

Date Due: Sept 23, 2020
DUE NO LATER THAN 11:00 A.M.
LOCAL TIME IN HOUSTON, TEXAS
*Proposals received later than the above
date and time will not be considered.*

**YES Prep Public
Schools
REQUEST FOR PROPOSAL
Cover Sheet**

REQUEST FOR PROPOSAL: FY21_2 YES Prep HVAC and Plumbing Projects

NOTE TO PROPOSERS!!! Carefully read all instructions, requirements, and specifications. Fill out all forms properly and completely. Submit your proposal with all appropriate supplements and/or samples and return as instructed in Special Requirements/Instructions.

RETURN PROPOSAL TO:

Cheris Kotalik

**Construction Manager
5515 S Loop E, Suite B
Houston, Texas 77033**

For additional information, contact **Cheris Kotalik, cheris.kotalik@yesprep.org or 346-235-5776.**

You must sign below in INK; failure to sign WILL disqualify the proposal. All prices must be typewritten or printed in ink.

Vendor Name: _____

Vendor Address: _____

City, State, Zip Code: _____

Taxpayer Identification Number (T.I.N.): _____

Telephone No.: _____ Fax No.: _____

Email: _____

Print Name: _____ Signature: _____

[Your signature attests to your proposal to provide the goods and/or services in this proposal according to the published provisions of this Request for Proposal unless modifications or alterations are clearly noted in your proposal submission.]

TABLE OF CONTENTS – REQUEST FOR PROPOSAL PACKAGE

The items below represent components which comprise this Request for Proposal (hereinafter “RFP”) package. Suppliers are asked to review the package to be sure that all applicable parts are included. If any portion of the package is missing, please notify Cheri Kotalik, Construction Manager immediately at cheris.kotalik@yesprep.org or 346-235-5776.

It is the Vendor’s responsibility to be thoroughly familiar with all Requirements and Specifications. Be sure you understand the following before you return your proposal packet.

1. Cover Sheet

Your company name, address, and your signature (**IN INK**) should appear on this page.

2. Table of Contents

This page is the Table of Contents.

3. General Requirements

You should be familiar with all of the General Requirements.

4. Special Requirements/Instructions

This section provides information you must know in order to make a complete and proper proposal.

5. Specifications

This section contains the detailed description of the products/services sought.

6. Attachments

- A. Submittals 1 - 4
- B. Questionnaire
- C. Workers’ Compensation Certification
- D. Insurance Coverage Requirements
- E. Proposed Exceptions, Alterations, Additions, or Modifications to RFP (if any)
- F. Scoring Rubric

INTRODUCTION

YES Prep Public Schools is a free, open-enrollment public school system that serves 15,000 students across nineteen (19) schools in the Houston area. YES Prep has been ranked as among the top 100 public high schools in the nation by Newsweek and U.S. News & World Report. Every year, 100 percent of YES Prep's graduating seniors have been accepted into four-year colleges, including Harvard, Yale, Columbia, Rice, and Stanford. YES Prep combines a highly successful 6th-12th grade model along with high standards for student achievement.

GENERAL REQUIREMENTS

Proposals will be accepted by Yes Prep Public Schools no later than 11:00 a.m. (local time), **Sept 23, 2020**. Every proposal must be enclosed in an envelope clearly marked "FY21_3 YES Prep HVAC and Plumbing Projects" and shall include one copy.

All questions, requests, responses, and proposals shall be submitted to:

Cheris Kotalik, Construction Manager

YES Prep Public Schools

5515 S Loop E, Suite B

Houston, TX 77033

Cheris.kotalik@yesprep.org

Questions and responses regarding this RFP will be posted to the YES Prep Public Schools web site during the RFP phase so all interested parties will have access to the same information. Web site is located at: <http://www.yesprep.org/notices>

The appropriate committee shall review all timely responses, and if necessary, the full Board of Trustees prior to acceptance/bid award. Responses may be hand delivered. Any response or proposal received after the above deadline shall be considered late, and will not be opened or considered.

Time Frame

The timeframe for all responses must be complete and in possession of YES Prep Public Schools by 11:00 a.m. (local time) on **Sept 23, 2020**. Each submission/proposal must be complete. Any incomplete responses may be rejected. All respondents will comply with this RFP as a basis for the award of the proposal.

All questions are due by 5:00 p.m. (local time) on Sept 18, 2020.

Approval

The actual acceptance of any proposal may be delayed. Therefore, all responses must remain valid for a period of no less than one hundred and twenty (120) days. It is intended that proposals will be recommended to the Board of Trustees at an upcoming board meeting. The Board of Trustees reserves the right to reject any and all proposals.

ACCESS TO RECORDS

Proposer (hereinafter "Vendor") may be required to allow duly authorized representatives of YES Prep Public Schools (hereinafter "YES"), and local, state, and federal governments, access to contracts, books, documents, and records necessary to verify the nature, extent, and cost of services provided by the Vendor.

AWARD

YES reserves the right to reject any and all proposals, and reserves the sole right at its discretion to accept any proposal(s) it considers most favorable to the interest of YES and waive any and all minor irregularities in any proposal(s). YES further reserves the right to reject any proposal(s) and seek new proposals through the issuance of a new or amended Request for Proposal (hereinafter "RFP") if such action is deemed in the best interest of YES.

OFFER COMPLETION

Fill out and return to Cheri Kotalik, Construction Manager, one complete proposal form, and two copies, as instructed under the Special Requirements section of this document. An authorized Vendor representative should sign the Cover Sheet. Completion of these forms is intended to verify that the Vendor has submitted the proposal, is familiar with its contents, and has submitted the material in accordance with all requirements.

The submission of a response shall be prima facie evidence that the Vendor has full knowledge of the scope, nature, quantity, and quality of work to be performed, the detailed requirements of the project, and the conditions under which the work is to be performed. All terms, conditions, specifications, stipulations, and Vendor requirements stated in the RFP, any attached Appendices to the RFP, and any and all Addenda issued shall become part of the contract entered into between YES and the Vendor.

OFFER RETURNS

Vendors must return all completed proposals to the office of Cheri Kotalik as indicated on the Cover Sheet of this package. Late proposals will not be accepted. It is the responsibility of the responding Vendor to assure that the response is received prior to the date and time indicated on the Cover Sheet of this package.

DIGITAL FORMAT

If Vendor obtained the proposal specifications in digital format in order to prepare a response, ***the proposal must be submitted in hard copy*** according to the instructions contained in this package. If, in its response, Vendor makes any changes whatsoever to the YES published RFP specifications, the RFP specifications ***as published*** by YES shall control. Furthermore, if an alteration of any kind to the RFP specifications as published is discovered after the contract is executed, the contract is subject to immediate cancellation at the sole option of YES.

DISQUALIFICATION OF VENDOR

Upon signing this RFP, Vendor certifies that the proposal has not violated the antitrust laws of this state codified in §15.01, *et seq.*, Business & Commerce Code, or the federal antitrust laws, and has not communicated directly or indirectly the proposal made to any competitor or any other person engaged in such line of business. Any or all proposals may be rejected if YES believes that collusion exists among the Vendors. Proposals in which the prices are obviously unbalanced may be rejected.

EVALUATION

In evaluating the proposals submitted, YES will apply the "Best Value" process in selecting the Vendor to be awarded a contract for this project. **Purchase price is not the only criteria that will be used in the evaluation process.** The selection process will include, but not be limited to, the following considerations:

1. The quality and range of goods and/or services the Vendor proposes to provide;
2. The extent to which the goods and/or services meet YES needs;
3. The Vendor's overall experience, reputation, expertise, stability, and financial responsibility;
4. The Vendor's past relationship, if any, with YES;
5. The experience and qualifications of the Vendor staff (i.e. drivers, supervisors, dispatchers, mechanics, etc.) that will be assigned to service the YES account;
6. The ability to provide service in a safe, reliable, expedient, and efficient manner;
7. Facilities and business processes and practices (computerized information systems, access to industry facilities, quality and range of management reports, etc.) that will be used in servicing the YES account;
8. The Vendor's financial terms offered to YES;
9. The total long-term cost to YES to acquire the Vendor's goods or services; and/or
10. Any other relevant factor(s) specifically listed in the RFP.

YES reserves the right to contact references from the Vendor's client list, or any other persons considered relevant by YES. YES reserves the right to conduct personal interviews of any or all potential Vendors prior to selection.

YES will not be liable for any costs incurred by the Vendor in connection with such interviews or with the submission of any response.

DOCUMENT INTERPRETATION

In the event of any conflict of interpretation of any part of this overall document, the interpretation of YES shall govern.

