREET PRESSURE IS 80 PSIG OR GREATER. THE DOWNSTREAM PRESSURE AFTER THE PRV SHALL BE INITIALLY SET FOR 50 PSIG (ADJUSTABLE).
20. ALL PIPING WITHIN A RETURN AIR PLENUM SHALL BE PLENUM RATED.
21. REMOVE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OFF-SITE, UNLESS INDICATED TO BE REMOVED AND SALVAGED OR REMOVED AND REINSTALLED.
22. EXISTING TO REMAIN: EXISTING ITEMS OF CONSTRUCTION THAT ARE NOT TO BE REMOVED AND THAT ARE NOT OTHERWISE INDICATED TO BE REMOVED, REMOVED AND SALVAGED, OR REMOVED AND REINSTALLED.

PIPING LEGEND
<div><div><div><div><div><div></div></div><div>HOT WATER (HW) Ø140F</div></div><div><div><div></div></div><div>EXISTING PIPING (E)</div></div></div><div><div><div></div></div><div>HOT WATER RETURN (HWR) Ø130F</div></div><div><div><div></div></div><div>DEMOLITION HATCH</div></div></div></div>
PIPING SYMBOLS
<div><div><div><div><div><div></div></div><div>PIPING</div></div><div><div><div></div></div><div>90° ELBOW DOWN</div></div></div><div><div><div></div></div><div>90° ELBOW UP</div></div><div><div><div></div></div><div>TEE DOWN</div></div></div><div><div><div></div></div><div>TEE UP</div></div></div>

DRAWINGS SYMBOLS

FLOW ARROW

CONNECT TO EXISTING

DETAIL NUMBER

DETAIL CALL-OUT

SHEET NUMBER

VALVES

BALL VALVE

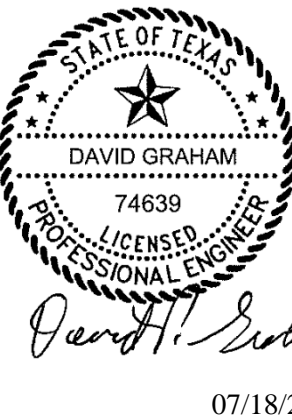
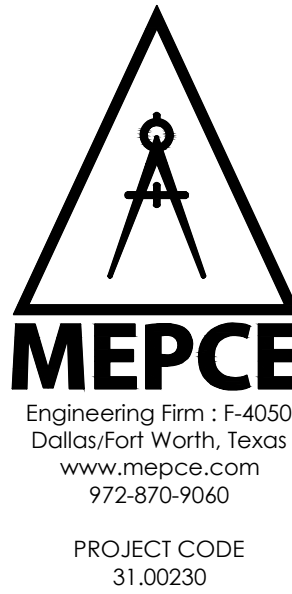
GATE VALVE

CHECK VALVE

ACCESSORIES

IN-LINE PUMP

ABBREVIATIONS
<div><div><div><div><div>CD</div><div>CONDENSATE</div></div><div><div>CO</div><div>CLEANOUT</div></div><div><div>CP</div><div>CIRCULATION PUMP</div></div><div><div>CW</div><div>COLD WATER</div></div><div><div>CWF</div><div>COLD WATER FILTERED</div></div><div><div>DB</div><div>DRYER BOX</div></div><div><div>ES</div><div>EMERGENCY SHOWER</div></div><div><div>EW</div><div>EYE WASH</div></div><div><div>EWG</div><div>ELECTRIC WATER COOLER</div></div><div><div>FCO</div><div>FLOOR CLEANOUT</div></div><div><div>FD</div><div>FLOOR DRAIN</div></div><div><div>FS</div><div>FLOOR SINK</div></div><div><div>GCO</div><div>GRADE CLEANOUT</div></div><div><div>GW</div><div>GREASE WASTE</div></div><div><div>HW</div><div>HOT WATER</div></div><div><div>HWR</div><div>HOT WATER RETURN</div></div><div><div>IMB</div><div>ICE MACHINE BOX</div></div><div><div>LAV</div><div>LAVATORY</div></div></div><div><div><div>MS</div><div>MOP SINK</div></div><div><div>MV</div><div>MIXING VALVE</div></div><div><div>NFRH</div><div>NON FREEZE ROOF HYDRANT</div></div><div><div>NFWH</div><div>NON FREEZE WALL HYDRANT</div></div><div><div>ORD</div><div>OVERFLOW ROOF DRAIN</div></div><div><div>PT</div><div>PLASTER TRAP</div></div><div><div>RD</div><div>ROOF DRAIN</div></div><div><div>RPZ</div><div>REDUCED PRESSURE ZONE BACKFLOW PREVENTER</div></div><div><div>SHWR</div><div>SHOWER</div></div><div><div>SP</div><div>SUMP PUMP</div></div><div><div>SS</div><div>SANITARY SEWER</div></div><div><div>TW</div><div>TEMPERED WATER</div></div><div><div>TWCO</div><div>TWO WAY CLEANOUT</div></div><div><div>TWR</div><div>TEMPERED WATER RETURN</div></div><div><div>UR</div><div>URNAL</div></div><div><div>WC</div><div>WATER CLOSET</div></div><div><div>WCO</div><div>WALL CLEANOUT</div></div><div><div>WH</div><div>WATER HEATER</div></div><div><div>WMB</div><div>WASHING MACHINE BOX</div></div></div></div></div>



HENRY WADE HOT WATER
SYSTEM REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

Designer: JF

Drawn By: DG

Quality Control: AB

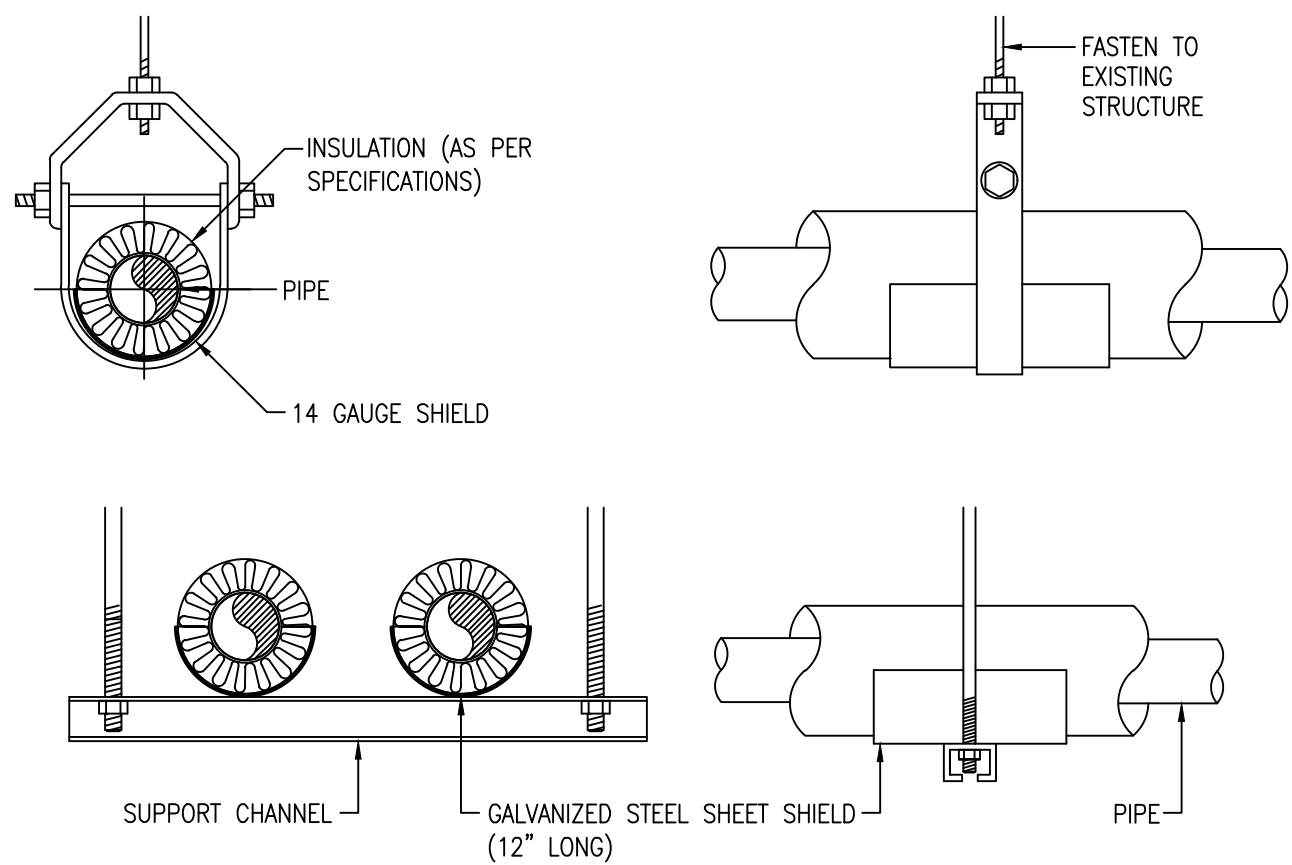
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PLUMBING GENERAL
INFORMATION

P0.01

CIRCULATING PUMP SCHEDULE									
MARK	SERVES	TYPE	EFF. %	GPM	TDH (FT)	ELECTRICAL		MANUFACTURER / MODEL NO.	
						HP	RPM /VOLT/PHASE		
CP-1	DOMESTIC HOT WATER RETURN	IN-LINE	62	45	30	3/4	1800 120/1	BELL & GOSSETT E-90-1.5AB	
<div>1. 110°F SYSTEM</div> <div>2. PROVIDE NEW 20 A/1 POLE BREAKER IN EXISTING PANEL "1LLC".</div> <div>3. PROVIDE AND INSTALL 3#10, 1#10G, 3/4"TC FROM NEW CIRCULATION PUMP TO EXISTING PANEL "1LLC", TO BE TIED INTO NEW BREAKER.</div>									

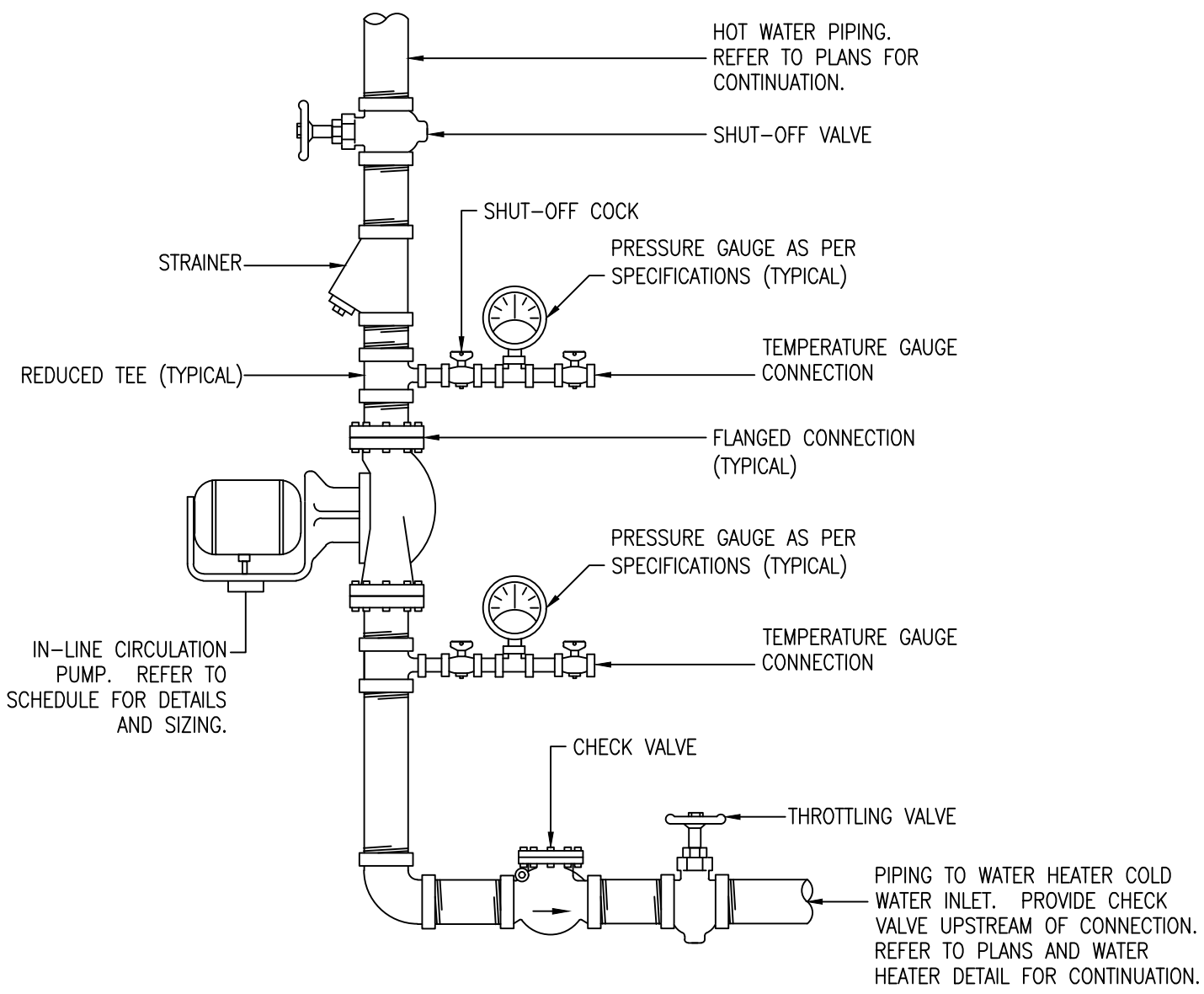
HOT WATER MAXIMUM PIPING LENGTHS			
MARK	FIXTURE	HW/TW	MAXIMUM HOT WATER PIPING LENGTH FROM HEATING SOURCE
L-1	LAVATORY	1/2"	2'
MS-1	MOP SINK	3/4"	21'
S-1/S-2 S-3/S-4	SINK	1/2"	43'
SHWR-1/ SHWR-2	SHOWER	1/2"	43'
WB-1	WASHING MACHINE BOX	1/2"	43'
*	EXTRACTOR	3/4"	43'
<div>NOTES:</div> <div>1. REFER TO 2015 INTERNATIONAL ENERGY CONSERVATION CODE TABLE C404.5.1 FOR MORE INFORMATION. SYSTEM SHALL COMPLY.</div> <div>2. HEATING SOURCE REFERS TO CIRCULATING HOT WATER LOOP, TANK WATER HEATER OR INSTANTANEOUS WATER HEATER.</div>			



- NOTES:
- ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE.
 - VAPOR BARRIER SHALL BE CONTINUOUS AT ALL JOINTS.

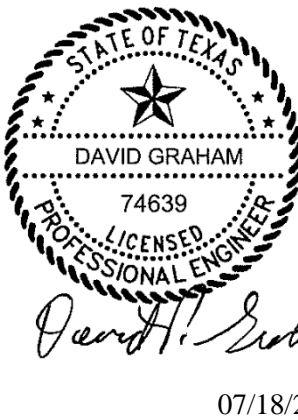
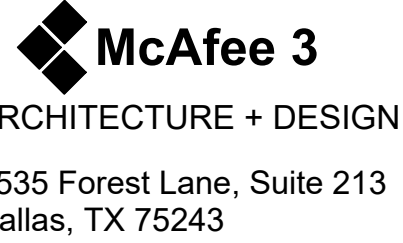
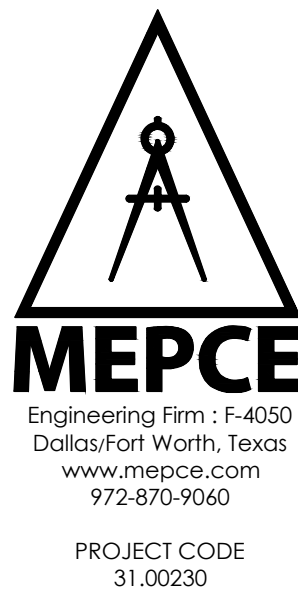
1 PIPE HANGER SUPPORT

SCALE: NONE



2 IN-LINE CIRCULATING PUMP SCHEMATIC

SCALE: NONE



HENRY WADE HOT WATER SYSTEM REPLACEMENT

ISSUED FOR BID: 07/18/2024

Revision No.

Designer: JF

Drawn By: DG

Quality Control: AB

31.00230

PLUMBING SCHEDULE AND DETAILS

P0.02

**HENRY WADE HOT WATER
SYSTEM REPLACEMENT**

ISSUED FOR BID: 07/18/2024

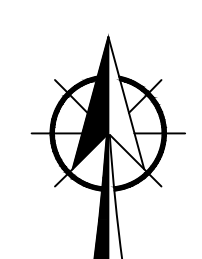
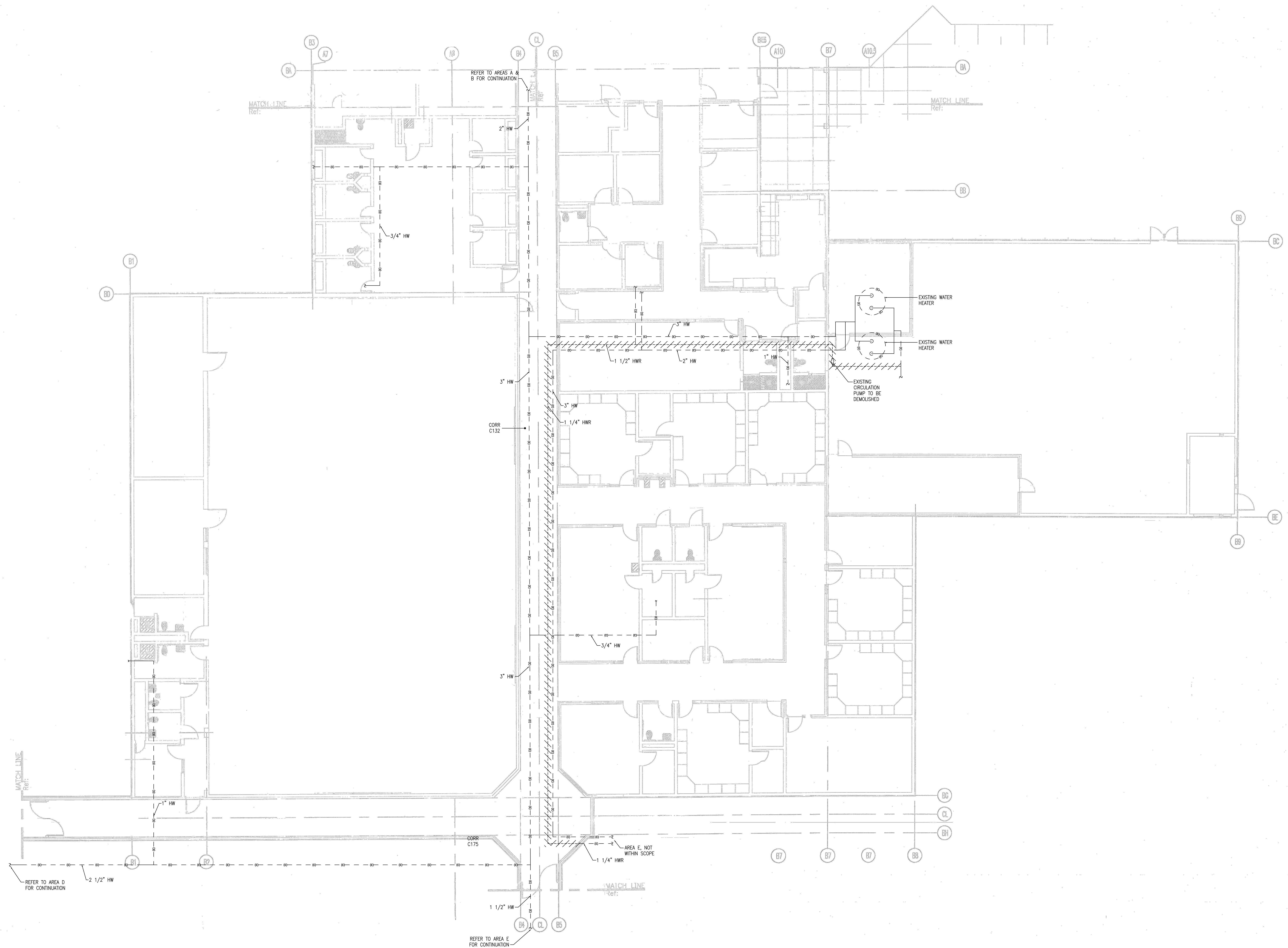
Revision No.