GOVERNING LAW

Any agreements resulting from this RFP shall be governed by, construed, and enforced in accordance with the laws of the State of Texas applicable to contracts made and wholly performed within such state (without regard to the conflicts or choice of law principles thereof). The parties irrevocably consent to the jurisdiction of the State of Texas, and agree that any court of competent jurisdiction sitting in the County of Harris, State of Texas, shall be an appropriate and convenient place of venue, and shall be the sole and exclusive place of venue, to resolve any dispute with respect to any such agreements.

HOLD HARMLESS AGREEMENT

The successful Vendor(s) shall indemnify, hold harmless, and defend YES, its directors, officers, and employees (paid or volunteer) from and against any and all claims, demands, and causes of action of whatever kind or nature arising out of error, omission, misrepresentation, negligent act, conduct, or misconduct of the Vendor and its subcontractors, agents, and employees (paid or volunteer) in the provision of goods or the performance of services arising out of the preparation of this proposal and execution and performance of any contracts resulting therefrom. Such indemnification shall also include reasonable attorneys' fees, court costs, and expenses.

INSPECTIONS

YES reserves the right to inspect any item(s) or service location for compliance with specifications, requirements, and needs of YES. If a Vendor cannot furnish a sample of a proposed item, where applicable, for review, or fails to satisfactorily show an ability to perform, YES can reject the Vendor as inadequate.

TESTING

YES reserves the right to test equipment, supplies, materials, and goods proposed for quality, compliance with specifications, and ability to meet the needs of YES. Demonstration units must be available for review. Should the goods or services fail to meet requirements and/or be unavailable for evaluation, the proposal is subject to rejection.

INVOICES AND PAYMENTS

YES standard payment terms are Net 30 days after receipt of invoice.

Invoices should be provided to YES in a timely manner. Vendors are requested to invoice YES within 30 days of providing goods and/or services to YES. Vendors who continuously invoice YES in a manner that is outside of generally accepted business practices may affect their continuing relationship with YES.

In the event a Vendor presents YES with invoices, statements, reports, etc. that are incomplete or inaccurate, YES may be required to perform substantial research which could result in delay of payment. YES will not be responsible for any interest charges and/or late fees as a result of delayed payment due to time delays caused by inadequate, incomplete, or inaccurate information provided in invoices by Vendor.

PRICING

Prices for all goods and/or services shall be negotiated to a firm amount for the duration of this contract or as agreed to in terms of time frame and/or method of determining price escalations, if any, by Vendor. All prices and methods of determining prices must be written in ink or typewritten. Where unit pricing and extended pricing differ, unit pricing prevails.

SCANNED OR RE-TYPED RESPONSE

If in its response, Vendor either electronically scans, re-types, or in some way reproduces the YES-published RFP package, then in the event of any conflict between the terms and provisions of the published RFP package, or any portion thereof, and the terms and provisions of the response made by the Vendor, the RFP package **as published** by YES shall control. Furthermore, if an alteration of any kind to the YES-published RFP package is only discovered after the contract is executed, the contract is subject to immediate cancellation at the sole option of YES.

SEVERABILITY

If any section, subsection, paragraph, sentence, clause, phrase, or word of these requirements or the specifications shall be held invalid, such holding shall not affect the remaining portions of these requirements and the specifications, and it is hereby declared that such remaining portions would have been included in these requirements and the specifications as though the invalid portion had been omitted.

SUPPLEMENTAL MATERIALS

Vendors are responsible for including all pertinent product data in the returned offer package. Literature, brochures, data sheets, specification information, completed forms requested as part of the offer package, and any other facts which may affect the evaluation and subsequent contract award should be included. Materials such as legal documents and contractual agreements, which the Vendor wishes to include as a condition of the proposal, must also be in the returned proposal package. Failure to include all necessary and proper supplemental materials may be cause to reject the entire proposal.

TAXES

YES is exempt from federal, state, and local taxes. In the event that taxes are imposed on the goods or services purchased, YES will not be responsible for payment of the taxes. The Vendor shall absorb the taxes entirely. Texas Limited Sales Tax Exemption Certificates will be furnished to Vendors upon written request to YES.

TERM CONTRACTS

The successful Vendor, as determined by YES, shall be required to execute a contract to furnish all goods and/or services and other deliverables required for successful completion of the proposed project. No Vendor shall obtain any interest or right in any award until YES has executed a contract, and any such interest and rights shall be subject to the terms and conditions as contained in such contract.

The successful Vendor may not assign, sell, or otherwise transfer its interest in the contract award, or any part thereof, without prior written consent from the YES.

QUANTITY

There is no guaranteed amount of business, expressed or implied, to be purchased or contracted for by YES. However, the Vendor(s) awarded the contract shall furnish all required goods and/or services to YES at the stated price, when and if required.

CONTRACT TYPE

The preferred contract type to be awarded is a fixed fee contract. However, if a Vendor has reason to believe a better (more cost effective) method is practical, then the Vendor is encouraged to offer that better pricing option as an alternative in its submitted proposal. YES will consider that type of contract as it compares with other recommended contract options.

TERMINATION

YES reserves the right to terminate the contract without cause with 60 days prior written notice for convenience and with 30 days prior written notice for cause if Vendor breaches any of the terms therein, including warranties of Vendor or if the Vendor becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other

remedies which YES may have in law or equity. Cause may be construed as, but not limited to, failure to deliver the proper goods and/or services within the proper amount of time, and/or to properly perform any and all services required to YES's satisfaction, and/or to meet all other obligations and requirements.

If the Vendor breaches any provision of the proposal stipulations, becomes insolvent, enters voluntary or involuntary bankruptcy, or receivership proceedings, or makes an assignment for the benefit of creditors, YES will have the right (without limiting any other rights or remedies that it may have in the contract or by law) to terminate any contract with 30 days prior written notice to the Vendor.

YES will then be relieved of all obligations, except to pay the reasonable value of the Vendor's prior performance (at a cost not exceeding the contract rate). The Vendor will be liable to YES for all costs exceeding the contract price that YES incurs in completing or procuring the service as described in the proposal. YES's right to require strict performance of any obligation in this contract will not be affected by any previous waiver, forbearance, or course of dealing.

FUNDING OUT OPTION

Any contract resulting from this RFP is contingent upon the continued availability of budget appropriations and is subject to cancellation, without penalty to YES, either in whole or in part, if funds are not appropriated by the YES Board of Directors or otherwise not made available to YES.

WARRANTIES

Vendors shall furnish all data pertinent to warranties or guarantees which may apply to items in the proposal. Vendors may not limit or exclude any implied warranties.

ASSOCIATION

Vendors may not use the YES official logo(s), or any phrase associated with YES, without written permission from YES.

DISCLOSURE

All information and documentation related to this RFP submitted by Vendors may be subject to public disclosure under the Texas Public Information Act (Texas Government Code Section 552.001, et seq.).

EXCEPTIONS, ALTERATIONS, ADDITIONS, and MODIFICATIONS

If any exceptions, alterations, additions, or modifications are submitted by Vendor to any portion of this RFP, the Vendor must clearly indicate the exceptions, alterations, additions, and modifications and include a full explanation as a separate attachment to the proposal. The failure to identify exceptions, alterations, additions, or modifications will constitute acceptance by the Vendor of the RFP as proposed by YES. YES reserves the right to reject a proposal containing exceptions, alterations, additions, or modifications.

PROPOSAL PREPARATION COSTS

All costs related to the preparation and submission of this proposal shall be paid by the Vendor. Issuance of this RFP does not commit YES, in any way, to pay any costs in the preparation and submission of the proposal, nor does the issuance of the RFP obligate YES to award a contract or purchase any goods and services stated in the RFP.

RETENTION OF PROPOSAL DOCUMENTATION

All proposal materials and supporting documentation that is submitted in response to this proposal becomes the permanent property of YES.

MODIFICATION/WITHDRAWAL OF PROPOSAL

Proposals may be modified in writing at any time prior to the due date. Proposals may be withdrawn in writing, by facsimile written transmission or in person, before the response date.

PAYMENT TERMS

Invoices that are submitted by the awarded contractor are required to provide accurate and current addresses including any discounts for early payment. Payment of undisputed invoices will be paid monthly provided that the invoices are received by dates provided to the winning bid. Disputed portions of invoices will be held until the dispute is resolved.

PROPOSAL REQUIREMENTS

- Vendor is required to provide evidence of a valid State of Texas Business License
- Vendor is required to provide an insurance certificate with YES Prep named as an additional insured.

The entity legally responsible for fulfilling this agreement shall be identified in the proposal response.

Right to Seek a New Proposal

YES Prep Public Schools reserves the right to receive, accept, or reject any and all proposals for any or all reasons.