Designer: JF
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Quality Control: AB

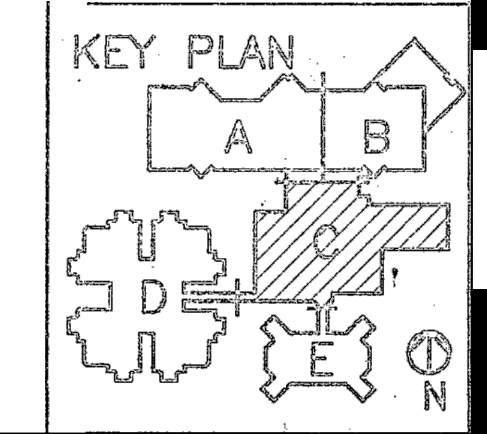
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PLUMBING DEMOLITION
SUPPLY PLAN - LEVEL 1 -
AREA C

P1.0C

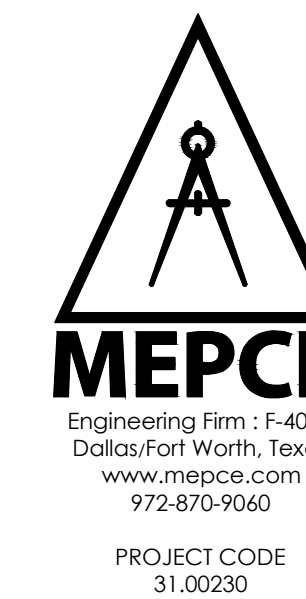


1 PLUMBING DEMOLITION SUPPLY PLAN - LEVEL 1 - AREA C
SCALE: 1/8" = 1'-0"



SUPPLY PLAN NOTES

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HENRY WADE HOT WATER SYSTEM REPLACEMENT

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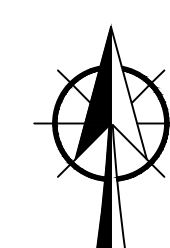
Drawn By: DG

Quality Control: AB

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PLUMBING SUPPLY PLAN
- LEVEL 1 - AREA A

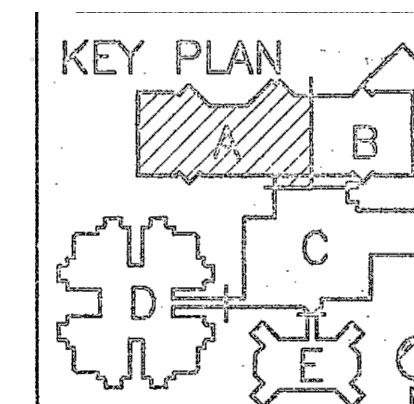
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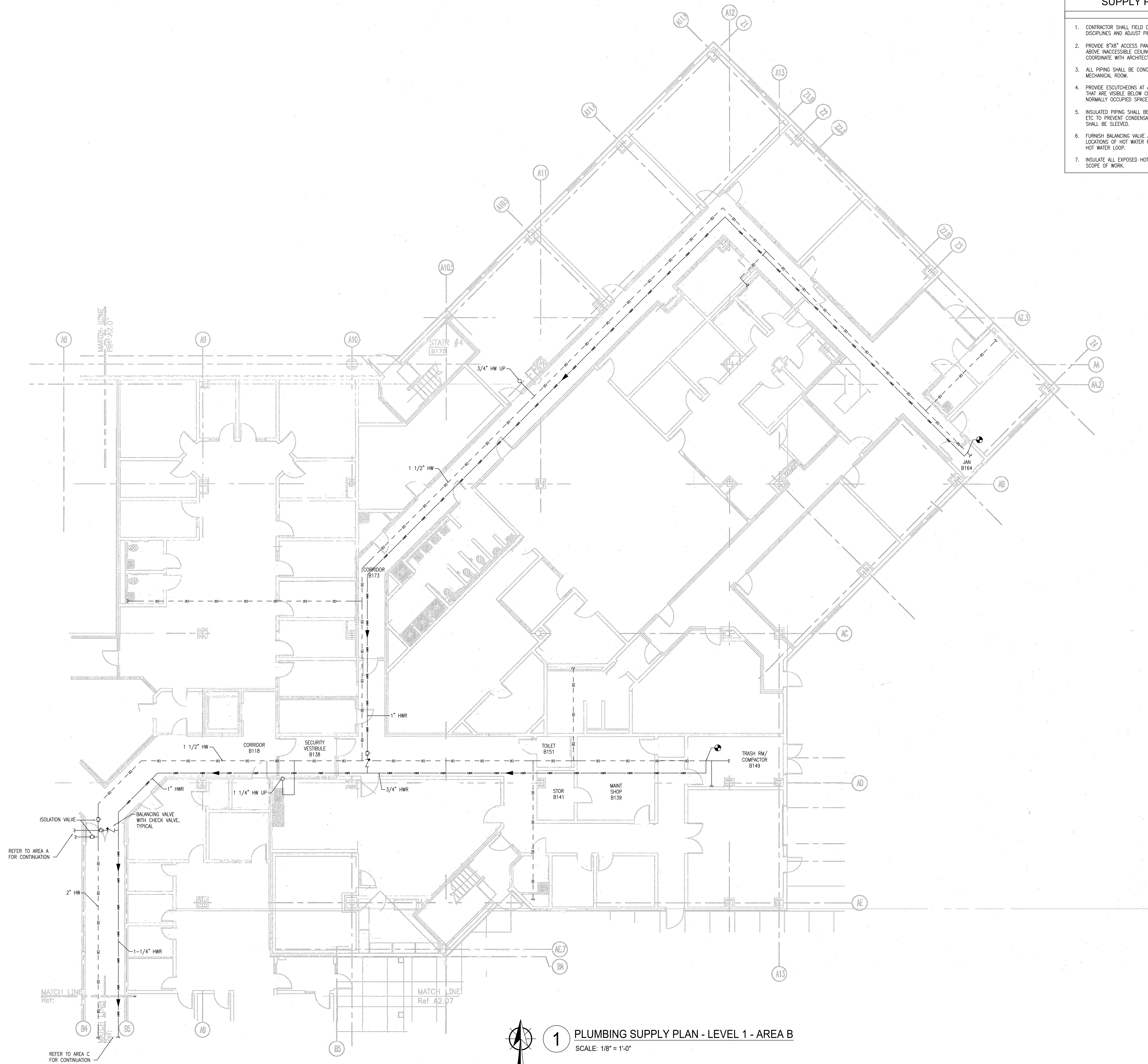


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PLUMBING SUPPLY PLAN - LEVEL 1 - AREA A

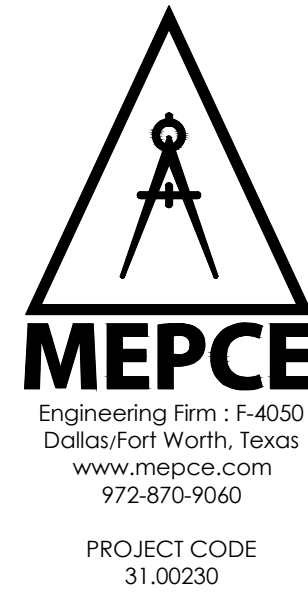
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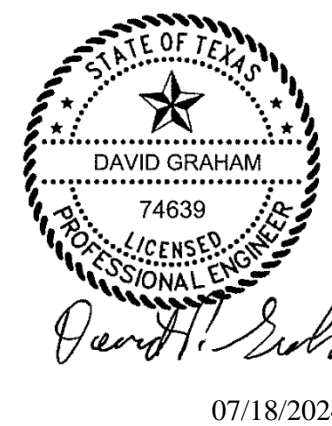


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**HENRY WADE HOT WATER
SYSTEM REPLACEMENT**

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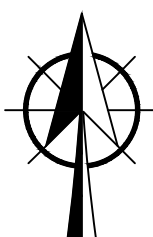
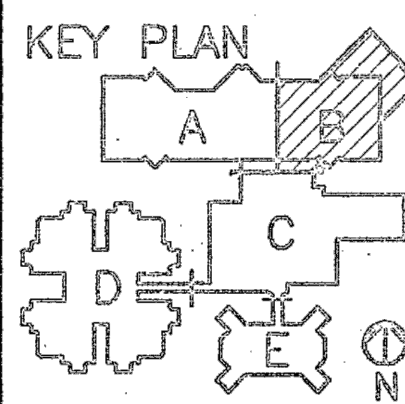
Drawn By: DG

Quality Control: AB

31.00230

PLUMBING SUPPLY PLAN
- LEVEL 1 - AREA B

P2.0B



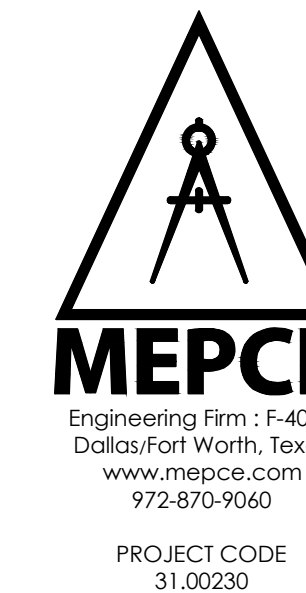
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PLUMBING SUPPLY PLAN - LEVEL 1 - AREA B

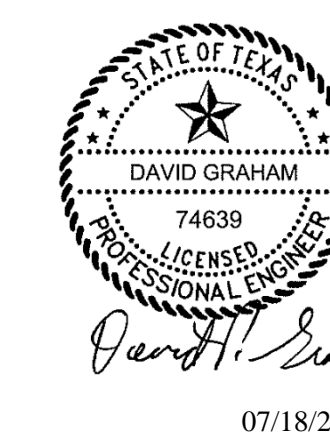
SCALE: 1/8" = 1'-0"

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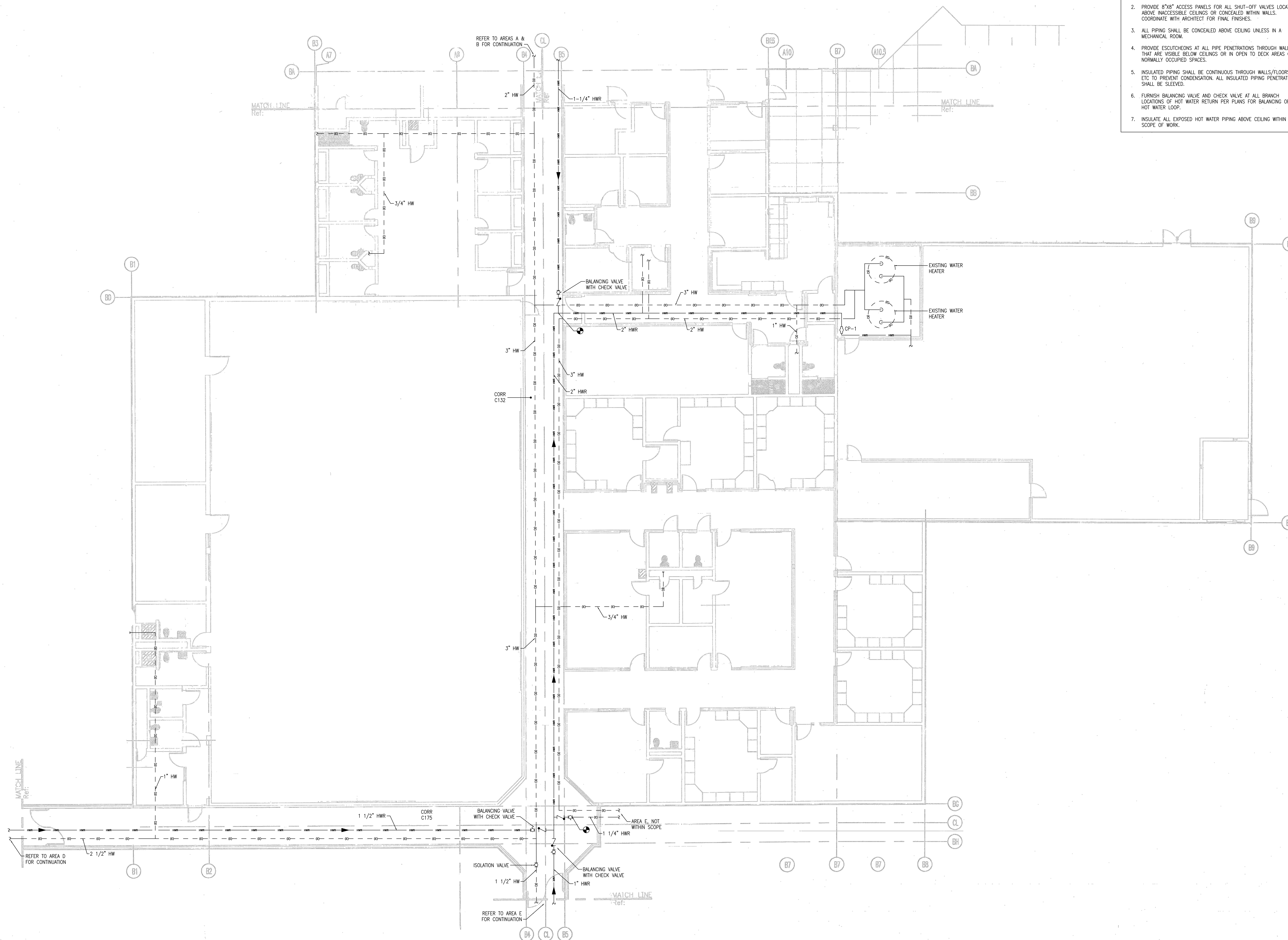
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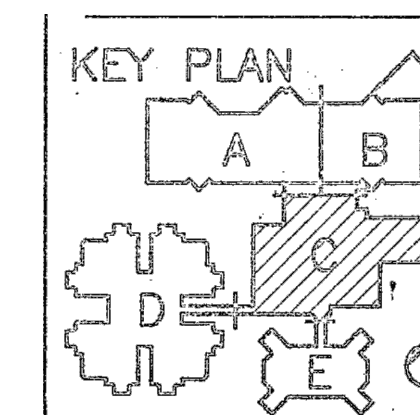
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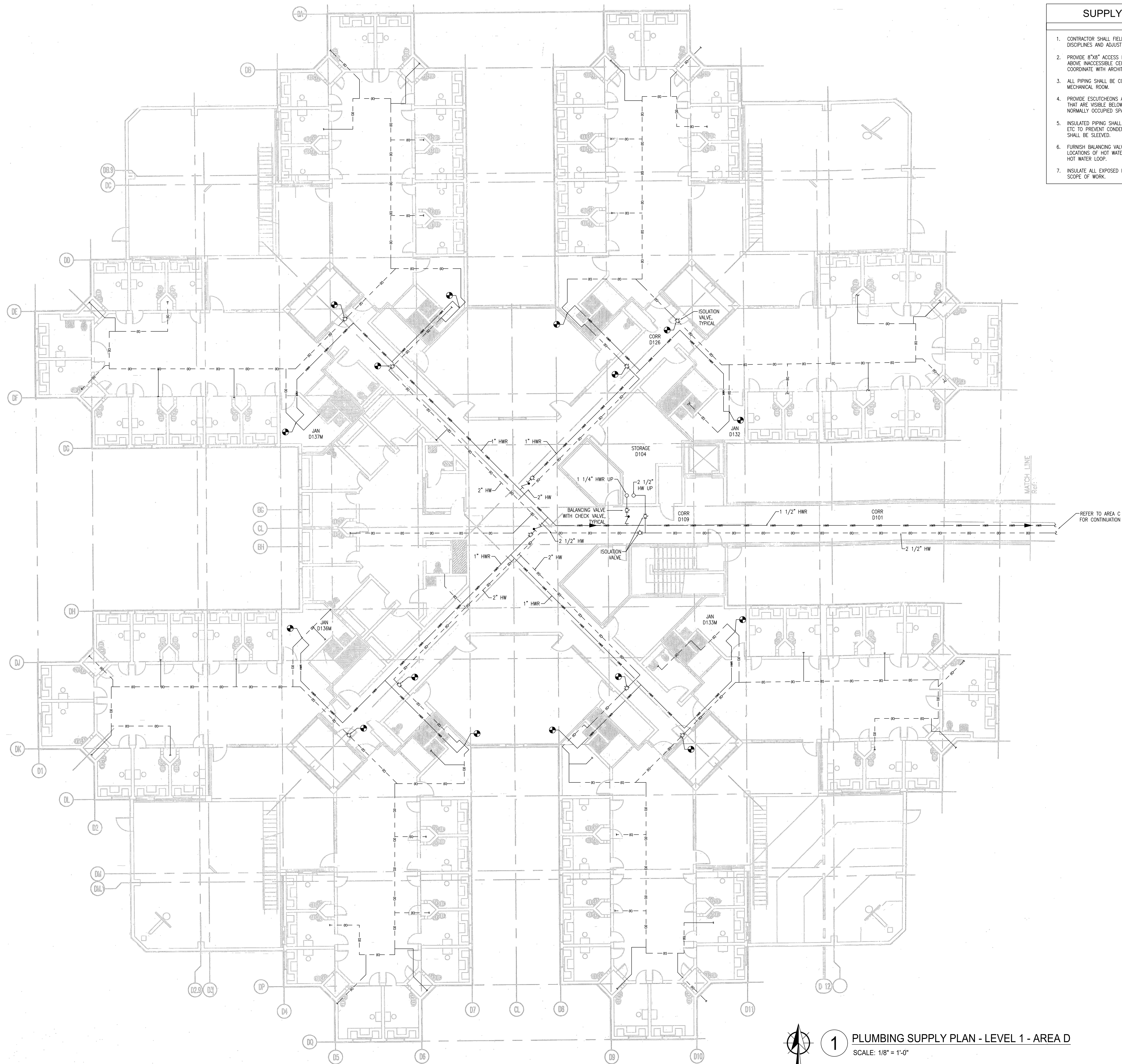
PLUMBING SUPPLY PLAN
- LEVEL 1 - AREA C

P2.0C



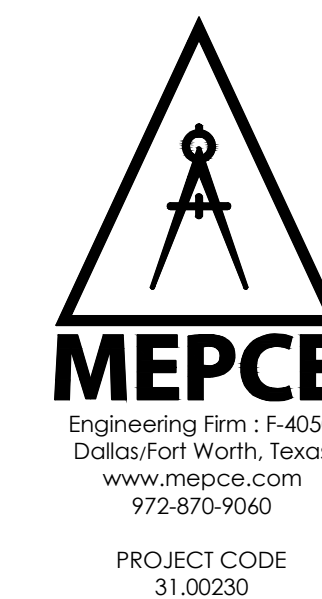
1 PLUMBING SUPPLY PLAN - LEVEL 1 - AREA C
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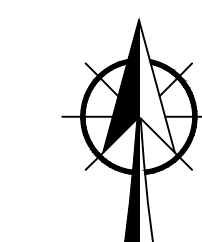
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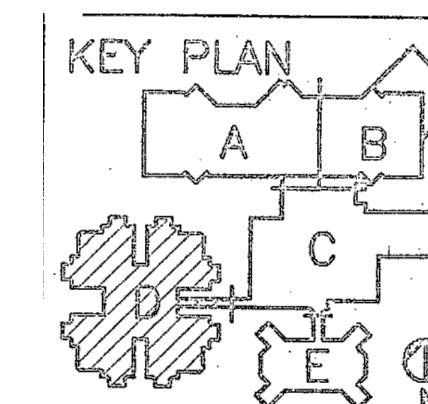
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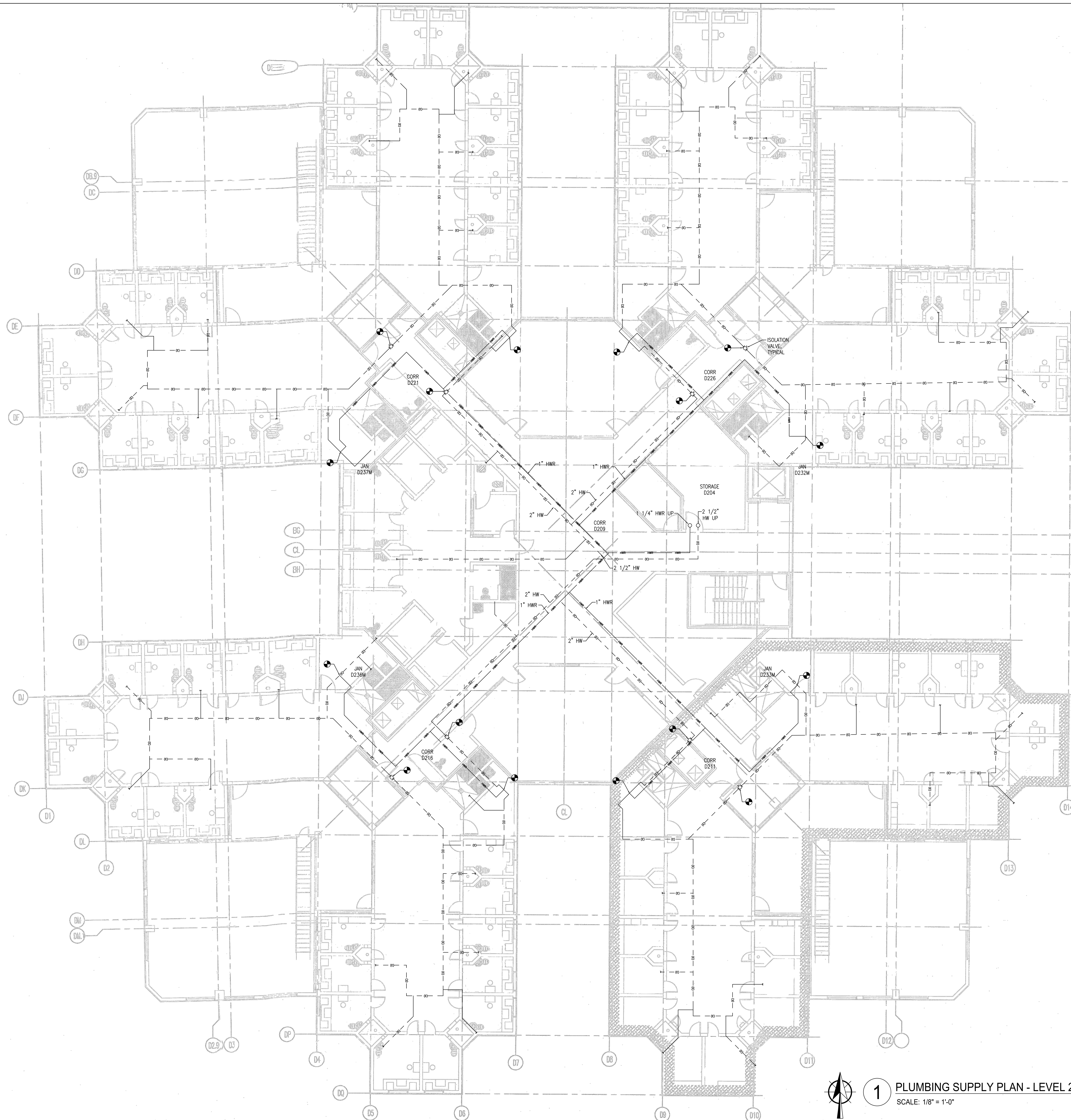
PLUMBING SUPPLY PLAN
- LEVEL 1 - AREA D