Proposals will be awarded to the best overall respondent as determined to be in the best interests of Yes Prep. In comparing the responses to this RFP and making awards, Yes Prep may consider such factors as quality and thoroughness of a proposal, the record of experience, the references of the respondents, and the integrity, performance and assurances in the proposal in addition to that of the proposal price.

It is the responsibility of the vendor to ensure that the equipment proposed is fully functional with existing two-way radio equipment: handheld radios, base stations and school bus radios.

Applicable Law

The successful Contractor(s) agrees that they shall comply with all local, state and federal laws, statutes, rules, and regulations including, but not limited to, the Rehabilitation Act of 1973 and the Americans with Disabilities Act. In the event that any claims should arise with regards to this contract, for a violation of any such local, state, or federal law, statues, rules, or regulations, the provider will indemnify and hold Huntington County Community School Corporation harmless for any damages, including court costs or attorney fees which might be incurred.

Dispute resolution

It is expected that any conflicts or disagreements can be settled through face-to-face meetings. Unresolved disputes will require mediation before filing litigation. Both parties will split the cost of mediation.

SPECIAL REQUIREMENTS/INSTRUCTIONS

EVALUATION AND AWARD

This RFP in no manner obligates YES to the eventual rental, lease, or purchase of any equipment or service described, implied, or which may be proposed, until confirmed by a written contract. Progress toward this end is solely at the discretion of YES and may be terminated at any time prior to the signing of the contract.

YES may initiate discussions with Vendor personnel authorized to contractually obligate the Vendor. Discussions will develop into negotiating sessions with the successful Vendor(s). If YES is unable to agree to contract terms, YES reserves the right to terminate contract negotiations with a Vendor and initiate negotiations with another Vendor. YES reserves the right to select services and products from any number of Vendors if, in its sole discretion, it is in the best interest of YES to do so.

Evaluation will consider the Vendor(s) best meeting the needs and requirements of YES and such evaluation and determination of best value shall be solely at the discretion of YES.

Purchase price is not the only criteria that will be used in the evaluation process.

Submission of qualifications implies the Vendor's acceptance of the evaluation criteria and Vendor's recognition that subjective judgments can and will be made by those individuals evaluating qualifications.

References, site visits, and product inspections may be used to make judgments directly affecting the award of this contract.

NON-PERFORMANCE BY VENDOR

Performance, before and during the contract term, will be a major consideration of current contract award, renewals, and future award considerations. Failure to perform, in any sense relative to this contract, may result in the probation and/or termination of this agreement by YES on the basis of nonperformance. Non-performance shall be determined as follows:

1. Failure to meet and maintain all qualifications required in this RFQ/RFP;
2. Failure to meet required personnel standards and operating performance standards;
3. Failure to maintain appropriate and/or necessary personnel licenses and certifications;
4. Failure to meet all vehicle inspections and certifications which are needed to comply with federal, state, and/or local requirements;
5. Failure to keep and maintain all required insurance coverage; and/or
6. Failure to cure deficiencies within a reasonable amount of time as stated herein.

INSURANCE

All Vendors must provide evidence of insurance or insurability and a Workers' Compensation

Certificate (see Attachments C and D).

GOVERNMENT VIOLATIONS

Vendor shall notify YES of all health and safety violations, OSHA violations, wage and hour violations, or labor violations assessed by any city, state, or federal government department or agency.

NON-COMPLIANCE NOTIFICATION

In the event a Vendor is determined by YES to have failed to perform services in accordance with the requirements listed herein, YES will forward a written notification specifying the violation or the area of non-compliance to the Vendor. The Vendor in non-compliance shall immediately remedy all violations as determined by YES. Any violations not so remedied shall be grounds for termination of the contract, in whole or in part.

OWNERSHIP

YES shall retain ownership rights to all materials or any other product produced in conjunction with the work described herein.

SPECIAL CONDITIONS AND PROJECT INFORMATION

YES Prep Public Schools is a free, open-enrollment public school system that currently serves 15,000 students across nineteen (19) schools in the Houston area. In August 2020, YES Prep will open 2 new elementary schools in the Houston area. YES Prep has been ranked as among the top 100 public high schools in the nation by Newsweek and U.S. News & World Report. Every year, 100 percent of YES Prep's graduating seniors have been accepted into four-year colleges, including Harvard, Yale, Columbia, Rice, and Stanford. YES Prep combines a highly successful 6th-12th grade model along with high standards for student achievement.

One-time bid walk will be offered on Tues, Sept 15th starting at 8AM. Will start at the North Central location and then proceed to North Forest, Fifth Ward and Brays Oaks. Social distancing and masks will be required.

- All work to be performed after-hours, weekends and during school holidays.
- Contractor is responsible for all drawings and spec information provided by H4 Engineers.
- Questions are due by 5PM, Sept 18th, 2020.
- YES Prep holds the right to not approve or more forward any single project in the overall RFP.

CONTRACTOR TO PROVIDE THE FOLLOWING:

- Contractor will be allowed to use staff restrooms on campus.
- Contractor will be responsible for workers remaining in appropriate areas while on campus.
- All bids should be turn-key for complete removal of existing equipment from the building/campus and any additional trade work needed to complete the project.

A schedule duration per campus MUST be included with RFP response.

Cost must be broken out as listed below including the manufacturer for all HVAC equipment.

Fifth Ward-Custodial Sinks

Provide (3) new custodial sink and faucets to replace existing ones as shown in pictures below:



Project	Cost	Manufacturer
Brays Oaks-AHUs		
Brays Oaks-Water Heaters		
Fifth Ward-HVAC		
Fifth Ward-Custodial Sinks		
North Central-Split Systems		
North Forest-AHUs		
White Oak-RTUs		

REQUIRED SUBMITTALS (Attachment A)

Submittal 1

Experience in Electrical

Vendor shall provide a statement of its qualifications to provide the specific materials and services requested herein.

Submittal 2

Staffing Plan

Vendor shall submit a staffing plan that provides the qualifications of your employees.

Submittal 3

References

Vendor shall supply a list of three (3) references for which Vendor has experience in the scope of work that the proposal is submitted for.

Submittal 4

Customer Feedback

Vendor shall provide a description of its formal customer feedback system, provide sample tools used to gather data, and describe how results were shared with customers and used to improve service.

All submittals must be included in the RFP package returned on **Sept 23, 2020 by 11:00 AM. It is recommended that each submittal be typed on a separate sheet of paper with the heading “Response to Submittal #___ for YES RFP” at the top and the name of the Vendor underneath.**

QUESTIONNAIRE (Attachment B)

All Vendor must provide answers to the following questions, typed on 8 ½ x 11 inch paper, in the order below. Attachments to the questionnaire answers should reference the question number.

1. Provide the full name and address of your organization.
2. Provide contact person(s) for information concerning this offer: name, title, phone, fax, email address.
3. What form of business is your organization (e.g. proprietorship, partnership, corporation) and is your organization local only, statewide, or nationwide?
4. List all the names under which this Vendor has operated in the last ten (10) years in the State of Texas.
5. Provide a copy of your insurance coverage.
6. Multi-part question:
 - a. Do you currently have any investigations pending by or on behalf of a government entity or other licensing entity?
 - b. Have you had investigations by or on behalf of a government entity or other licensing entity in the past?
 1. If the answer to either question is yes, please provide copies of relevant paperwork.
7. Do you have any relevant experience or projects in the past with education institutions? If so, please provide a high-level overview of these projects.

WORKERS' COMPENSATION CERTIFICATE (Attachment C)

YES requires Vendor to provide workers' compensation as per state law requirements. The Vendor shall sign and submit the following certificate with the written proposal:

- Minimum Workers' Compensation and Employer's Liability Limits
 - Each Accident \$1,000,000
 - Disease – Each Employee \$1,000,000
 - Disease – Policy Limit \$1,000,000

Vendor Name

Signature of Authorized Agent

Date Signed

Note: Vendor may attach current certificate of coverage with a signed statement that if awarded the contract, they will obtain said aforementioned coverage if the current coverage does not meet the stated minimum requirements.

INSURANCE COVERAGE REQUIREMENTS (Attachment D)

General and Excess Liability Minimum Coverages

- General Liability: \$2,000,000
- Umbrella Liability: \$1,000,000

Vendor Name

Signature of Authorized Agent

Date Signed

YES will be named as Additional Insured on the Certificate of Insurance if the Vendor is awarded a contract.

Proposed Exceptions, Alterations, Additions, or Modifications to RFP (Attachment E)

Vendor should submit as Attachment F, any and all proposed exceptions, alterations, additions, or modifications to the YES RFP for HVAC and Plumbing Projects.

SCORING RUBRIC (ATTACHMENT F)

YES will utilize the following RFP Evaluation Rubric for evaluation of all YES Prep HVAC and Plumbing Projects.

1. Charges/Cost to YES PREP: 40 Points.

- a. Favorable = 30 Points. Unfavorable = 0 points.
- b. Evaluate the Overall Value of proposed materials and services to be provided.

2. Technical and Education Experience: 20 Points.

- a. Favorable = 20 Points. Unfavorable = 0 points.
- b. Proposal demonstrates the Vendor's ability to deliver quality services to schools.
- c. Includes references, Vendor staff, and/or Vendor's or certifications, qualifications, experience, expertise, and resumes.

3. Proposed Operational Delivery: 10 Points.

- a. Favorable = 10 Points. Unfavorable = 0 points.
- b. Proposal defines services and scope in enough detail that YES can confidently determine that the proposed services will be met.

4. Project Understanding and Methodology: 30 Points.

- a. Favorable = 30 Points. Unfavorable = 0 points.
- b. Proposal addresses the project in terms of the scope of work and substantive issues essential to proper service and care of YES facilities. Proposal includes a detailed description of services to be provided and any constraints as to procedure, time, personnel, or equipment that needs to be communicated to YES for use during contract negotiations.

**END OF YES RFP PACKAGE FOR
HVAC and Plumbing Project**



09.03.20
 F-16795
 DIV 21,22,23



09.03.20
 F-16795
 DIV 26,28

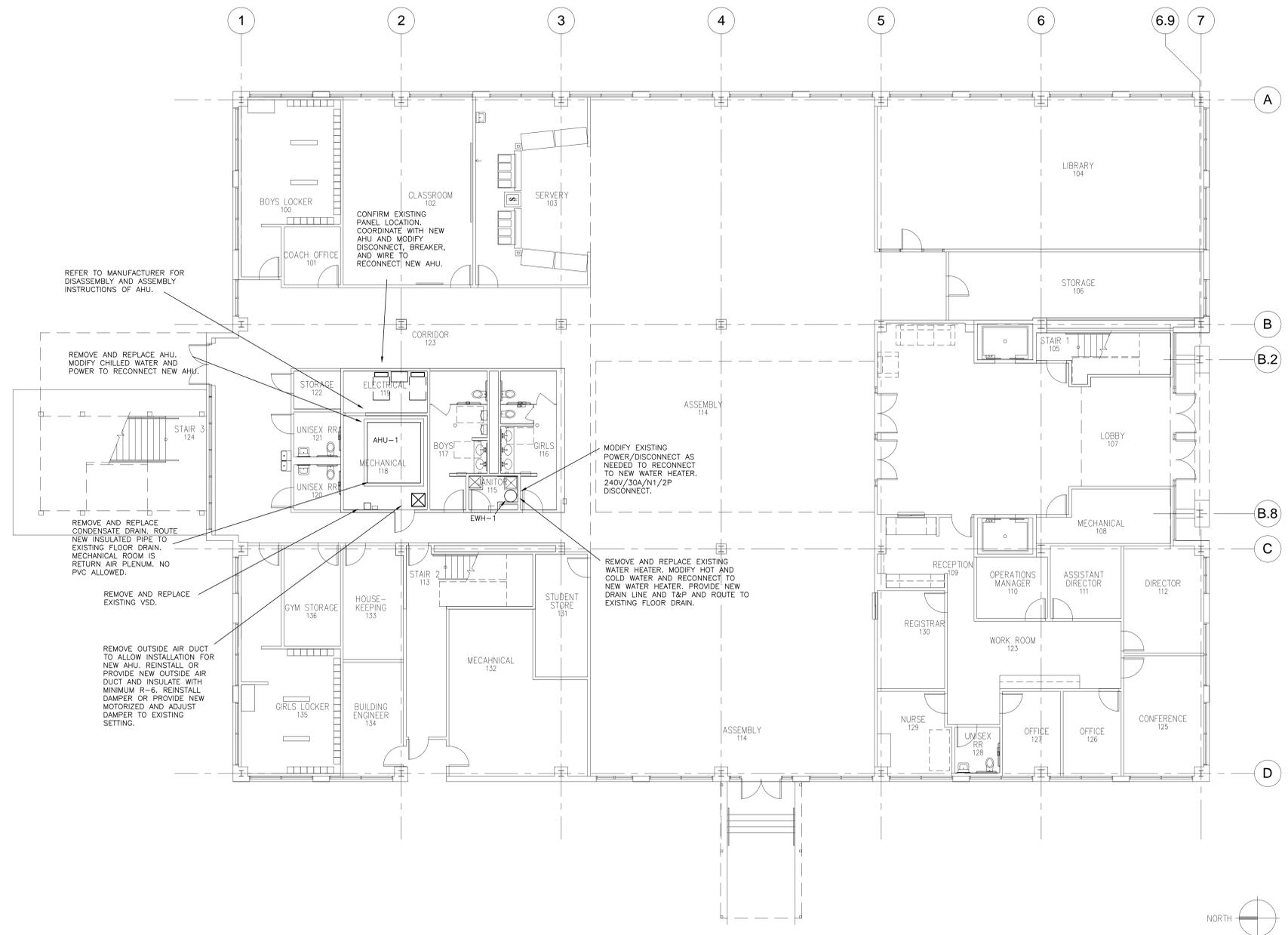
**YES PREP MEP REPLACEMENTS
 MULTI-CAMPUS**

AIR HANDLING UNIT SCHEDULE																	
EQUIPMENT NO	SERVICE	LOCATION	OUTSIDE AIR CFM	SUPPLY FAN			COOLING COIL			ELECTRICAL V/PH/Hz	MCA	MOCP (AMPS)	BREAKER/WIRE	MANUFACTURER AND MODEL	WEIGHT (LBS)	NOTES	
				CFM	ESP (IN WG)	HP	MBH (TH/SH)	EAT (DB/WB)	LAT								GPM
AHU-1	LEVEL 1	MECH L1	EXISTING SETTING	18000	1.5	15	766/515	78/66	51	153	460/3/60	22.1	35	35A/3P,#10	CARRIER 39MN 36W	4100	ALL
AHU-2	LEVEL 2	MECH L2	EXISTING SETTING	15000	1.5	15	633/427	78/66	51	126	460/3/60	22.1	35	35A/3P,#10	CARRIER 39MN 30W	3591	ALL
AHU-3	LEVEL 3	MECH L3	EXISTING SETTING	15000	1.5	15	633/427	78/66	51	126	460/3/60	22.1	35	35A/3P,#10	CARRIER 39MN 30W	3591	ALL
AHU-4	LEVEL 4	MECH L4	EXISTING SETTING	15000	1.5	15	633/427	78/66	51	126	460/3/60	22.1	35	35A/3P,#10	CARRIER 39MN 30W	3591	ALL
AHU-5	LEVEL 5	MECH L5	EXISTING SETTING	18000	1.5	15	766/515	78/66	51	153	460/3/60	22.1	35	35A/3P,#10	CARRIER 39MN 36W	4100	ALL

NOTES:
 1. VARIABLE SPEED DRIVE.
 2. PROVIDE DUCT SMOKE DETECTOR FOR UNITS 2000 CFM SUPPLY AND GREATER.
 3. 44 EWT/54 LWT. VERIFY OPERATING CONDITIONS.
 4. MINIMUM 6 ROW COIL.
 5. MOTORIZED OUTSIDE AIR DAMPER INTERLOCKED WITH FAN.

ELECTRIC WATER HEATER SCHEDULE									
EQUIPMENT NO.	LOCATION	INPUT KW	NOMINAL STORAGE (GAL)	RECOVERY (GPH) @ 90°F	ELECTRICAL V/ø/Hz	BREAKER/WIRE	MANUFACTURER AND MODEL	UNIFORM ENERGY FACTOR (UEF)	TOTAL WEIGHT (LBS)
EWH-1	JAN CL LVL1	4.5	30	21	208/1/60	30A/1P, #8	RHEEM PROE30 S2 RH95B WITH INSULATION BLANKET	0.92	335
EWH-2	JAN CL LVL2	4.5	30	21	208/1/60	30A/1P, #8	RHEEM PROE30 S2 RH95B WITH INSULATION BLANKET	0.92	335
EWH-3	JAN CL LVL3	4.5	30	21	208/1/60	30A/1P, #8	RHEEM PROE30 S2 RH95B WITH INSULATION BLANKET	0.92	335
EWH-4	JAN CL LVL4	4.5	30	21	208/1/60	30A/1P, #8	RHEEM PROE30 S2 RH95B WITH INSULATION BLANKET	0.92	335
EWH-5	JAN CL LVL5	4.5	30	21	208/1/60	30A/1P, #8	RHEEM PROE30 S2 RH95B WITH INSULATION BLANKET	0.92	335

NOTES:
 1. CONFIRM EXISTING AVAILABLE VOLTAGE.
 2. UPPER AND LOWER HEATING ELEMENTS, NON-SIMULTANEOUS OPERATION.
 3. INTEGRAL HEAT TRAPS.