P2.0D



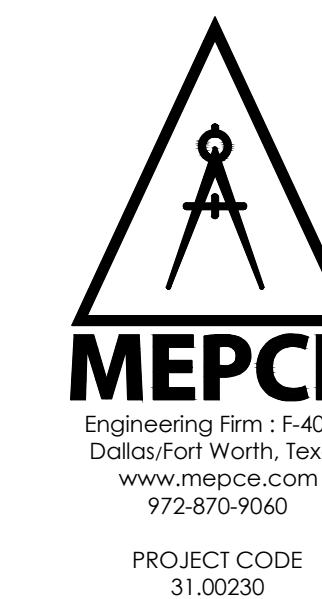
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SCALE: 1/8" = 1'-0"



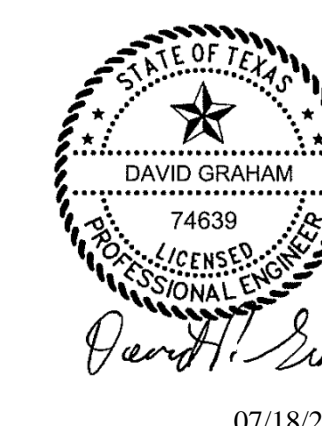


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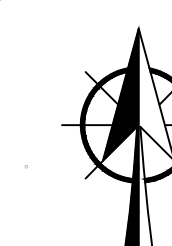
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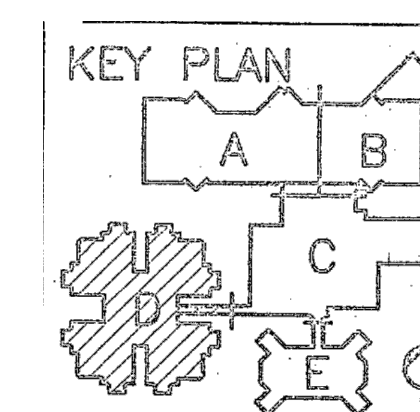
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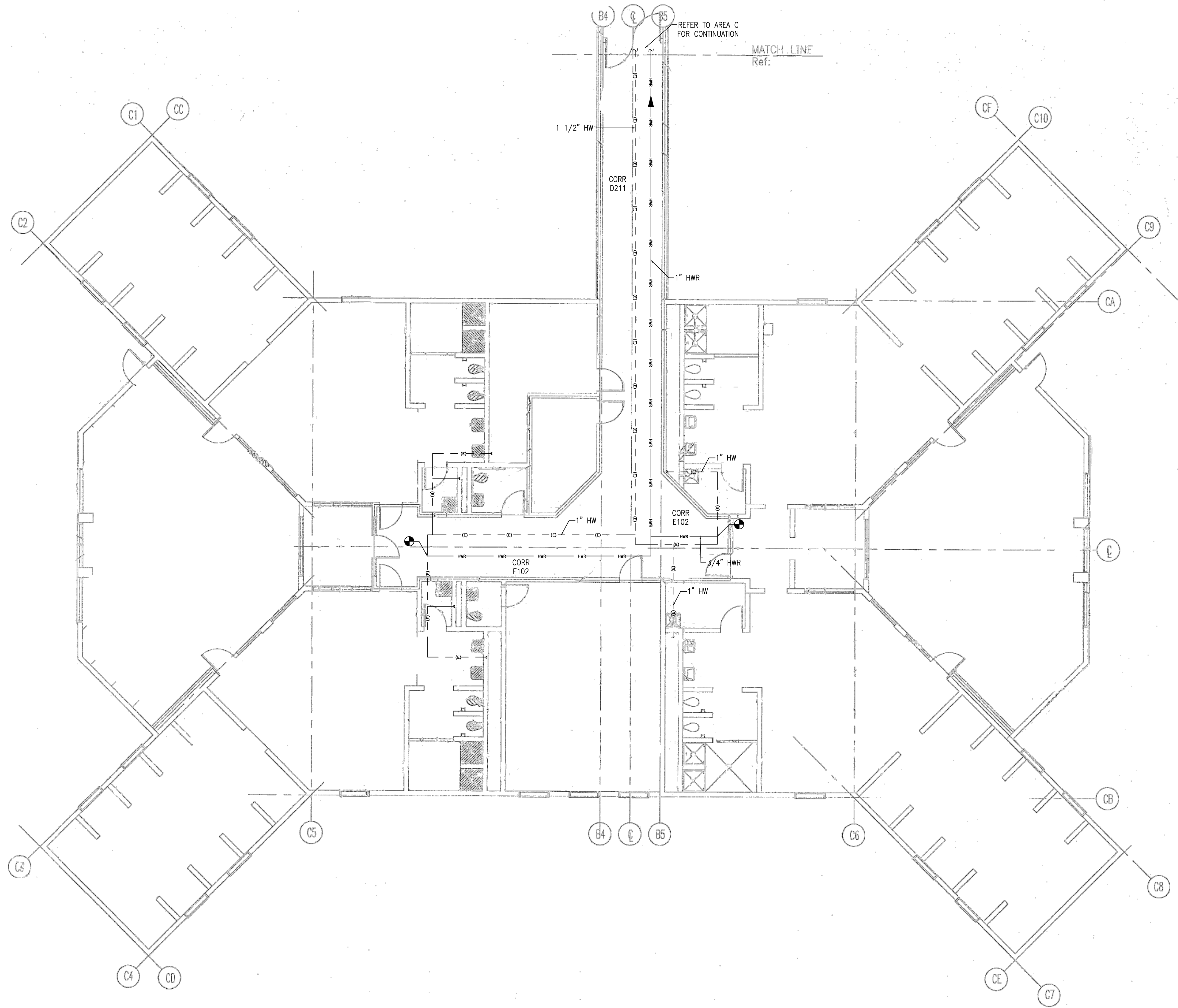
PLUMBING SUPPLY PLAN
- LEVEL 2 - AREA D

P2.1D

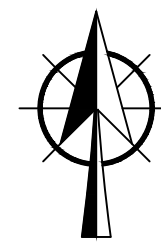


1 PLUMBING SUPPLY PLAN - LEVEL 2 - AREA D
SCALE: 1/8" = 1'-0"

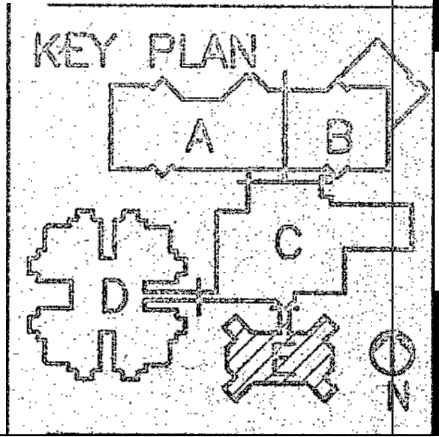




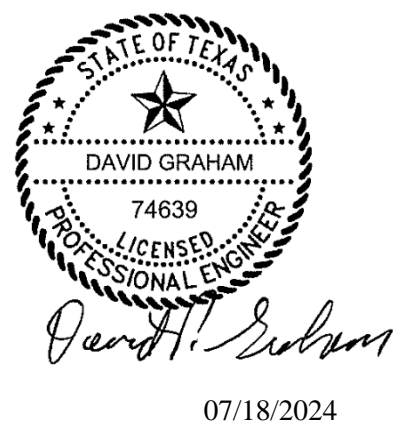
- | SUPPLY PLAN NOTES | |
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1 PLUMBING SUPPLY PLAN - LEVEL 1 - AREA E
SCALE: 1/8" = 1'-0"



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Quality Control: AB

31.00230

PLUMBING SUPPLY PLAN
- LEVEL 1 - AREA E

P2.0E

**Solicitation No.: 2025-035-7060, Pre-Bid Meeting Date: Tuesday, April 29, 2025, 1:00 p.m.
Project Title: Replacement of Hot Water Piping System and Security Ceiling at Henry
Wade Juvenile Justice Center, Bid Due Date: May 8, 2025, 2:00 p.m.**



INVITATION FOR BID

Solicitation No.: 2025-035-7060, Pre-Bid Meeting Date: Tuesday, April 29, 2025, 1:00 p.m.
Project Title: Replacement of Hot Water Piping System and Security Ceiling at Henry Wade Juvenile Justice Center, Bid Due Date: May 8, 2025, 2:00 p.m.