- MEP GENERAL NOTES
- FIELD VERIFY ALL EXISTING CONDITIONS.
 - ALL MECHANICAL, ELECTRICAL AND PLUMBING EXISTING TO REMAIN UNLESS NOTED OTHERWISE.
 - CONFIRM PHYSICAL DIMENSIONS OF NEW EQUIPMENT WILL FIT WITHIN EXISTING MECHANICAL ROOM.
 - MODIFY HOUSEKEEPING PAD AS NEEDED.
 - NEW AIR HANDLING EQUIPMENT WILL NEED TO FIT THROUGH EXISTING DOORS/STAIRS. DISASSEMBLE/REASSEMBLE EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.
 - MODIFY EXISTING DUCTWORK, PIPING, AND POWER AS NEEDED TO RECONNECT NEW EQUIPMENT FOR A COMPLETELY WORKING SYSTEM.
 - CONFIRM PLACEMENT OF MECHANICAL EQUIPMENT WITH STRUCTURAL ENGINEER IF CONFIGURATION/WEIGHT IS DIFFERENT THAN EXISTING.
 - MAINTAIN MINIMUM CLEARANCE TO ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - CONFIRM RECEPTACLE FOR SERVICING EQUIPMENT IS WITHIN 25FT OF HVAC.
 - REUSE OR PROVIDE NEW CHILLED WATER CONTROL VALVE.
 - REMOVE ALL ABANDONED CABLING AND CONDUIT IN SPACE. TERMINATE CONDUITS AT ELECTRICAL ROOM WITH JUNCTION BOX. TURN OFF UNUSED BREAKERS AND UPDATE PANEL DIRECTORY.
 - CIRCUIT BREAKERS SHALL BE OF SAME MANUFACTURER AS EXISTING PANELS AND EQUAL AIC RATING.

1 MEP LEVEL 1
 1/8" = 1'-0"

NO.	DESCRIPTION	DATE
	ISSUE FOR CONSTRUCTION	09.03.20

PROJECT NUMBER
 2020423
 DRAWN BY
 SEH
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 SEH
 DRAWING NAME
 MEP LEVEL 1
 BRAYS OAKS
 DRAWING NUMBER

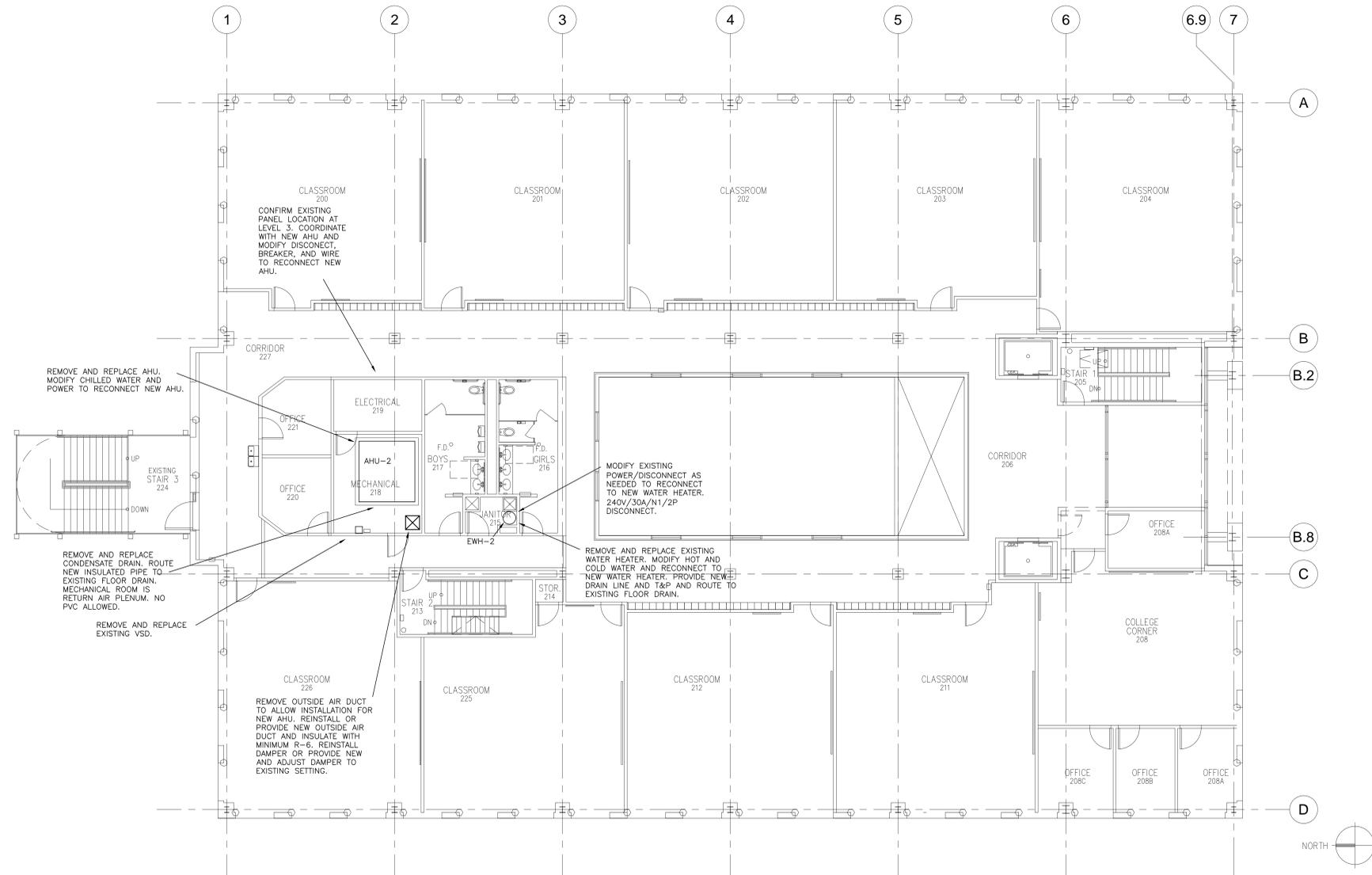
MEP201



09.03.20
 F-16795
 DIV 21,22,23



09.03.20
 F-16795
 DIV 26,28



MEP GENERAL NOTES

1. FIELD VERIFY ALL EXISTING CONDITIONS.
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**YES PREP MEP REPLACEMENTS
 MULTI-CAMPUS**

NO.	DESCRIPTION	DATE
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PROJECT NUMBER
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MEP LEVEL 2
 BRAYS OAKS