Scope of Work/Specifications

I. Introduction, Purpose and Intent

This is a one-time construction contract for the upgrade and replacement of the hot water piping system for the Henry Wade Juvenile Justice Center. The project will include the replacement of the hot water return piping, insulation, hangers and supports, and circulating pumps. The project scope will also include the replacement of the security ceiling in areas where the hot water piping is to be replaced.

II. Specification

Specifications - Exhibit 1
Drawings - Exhibit 2

III. References

Dallas County request reference letters from at least three sources/customers where the bidder has provided services of similar size and scope for all solicitations that will result in services.

IV. Pre-Bid Meeting Schedule, Questions, and Inquiries

During the solicitation process bidders are required to limit their communication regarding this project to the Buyer referenced herein. A pre-bid meeting will be held by the County whereby the bidders will have an opportunity to ask the requesting department(s) questions and/or obtain clarification. The pre-bid meeting will be the only time when bidder and requesting department(s) will communicate directly, thereafter, all communication associated with this project shall be address through the County's purchasing platform, <https://www.bidnetdirect.com/texas/dallas-county>, to the assigned Buyer. The County will respond to all questions by way of addendum which will be posted as part of the solicitation. The County, its agents, and employees shall not be responsible for any information given by way of verbal communication.

Pre-bid conference **Tuesday, April 29, 2025, 1:00 at p.m. (CST)**, the pre-bid meeting will be conducted through a conference call.

[Join the meeting now](#)

Meeting ID: 291 476 018 124 0

Passcode: 9cE6pb37

Dial in by phone

[+1 469-208-1731,437220166#](#) United States, Carrollton

[Find a local number](#)

Phone conference ID: 437 220 166#

**Solicitation No.: 2025-035-7060, Pre-Bid Meeting Date: Tuesday, April 29, 2025, 1:00 p.m.
Project Title: Replacement of Hot Water Piping System and Security Ceiling at Henry
Wade Juvenile Justice Center, Bid Due Date: May 8, 2025, 2:00 p.m.**

The deadline for the submission of questions is on **May 1, 2025, at 2:00 p.m. (CST)** through BidNet.

V. Term and Commencement Date

This will be a one-time purchase commencing upon award by Commissioners Court, upon meeting any insurance and/or bonding requirements (if applicable) and/or fully executing the contract (if applicable).

VI. Award Method

The County's intent is to award this solicitation in its *entirety* but the County reserves the right to award in the method that is most advantageous to the County.

The County reserves the sole discretion to determine whether a solicitation response is responsive. County reserves the right to reject any or all bids and to waive minor irregularities or discrepancies in any solicitation response as may be in the best interest of County. Late bids will not be considered for award.

Upon expiration of the Contract, the Contractor agrees to hold over under the terms and conditions of this contract for such a period of time as is reasonably necessary to re-solicit (not to exceed 90 calendar days unless mutually agreed on in writing).

VII. Bid Submittal and Exception Requirements

To be considered for award, the bid response must be submitted by **May 8, 2025, at 2:00 p.m. (CST)**. Bid responses shall be submitted electronically through BidNet, the County's online public solicitation platform <https://www.bidnetdirect.com/texas/dallas-county>. Although the County prefers submissions in electronic form, a bidder may elect to submit their bid in hard copy. To submit in hard copy, the vendor may deliver or ship to: Dallas County Purchasing Department, Records Building 500 Elm Street, Suite 5500, Dallas, Texas 75202. When submitting a bid in hard copy, the County requires **two (2)** duplicate hardcopies (one original and one copy) to be submitted.

Any exceptions to the specifications/scope of work and/or terms and conditions shall be included in the solicitation response and shall appear in its own tab. Exception shall reference the page number, section and language for which exception is taken. The County reserves the right to reject any exception not in the best interest to the County or may lead the bid to be considered nonresponsive and not considered for award.

Note: Dallas County implemented a new public solicitation platform and will be posting all solicitations for goods, services, and construction through BidNet. Vendors seeking to do business with Dallas County will be required to register, use this link to begin your registration. <https://www.bidnetdirect.com/texas/dallas-county>. By registering, vendors will be able to receive, at no cost, solicitation notices, view open solicitations, and submit their response online to desired business opportunities.

Solicitation No.: 2025-035-7060, Pre-Bid Meeting Date: Tuesday, April 29, 2025, 1:00 p.m.
Project Title: Replacement of Hot Water Piping System and Security Ceiling at Henry Wade Juvenile Justice Center, Bid Due Date: May 8, 2025, 2:00 p.m.

VIII. Communication

Upon release of the solicitation and during the process, vendors /firms and their employees of related companies as well as paid or unpaid personnel acting on their behalf shall not contact or participate in any type of contact in relation to this solicitation with Dallas County employees, department heads and/or elected officials. Such contact may result in the vendor being disqualified. All questions and request for information related to this solicitation must be coordinated through **Marvin Kines**.

All questions regarding this solicitation are to be submitted in writing to **Marvin Kines**, Dallas County Purchasing Department via BidNet <https://www.bidnetdirect.com/texas/dallas-county>, the County's procurement platform. If the bidder does not have access to the County's solicitation platform, the bidder may submit their questions in writing via email to marvin.kines@dallascounty.org. Please reference the IFB Solicitation number in the subject of the email.

All questions, comments and requests for clarification must reference the IFB solicitation number on all correspondence to Dallas County. Any oral communications shall be considered unofficial and non-binding.

Only written responses to written communication shall be considered official and binding upon the County. The County reserves the right, at its sole discretion, to determine appropriate and adequate responses to the written comments, questions, and requests for clarification.

NOTE: All addenda and/or any other correspondence (general information, question and responses) to this IFB will be made available exclusively through the Dallas County website for retrieval. Bidders are solely responsible for frequently checking this website for updates to this IFB. Addenda can be located at the following web address: <http://www.dallascounty.org/department/purchasing/currentbids.php> (go to the appropriate IFB number, click on the appropriate hyperlink to view and/or download solicitation.)

IX. Location and Invoicing

The County shall pay invoices in 30 days. In order for the County to pay invoices in 30 days, the vendor's invoice must be correct, and reflect the work or goods delivered to the County. The 30 days begin when the County has received a correct invoice reflecting the work or goods delivered. If the County receives an invoice that is not correct and/or reflective of work or goods that have been delivered, the County will request a corrected invoice, and the 30-day period will begin once the correct invoice has been received. All work described in the vendor invoice must have been delivered in compliance with the terms of the contract.

Invoices shall be submitted monthly to the County for payment, unless both parties agree to alternative arrangement based on project milestones. Each invoice submitted for payment shall include, at a minimum, the following information:

- Name and address of the department for which services were provided
- Purchase order number
- Contact information of County staff who placed order (name, phone number, department)

Solicitation No.: 2025-035-7060, Pre-Bid Meeting Date: Tuesday, April 29, 2025, 1:00 p.m.
Project Title: Replacement of Hot Water Piping System and Security Ceiling at Henry Wade Juvenile Justice Center, Bid Due Date: May 8, 2025, 2:00 p.m.

- Date of order or Service
- Detailed description of each service
- Price of good or services (charges for all services covered by PO/contract are to be separately stated and explained)
- Unit pricing
- Total cost of goods/services

Submitting invoices without the above information will cause delays in payment processing. The County will not be responsible for payment delays due incorrect invoices or invoices sent to the wrong address.

X. Documents Submitted with Bid

1. Attachment S - Small Business Enterprise (SBE) Forms must be submitted with bid.

XI. Opening of Bids

Bid reading shall be conducted at 2:30pm (CST) on the day the bids are due. The reading will be conducted via a live meeting online at (insert bid opening link here). Bids will be publicly opened in compliance with public bid opening statutory requirements.

XII. Review of Bids

1. The County will review bids complying with the due date and time to determine whether bids are responsive and responsible and whether the bid meets minimum requirements.
2. The County may conduct all necessary inquiries or investigations, including but not limited to, contacting references to verify the statements, documents, and information submitted in connection with the bid.
3. Please be aware that Dallas County may use sources of information not supplied by the bidder concerning the abilities to perform this work or meet the minimum requirements. Such sources may include current or past customers of the organization; current or past suppliers; articles from industry newsletters or other publications or from non-published sources made available to Dallas County.

XIII. Bid Pricing

1. Bid pricing shall be firm for the entire contract unless otherwise stated herein. Costs not included or calculated in the applicable unit prices as bid will not be paid by the County, regardless of the intentions of the bidder when the bid was submitted and regardless that those costs were actually incurred.

XIV. Insurance Requirements

Any Contractor or Vendor that conducts business with Dallas County, whether it is for goods and/or services, must maintain lawful worker's compensation/self-insured employee coverage requirements and adequate liability limitations

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Within ten (10) days after contract award or prior to the commencement of any work or delivery, the Purchasing Agent requires the successful Contractor(s)/Vendor(s) to submit verification of the following coverage. The insurance coverages, except Workers Compensation and Professional Liability, required by this Contract, shall name Dallas County and its elected and appointed boards, officers, officials, agents, representatives, directors, employees and volunteers, as additional insured(s) (as the interest of each insured may appear).

Contractor at its own expense, consistent with its status as an independent contractor will carry, purchase and maintain insurance coverage, the minimum insurance coverage set forth immediately below, with companies authorized to do insurance business in the State of Texas or eligible surplus lines insurers operating in accordance with the *Texas Insurance Code*, having an A.M. Best Rating of "A" or better, and in amounts not less than the following minimum limits of coverage:

The policies may provide coverage, which contains deductibles or self-insured retention. Such deductibles and/or self-insured retention shall not be applicable with respect to the coverage provided to Dallas County under such policies. The Contractor shall be solely responsible for all deductibles and/or self-insured retention.

All insurance required herein shall be maintained in full force and effect throughout the term of this contract, including all extensions or renewals.

- 1.1. Workers Compensations and Employer's Liability Insurance or self-insured employee in the amount and in compliance with the provisions as provided for by Texas Law as established by the Texas Workers Compensation Act, Title 5, Subtitle A, Texas Labor Code for all his employees assigned to operate or work under this Contract. In the event the Contractor elects to sublet any work, Contractor shall require Sub-Contractors to provide Workers' Compensation Insurance for all of the latter's employees unless the Contractor affords such employees protection. Contractors shall be responsible for workers' compensation insurance for subcontractors or sub-lessees who directly or indirectly provide service under Dallas County contract.

Workers' Compensation Insurance with statutory limits, and Employer's Liability Insurance with limits of not less than \$500,000:

Employers Liability - Each Accident	\$500,000
Employers Liability - Each Employee	\$500,000
Employers Liability - Policy Limit	\$500,000

Policies under this Section shall apply to State of Texas and include the following endorsements in favor of Dallas County:

- a. Waiver of Subrogation
- b. Thirty (30) day Notice of Cancellation

- 1.2. Commercial General Liability: Contract shall maintain Commercial General Liability Insurance coverage must include the following: (a) Premises; (b) Operations; (c)

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Independent Contractor's Protective Liability; (d) Products and Completed Operations; (e) Medical Expense; (f) Personal and Advertising Injury; (g) Contractual Liability; (h) Broad form property damage, to include fire legal liability. Such insurance shall carry in an amount not less than One Million and 00/100 (\$1,000,000.00) for bodily injury (including death), property damage, and blanket contractual coverage per occurrence with a general aggregate of Two Million and 00/100 (\$2,000,000.00) and products and completed operations aggregate of Two Million and 00/100 (\$2,000,000.00).

Policies under this Section shall apply to State of Texas and include the following endorsements in favor of Dallas County:

- a. Waiver of Subrogation
 - b. Thirty (30) day Notice of Cancellation
 - c. Additional Insureds: Dallas County and its elected and appointed boards, officers, officials, agents, representatives, directors, employees and volunteers.
- 1.3. Automobile Liability Insurance: Contractor shall maintain Automobile Liability Insurance covering all owned, hired and non-owned automobiles used in connection with work with limits not less than Five Hundred Thousand 00/100 (\$500,000.00) Combined Single Limit of Liability for Bodily Injury and Property Damage. Such insurance is to include coverage for loading and unloading hazards.

Policies under this Section shall apply to State of Texas and include the following endorsements in favor of Dallas County:

- a. Waiver of Subrogation
 - b. Thirty (30) day Notice of Cancellation
 - c. Additional Insureds: Dallas County and its elected and appointed boards, officers, officials, agents, representatives, directors, employees and volunteers.
- 1.4. Builders Risk Insurance: Contractor shall maintain during the term of this contract, at its own expense, All Builders Risk Insurance in the amount equal to one hundred percent (100%) of the initial contract amount plus values of subsequent modifications and change orders. Covered perils shall include, but not be limited to: Contractor's labor and workmanship, materials, fixtures, equipment, defects, fire, wind, lightning, and other weather related hazards, damage, extended coverage, vandalism, and malicious mischief, and theft.

Policies under this Section are subject to the laws of the State of Texas and include the following endorsements in favor of Dallas County

- a. Name Dallas County as loss payee as its interest may appear
 - b. Thirty (30) day Notice of Cancellation
- 1.5. Bid Security or Bid Bond (for contracts in excess of \$100,000): All bids shall be accompanied by a cashier's check, certified check, or a bid bond in an amount of not less than five percent (5%) of the total bid. All cashier's check or certified check shall made payable without conditions to Dallas County and must reference the IFB number

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on the check or bond. Bid bond executed by a solvent corporate surety or corporate sureties which are on the approved list of the United States Department of Treasury (Federal register Circular 570 - "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies", Sections 9304 through 9308 of Title 31 of the United States Code. Surety Companies Acceptable on Federal Bonds. The Surety must also be duly authorized to do business in the State of Texas.

- 1.6. Performance Bond (for contracts in excess of \$50,000): Contractor within ten (10) days after contract award or prior to the commencement of any work or delivery services under this contract Contractor shall furnish to the County a Performance Bond in the amount equal to one hundred percent (100%) of the contract amount, executed by a solvent corporate surety or corporate sureties which are on the approved list of the United States Department of Treasury (Federal register Circular 570 - "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies", Sections 9304 through 9308 of Title 31 of the United States Code. Surety Companies Acceptable on Federal Bonds. The Surety must also be duly authorized to do business in the State of Texas.
- 1.7. Payment or Material and Labor Bond (for contracts in excess of \$25,000): Contractor within ten (10) days after contract award or prior to the commencement of any work or delivery services under this contract Contractor shall furnish to the County a Payment or Material and Labor Bond in the amount equal to one hundred percent (100%) of the contract amount, executed by a solvent corporate surety or corporate sureties which are on the approved list of the United States Department of Treasury (Federal register Circular 570 - "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies", Sections 9304 through 9308 of Title 31 of the United States Code. Surety Companies Acceptable on Federal Bonds. The Surety must also be duly authorized to do business in the State of Texas.

The bonds must clearly and prominently display on the bond or on an attachment to the bond the name, mailing address, physical address, and telephone number, including the area code, of the surety company to which any notice of claim should be sent, or the toll-free telephone number maintained by the Texas Department of Insurance under Chapter 521.051 of the Texas Insurance Code, and a statement that the address of the surety company to which any notice of claim should be sent may be obtained from the Texas Department of Insurance by calling the toll free telephone number.

In the event the contract is prematurely terminated due to Contractor's breach and/or nonperformance of the contract, the County reserves the right to act on the performance bond and/or seek monetary restitution. In the event civil suit is filed to enforce this provision, County will seek its attorney's fees and costs of suit from Contractor which amount Contractor shall pay in the event that County prevails in such action.

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All bonds shall be delivered to the Dallas County Purchasing Agent located at 500 Elm Street, 5th Floor, Suite 5500, Dallas, Texas 75202. No work shall be authorized until the bond has been submitted to Dallas County Purchasing Agent.

Contractor agrees that, with respect to the above-referenced insurance, all insurance contracts/policies will contain the following required provisions:

- a. Endorsement: Except Workers Compensation and Professional Liability, name Dallas County and its elected and appointed boards, officers, officials, agents, representatives, directors, employees and volunteers as additional insured(s) (as the interest of each insured may appear) as to all applicable coverage;
- b. Endorsement: Provide for thirty (30) days prior written notice will be given to the County for cancellation, non-renewal or material reduction/change in coverage provided under all policies, except in cases of cancellation for non-payment, in the event of which notice shall be provided as required by state law to Dallas County;
- c. Endorsement: Contractor agrees to waive subrogation against Dallas County, its officers and employees for injuries, including death, property damage or any other loss;
- d. Provide for endorsement that the “other insurance” clause shall not apply to County where County is the additional insured on the policy;
- e. All insurance required herein shall be maintained in full force and effect until all work or services required to be performed under the terms of the contract is satisfactorily completed and formally accepted;
- f. All insurance coverage shall be on a per occurrence basis, if coverage is written on a claims-made basis, the retroactive date shall be prior to or coincide with the date of the Contract and the certificate of insurance shall state that the coverage is claims-made and indicate the retroactive date. The coverage shall be continuous for the duration of the contract agreement and for not less than two (2) years following the end of the contract agreement. Coverage, including renewals, shall have the same retroactive date as the original policy applicable to the contract agreement;
- g. Contractor shall be solely responsible for the deductible and/or self-insured retention for any loss;
- h. Contractor insurance policies coverage shall be written on a primary basis and non-contributory with any other insurance coverages and/or self-insurance carried by Dallas County;
- i. Default/Cumulative Rights/Mitigation. It is not a waiver of default if the non-defaulting party fails to immediately declare a default or delays in taking any action. The rights and remedies provided by this contract agreement are cumulative, and either Party’s use of any right or remedy will not preclude or waive its right to use any other remedy. These rights and remedies are in addition to any other rights the Parties may have by law, statute, ordinance or otherwise. Contractor has a duty to mitigate damages.
- j. Approval and acceptance of Contractor’s services and work by County shall not constitute nor be deemed a release of the responsibility and liability of Contractor

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for the accuracy and competency of Contractor's services or work; nor shall such approval and acceptance be deemed to be an assumption of such responsibility by the County for any defect, error or omission in the services performed by Contractor in this regard;

- k. Contractor shall provide that all provisions of this contract agreement concerning liability, duty and standard of care, shall be underwritten by contractual liability coverage sufficient to include obligation within applicable policies;
- l. Contractor and their freight contractors must be prepared to show coverage verification prior to entering upon County premises;
- m. Failure to comply with lawful requirements or adequate liability requirements may result in delay of payments, subject to the orders of the Commissioners Court, not to exceed a period of up to two years from the termination of this contract agreement, or cancellation of this contract agreement or both (Dallas County Commissioners Court Order 2003-1792, September 30, 2003);
- n. Insurance Certificates: The certificates of insurance shall list County as the certificate holder. Any and all copies of Certificates of Insurance shall reference any applicable (Bid Number, Commissioners Court Order Number, or contract number for which the insurance is being supplied). All insurance policies or duly executed certificates for the same required to be carried by Contractor under this contract agreement, together with satisfactory evidence of the payment of the premium thereof, shall be delivered to the: Dallas County Purchasing Agent located at 500 Elm Street, Suite 5500, Dallas, Texas 75202; and
- o. All insurance required to be carried by Contractor or subcontractors under this contract agreement shall be acceptable to the County in form and content, in its sole discretion. All policies shall be issued by an insurance company acceptable and satisfactory to County and authorized to do business in the State of Texas. Acceptance of or the verification of insurance by County shall not relieve or decrease the liability of Contractor.

2. Insurance Lapse

In the event successful firm fails to maintain insurance as required by this contract, successful firm shall immediately cure such lapse in insurance coverage at successful firm's sole expense and pay County in full for all costs and expenses incurred by County under this contract as a result of such failure to maintain insurance by successful firm, including costs and reasonable attorney's fees relating to County's attempt to cure such lapse in insurance coverage. Such costs and attorney's fees, not to exceed fifteen hundred and 00/100 dollars (\$1,500.00), shall be automatically deducted from monies or payments owed to successful firm by County. Moreover, the County shall retain five percent (5%) of the value of the Contract that shall be placed into an account from monies or payments owed to Contractor by County to cover County's potential exposure to liability during the period of such lapse. The five percent (5%) retainage shall be held by County until six (6) months after the date lapse in coverage is cured or Term of the Contract has ended or has otherwise been terminated, canceled or expired and shall be released if no claims are received or lawsuits filed against County for any matter that should have been covered by

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the required insurance. The County shall retain the funds if a claim is received or lawsuit and use the funds to defend, pay costs of defense or settle the claim.

XV. Rejection or Acceptance of Bids

The County reserves the right to accept or reject in part or in whole any bids submitted. The Purchasing Agent will recommend to Commissioners Court award to the lowest responsive and responsible bidder as determined by the Purchasing Agent.

XVI. Late and Withdrawn Bids

All bids must be submitted no later than the bid due date and time established by this solicitation. Bid arriving after the due date and time will not be accepted. Late bids delivered by carrier will be return to the bidder unopened.

A bidder has the right to withdraw their bid prior to the bid due date and time, thereafter, the bidder shall submit a formal request to the Dallas County Purchasing Agent requesting to withdraw their bid.