DRAWING NUMBER

MEP202

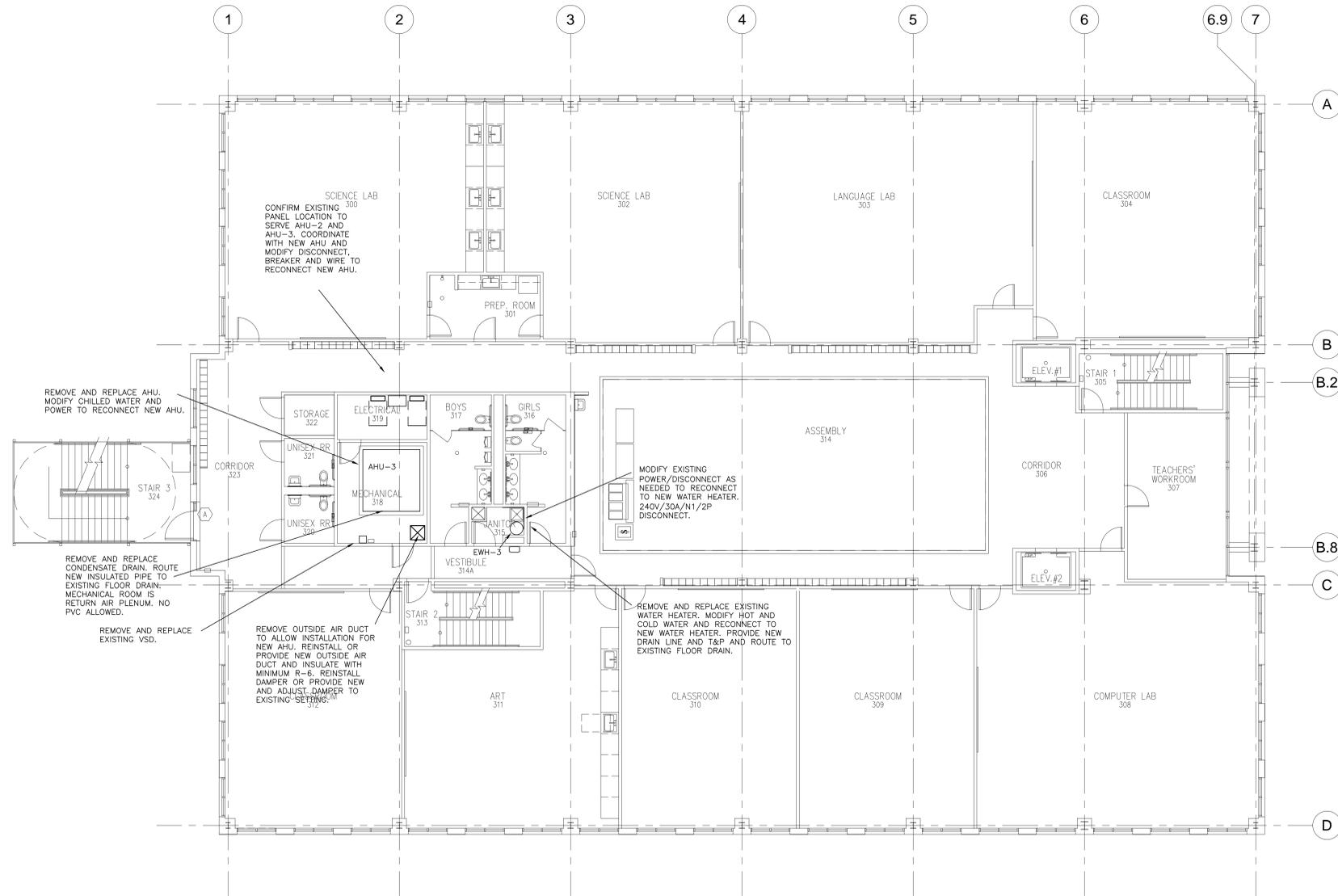
1 MEP LEVEL 2
 1/8" = 1'-0"



09.03.20
 F-16795
 DIV 21,22,23



09.03.20
 F-16795
 DIV 26,28



MEP GENERAL NOTES

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MEP LEVEL 3
 BRAYS OAKS

DRAWING NUMBER

MEP203

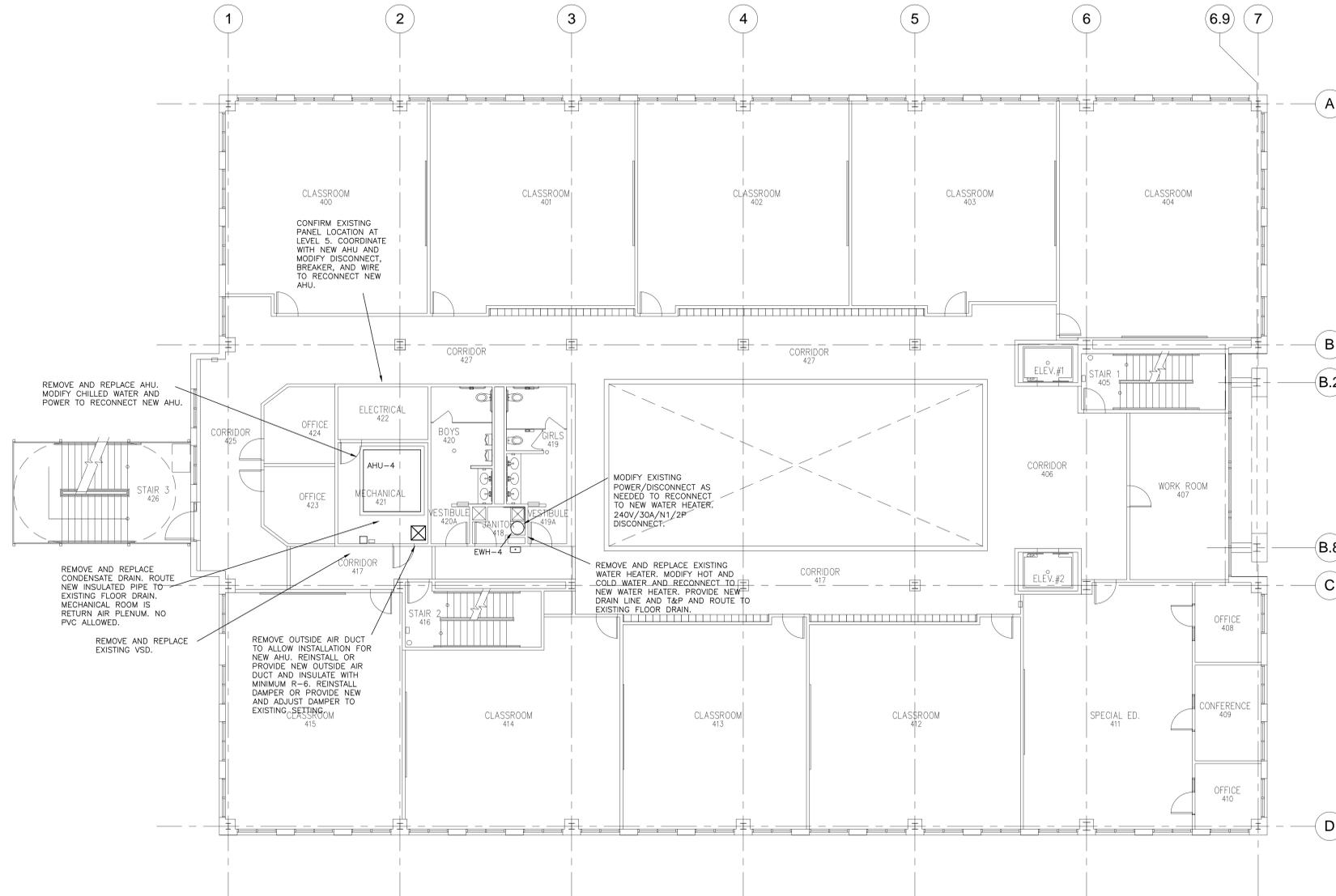
1 MEP LEVEL 3
 1/8" = 1'-0"



09.03.20
 F-16795
 DIV 21,22,23



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 F-16795
 DIV 26,28



MEP GENERAL NOTES

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12. CIRCUIT BREAKERS SHALL BE OF SAME MANUFACTURER AS EXISTING PANELS AND EQUAL AIC RATING.

**YES PREP MEP REPLACEMENTS
 MULTI-CAMPUS**

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PROJECT NUMBER
 2020423
 DRAWN BY
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 DRAWING NAME
 MEP LEVEL 4
 BRAYS OAKS
 DRAWING NUMBER
 MEP204

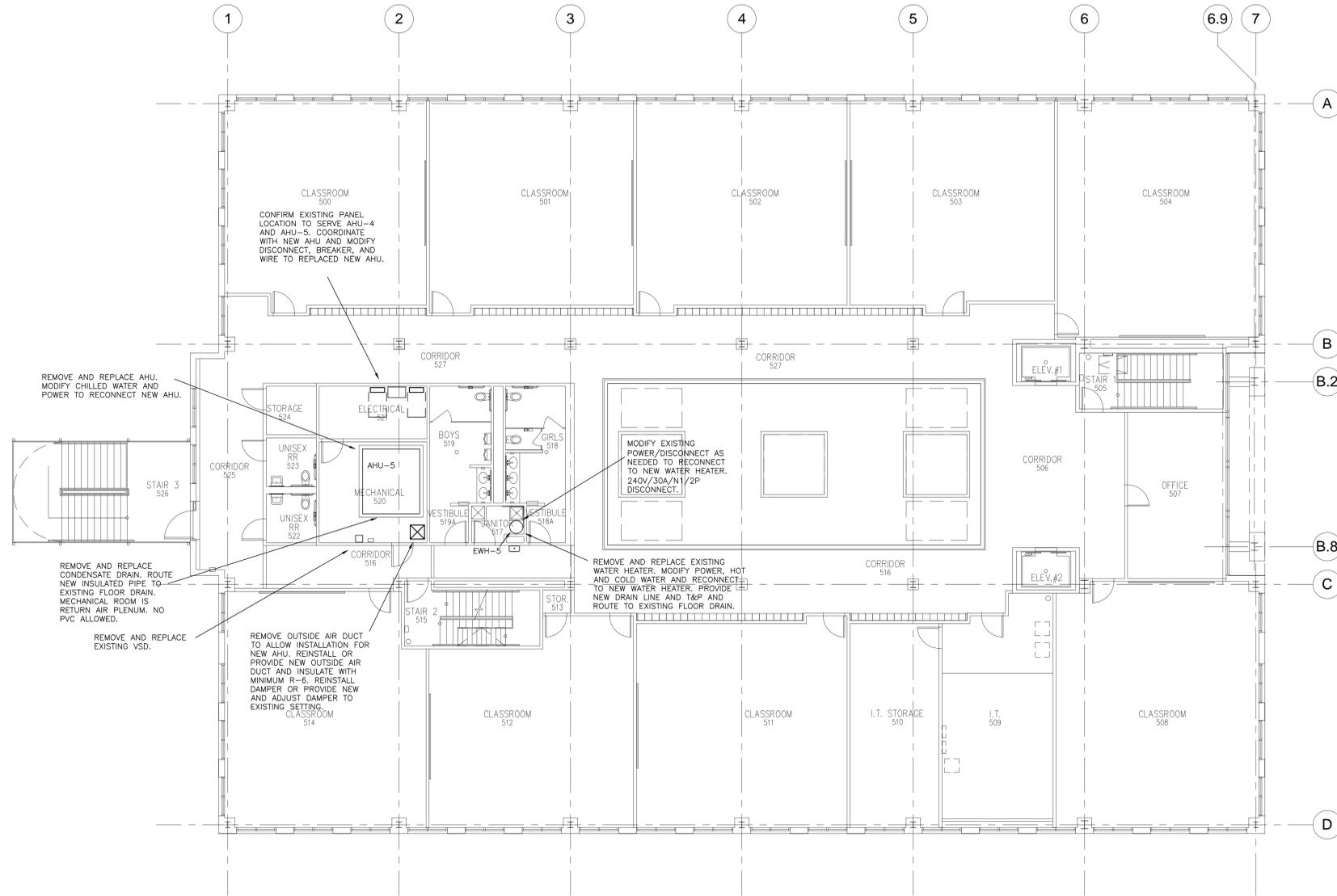
1 MEP LEVEL 4
 1/8" = 1'-0"



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 F-16795
 DIV 26,28



MEP GENERAL NOTES

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12. CIRCUIT BREAKERS SHALL BE OF SAME MANUFACTURER AS EXISTING PANELS AND EQUAL AIC RATING.

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 MULTI-CAMPUS**

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 DRAWING NAME
 MEP LEVEL 5
 BRAYS OAKS
 DRAWING NUMBER

1 MEP LEVEL 5
 1/8" = 1'-0"

MEP205

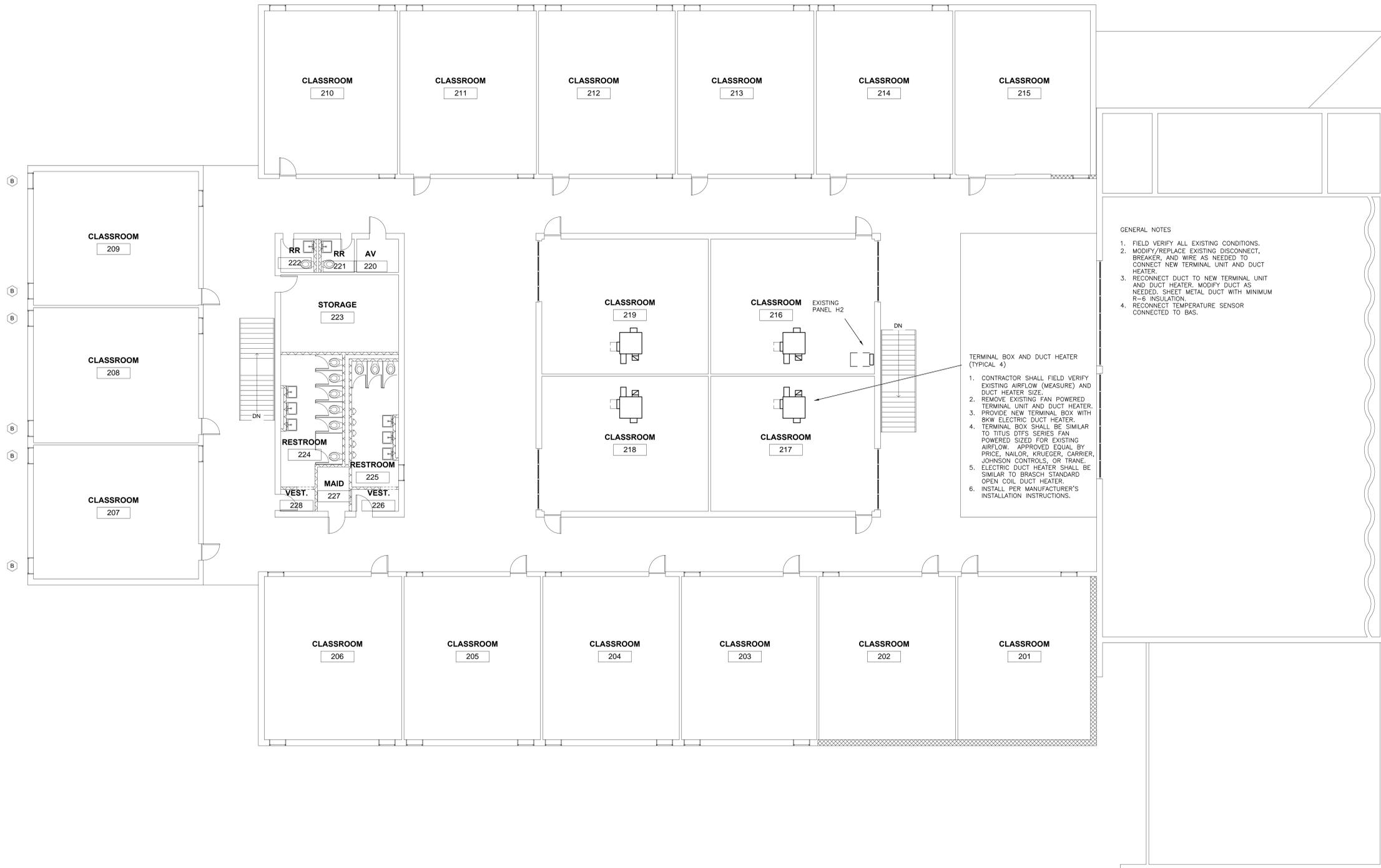


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**YES PREP MEP REPLACEMENTS
 MULTI-CAMPUS**



1 MEP LEVEL 2
 1/8" = 1'-0"

NO.	DESCRIPTION	DATE
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PROJECT NUMBER
 2020423
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 DRAWING NAME
 MEP LEVEL 2
 FIFTH WARD
 DRAWING NUMBER

MEP301

AIR HANDLING UNIT SCHEDULE

EQUIPMENT NO	LOCATION	OUTSIDE AIR CFM	SUPPLY FAN			COOLING COIL			ELECTRICAL V/PH/Hz	MCA	MOCP	BREAKER/WIRE	MANUFACTURER AND MODEL	WEIGHT (LBS)	NOTES	
			CFM	ESP (IN WC)	HP	MBH (TH/SH)	EAT (DB/WB)	LAT								GPM
AHU-1	MECH NORTH LVL 1	EXISTING SETTING	13190	0.75	10	741/448	86/72	54	142	460/3/60	15.6	25	25A/3P,#12	YORK SOLUTION-XTI-57X102	3690	ALL
AHU-2	MECH SOUTH LVL 1	EXISTING SETTING	11500	0.75	10	720/426	85/71	50	140	460/3/60	15.6	25	25A/3P,#12	YORK SOLUTION-XTI-54X90	3470	ALL
AHU-3	MECH NORTH LVL 2	EXISTING SETTING	12330	0.75	10	680/421	83/69	51	132	460/3/60	15.6	25	25A/3P,#12	YORK SOLUTION-XTI-57X90	3503	ALL
AHU-4	MECH SOUTH LVL 2	EXISTING SETTING	15050	0.75	10	782/498	85/70	54	152	460/3/60	15.6	25	25A/3P,#12	YORK SOLUTION-XTI-63X105	4255	ALL

- NOTES:
- VARIABLE SPEED DRIVE.
 - PROVIDE DUCT SMOKE DETECTOR FOR UNITS 2000 CFM SUPPLY AND GREATER.
 - 44 EWT/54 LWT.
 - MINIMUM 6 ROW COIL.
 - MOTORIZED OUTSIDE AIR DAMPER INTERLOCKED WITH FAN.

ADD ALTERNATE: REPLACE VSDs.