XVII. Confidentiality

Any information deemed confidential, shall be clearly noted as such on each page of the solicitation response by the bidder. County cannot guarantee it will not be compelled to disclose all or part of any public record under the Texas Open Record Act. Respondents who include information in a bid that is legally protected as trade secret or confidential shall clearly indicate the information which constitutes a trade secret or confidential information by marking that part of the bid “trade secret” or “confidential” at the appropriate place. If a request is made under the Texas Open Records Act to inspect information designated as trade secret or confidential in a bid, the bidder shall, upon request, immediately furnish sufficient written reasons and information as to why the information designated as a trade secret or confidential should be protected from disclosure to Attorney General of Texas for final determination.

XVIII. Disqualification of Bidders

Bidders may be disqualified for, but not limited to, the following reasons:

- Reason to believe collusion exists among the bidders
- The bidder is involved in any litigation against Dallas County
- The bidder is in arrears on an existing contract or has failed to perform on a previous contract with Dallas County

XIX. Permits Required by Law

Contractor shall comply with all requirements of federal, state, and local statutory requirements and regulations pertinent to or affecting any phase of this contract.

XX. Records and Audit

The Contractor shall keep accurate records of all components of invoices to the County as they relate to this contract. These records shall be retained for a minimum of two years after the

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conclusion of the Contract. The County reserves the right to audit any records it deems necessary for the execution of this Contract.

XXI. Assignment of Contract

The Contractor shall not assign, transfer, sublet, convey or otherwise dispose of the Contract of any part therein or its right, title or interest therein or its power to execute the same to any other persons, firm, partnership, company or corporation without the prior written consent of the County. Should the Contractor assign, transfer, sublet, convey or otherwise dispose of its right, title or interest or any part thereof in violation of this section, the County may, at its discretion, cancel the Contract and all rights, title and interest of the Contractor shall therein cease and terminate, and the Contractor shall be declared in default.

XXII. Default by Contractor

The following events shall be deemed to be events of default by Contractor under the Contract:

- Contractor shall become insolvent, or shall make a transfer in fraud of creditors, or shall make an assignment for the benefit of creditors;
- Contractor attempts to assign the Contract without the prior written consent of the County;
- Contractor shall fail to perform, keep or observe any term, provision or covenant of the Contract; or
- Contractor fails to properly and timely pay Contractor personnel, suppliers or other contractors and the failure impacts the County in any manner.

In the event a default occurs, the Director shall give the Contractor written notice of the default. If the default is not corrected to the satisfaction and approval of the Director within the time specified in such notice, the County may immediately cancel the Contract. At the direction of the Director, the Contractor shall vacate the facility, if applicable, and shall have no right to further operate under the Contract.

The Contractor, in accepting the Contract, agrees that the County shall not be liable to prosecution for damages or lost anticipated profits if the County cancels or terminates the Contract.

No Waiver: No waiver by the County of any default or breach of any covenant, condition, or stipulation shall be treated as a waiver of any subsequent default or breach of the same or any other covenant, condition, or stipulation.

XXIII. Termination

The County may terminate this agreement in whole or in part by giving thirty days written notice thereof to Contractor. The County will compensate Contractor in accordance with the terms of the agreement for all goods and services delivered and accepted prior to the effective date of such termination notice.

XXIV. Miscellaneous

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1. After executing the contract or issuance of a purchase order, no consideration will be given to any claim of misunderstanding.
2. Bidders shall submit with their bid, the required Contractor's qualification statement with supporting information as stated herein along with all other supporting documentation requested.
3. Bidders shall thoroughly familiarize themselves with the provisions of these specifications/scope of work.
4. A bid may be disqualified if the corporation or individual bidder is in arrears or in default to the County for delinquent taxes or assessments or on any debt or contract, whether as defaulter or bondsman; or who has defaulted upon any obligation to the County by failing to perform satisfactorily any previous agreement or Contract within the past seven years. Also, bidders may be disqualified for poor prior performance on similar Contracts with other entities.
5. The Contractor agrees to abide by the rules and regulations as prescribed herein. The Contractor will, in all solicitations or advertisements for personnel to perform services under the Contract, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, gender, or national origin.
6. If either party hereto is prevented from completing its obligations under the Contract by act of God, strike, lockout, material or labor restrictions by any governmental authority, civil riot, flood, or any other cause beyond the control of the parties hereto, then such party shall be excused from such performance for such period of time as is reasonably necessary after such occurrence to remedy the effects thereof.
7. The section headings in these Specifications are for convenience in reference and are not intended to define or limit the scope of any of the conditions, terms or provisions of these specifications.
8. Should any question arise as to the proper interpretation of the terms and conditions of these specifications, the decision of the department director and/or Purchasing Agent or his authorized representative shall be final.

XXV. Indemnity

The selected bidder agrees to defend, indemnify and hold the County, its officers, agents and employees, harmless against any and all claims, lawsuits, judgments, costs, and expenses for personal injury (including death), property damage or other harm for which recovery of damages is sought, suffered by any person or persons, that may arise out of or be occasioned by the selected bidder's breach of any of the terms or provisions of the contract, or by any other negligent or strictly liable act or omission of the selected bidder, its officers, agents, employees, or subcontractors, in the performance of the contract; except that the indemnity provided for in this paragraph shall not apply to any liability resulting from the sole negligence or fault of the County, its officers, agents, or employees and in the event of joint and concurrent negligence or fault of the selected bidder(s) and County, responsibility, and indemnity, if any, shall be

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apportioned comparatively in accordance with the laws of the State of Texas, without waiving any governmental immunity available to the County under Texas law and without waiving any defenses of the parties under Texas law. The provisions of this paragraph are solely for the benefit of the parties hereto and are not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

XXVI. Development Costs

Neither Dallas County nor its representatives shall be liable for any expenses incurred in connection with preparing a response to this IFB. Respondents are encouraged to prepare their bids simply and economically, providing a straightforward and concise description of your firm's ability to meet the requirements of the IFB.

XXVII. Certificate of Interested Parties (Form 1295)

Section 2252.908 of the Texas Government Code: An Act Addressing Disclosure of Interested Parties.

Effective January 1, 2016, Dallas County, must comply with the "Disclosure of Interest Parties, requirements established under Section 2252.908 of the Texas Government Code as implemented by the Texas Ethics Commission. Briefly stated, all contracts requiring an action or vote by the governing body of the entity or agency before the contract may be signed (regardless of the dollar amount) or that has a value of at least \$1 million will require the on-line completion of Form 1295 "Certificate of Interested Parties", in accordance with Texas Government Code Statute §2252.908. Form 1295 is also required for any and all contract amendments, extensions or renewals. All business entities are required to complete and file electronically with the Texas Ethics Commission using the online filing application.

Step 1: Business Entity completes Form 1295 in electronic format on the Texas Ethics Commission website: (https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm)

Step 2: Upon receipt of a completed Interested Parties Disclosure Form, Texas Ethics Commission issues a Certification of Filing to the Business Entity and the Business Entity download(s), print, sign(s) and notarize(s) Form 1295. An authorized agent of the business entity will need to sign the printed copy of the form and have the form notarized.

Step 3: At the time of submission of the solicitation to Dallas County the Business Entity must submit the completed notarized Form 1295 with the Certification of Filing with their contract (i.e.: bid, rfp, rfq, soq, etc.) to Dallas County. Upon receipt, Dallas County may proceed with the award and/or execution of the contract.

Step 4: Not later than the 30th day after the date the contract has been signed by all parties, Dallas County must notify the Texas Ethics Commission (in electronic format) of the receipt of (1) Form 1295, and (2) the Certification of Filing.

Step 5: Not later than the 7th business day after receipt of the above notice, Texas Ethics Commission makes the disclosure available to the public by posting the disclosure on its website.

County Offices and Departments submitting contracts to Commissioners Court for award/execution are responsible for acknowledging and filing the Form 1295.

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Definitions:

- (a) “Contract” includes an amended, extended, or renewed contract.
- (b) “Business entity” includes an entity through which business is conducted with a governmental entity or state agency, regardless of whether the entity is a for-profit or nonprofit entity. The term does not include a governmental entity or state agency.
- (c) “Controlling interest” In accordance with the Texas Ethics Commission, Chapter 46.3(c) and applicable to Texas Government Code §2252.908 - (1) an ownership interest or participating interest in a business entity by virtue of units, percentage, shares, stock, or otherwise that exceeds 10 percent; (2) membership on the board of directors or other governing body of a business entity of which the board or other governing body is composed of not more than 10 members; or (3) service as an officer of a business entity that has four or fewer officers, or service as one of the four officers most highly compensated by a business entity that has more than four officers.
- (d) “Interested party” (1) a person who has a controlling interest in a business entity with whom a governmental entity or state agency contracts; or (2) a person who actively participates in facilitating a contract or negotiating the terms of a contract with a governmental entity or state agency, including a broker, intermediary, adviser, or attorney for the business entity.
- (e) “Intermediary” for purposes of this rule, means, a person who actively participates in the facilitation of the contract or negotiating the contract, including a broker, adviser, attorney, or representative of or agent for the business entity who:
 - (1) receives compensation from the business entity for the person’s participation;
 - (2) communicates directly with the governmental entity or state agency on behalf of the business entity regarding the contract; and
 - (3) is not an employee of the business entity.

To obtain additional information on Section 2252 and to learn more about the Texas Ethics Commission process to create a new account or to complete an electronic version of Form 1295 for submission with a signed contract, please go to the following website:

<https://www.ethics.state.tx.us/tcc/1295-Info.htm>

Instructional Videos for Business Entities on how to file online can be found at:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

XXVIII. Conflict of Interest

No County elected or appointed official or representative, or any employees shall have any financial interest, direct or indirect, in any contract with the County or be financially interested, directly or indirectly, in the sale to the County of any land, materials, supplies, goods or services, except on behalf of the County as an official or employee. Any violation of this Section, with knowledge, expresses or implied, of the person or corporation contracting with the County shall render this Agreement involved voidable by the Commissioners Court of Dallas County. It is the responsibility of Contractor during all phases of this Agreement to notify the County in writing of any potential conflict of interest. Contractor covenants that neither it nor any member of its corporation presently has any interest or shall acquire any

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interest, direct or indirect, which would conflict in any manner or degree with the performance of this Agreement. Contractor further covenants that in the performance of this Agreement no person having such interest shall be employed or appointed by Contractor.

XXIX. Small Business Enterprise (SBE) Program

See Attachment S – Small Business Enterprise Program (SBE) and SBE forms