- AHU-1
- COORDINATE REMOVAL AND INSTALLATION OF NEW AHU.
 - INCOMING FIRE SERVICE LOCATION ADJACENT TO AHU.
 - BLANKED OFF EXTERIOR WALL SECTION MAY BE USED FOR REMOVAL/INSTALL. IF USED, ENSURE OPENING IS RESEALED WHEN COMPLETE.
 - MODIFY CHILLED WATER AS NEEDED AND RECONNECT TO NEW AHU.
 - MODIFY ELECTRICAL DISCONNECT, BREAKER, AND WIRE AS NEEDED AND RECONNECT TO NEW AHU.
 - MODIFY CONDENSATE AS NEEDED AND RECONNECT TO NEW AHU. CONDENSATE TO ELBOW OVER FLOOR DRAIN.
 - MODIFY HOUSEKEEPING PAD AS NEEDED.

- AHU-2
- COORDINATE REMOVAL AND INSTALLATION OF NEW AHU.
 - BLANKED OFF EXTERIOR WALL SECTION MAY BE USED FOR REMOVAL/INSTALL. IF USED, ENSURE OPENING IS RESEALED WHEN COMPLETE.
 - MODIFY CHILLED WATER AS NEEDED AND RECONNECT TO NEW AHU.
 - MODIFY ELECTRICAL DISCONNECT, BREAKER, AND WIRE AS NEEDED AND RECONNECT TO NEW AHU.
 - MODIFY CONDENSATE AS NEEDED AND RECONNECT TO NEW AHU. CONDENSATE TO ELBOW OVER FLOOR DRAIN.
 - MODIFY HOUSEKEEPING PAD AS NEEDED.

- MEP GENERAL NOTES
- FIELD VERIFY ALL EXISTING CONDITIONS.
 - ALL MECHANICAL, ELECTRICAL AND PLUMBING EXISTING TO REMAIN UNLESS NOTED OTHERWISE.
 - CONFIRM PHYSICAL DIMENSIONS OF NEW EQUIPMENT WILL FIT WITHIN EXISTING LOCATIONS.
 - NEW AIR HANDLING EQUIPMENT WILL NEED TO FIT THROUGH EXISTING OPENINGS/DOORS/STAIRS. DISASSEMBLE/REASSEMBLE EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.
 - MODIFY EXISTING DUCTWORK, PIPING, AND POWER AS NEEDED TO RECONNECT NEW EQUIPMENT FOR A COMPLETELY WORKING SYSTEM.
 - CONFIRM PLACEMENT OF MECHANICAL EQUIPMENT WITH STRUCTURAL ENGINEER IF CONFIGURATION/WEIGHT IS DIFFERENT THAN EXISTING.
 - MAINTAIN MINIMUM CLEARANCE TO ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - CONFIRM RECEPTACLE FOR SERVICING EQUIPMENT IS WITHIN 25FT OF HVAC.
 - REUSE OR PROVIDE NEW CHILLED WATER CONTROL VALVE.

1 MEP LEVEL 1
1/16" = 1'-0"



**YES PREP MEP REPLACEMENTS
 MULTI-CAMPUS**

NO.	DESCRIPTION	DATE
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PROJECT NUMBER
2020423

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DRAWING NAME
MEP LEVEL 1
NORTH FOREST

DRAWING NUMBER

MEP401

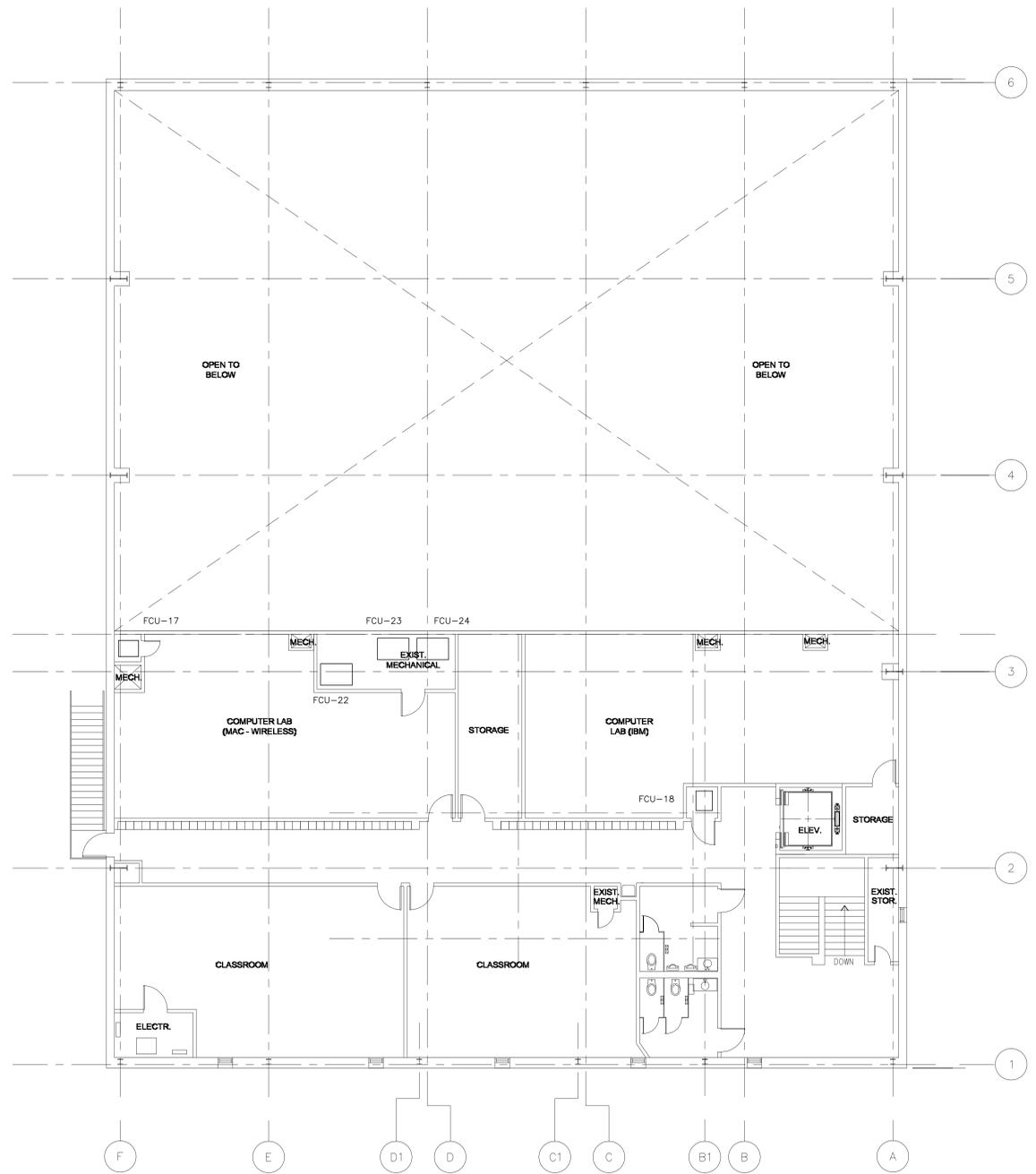


09.03.20
 F-16795
 DIV 21,22,23



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 F-16795
 DIV 26,28

**YES PREP MEP REPLACEMENTS
 MULTI-CAMPUS**



MEP GENERAL NOTES

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5. MAINTAIN MINIMUM CLEARANCE TO ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. MODIFY HOUSEKEEPING PAD AS NEEDED.
7. MODIFY DUCT AS NEEDED AND RECONNECT TO NEW UNIT. INSULATION SHALL BE MINIMUM R-6.
8. MODIFY GAS AS NEEDED AND RECONNECT TO NEW UNIT. MODIFY FLUE AS NEEDED AND RECONNECT TO NEW UNIT.
9. CONFIRM LOCATION OF EXISTING ELECTRICAL PANEL. MODIFY DISCONNECT, BREAKER, AND WIRE AS NEEDED AND RECONNECT TO NEW UNIT.
10. CONFIRM CONDENSATE AS NEEDED AND RECONNECT TO NEW UNIT. ENSURE CONDENSATE ROUTES TO SINK TAILPIECE OR ELBOWS OVER FLOOR DRAIN.
11. MODIFY REFRIGERANT AND RECONNECT TO NEW FCU AND ACCU.
12. PROVIDE MANUFACTURER'S NAMEPLATE DATA IN ACCESSIBLE LOCATION ON EQUIPMENT.
13. CONFIRM RECEPTACLE FOR SERVICING EQUIPMENT IS WITHIN 25FT OF HVAC.

1 MEP GYM LEVEL 2
 1/8" = 1'-0"

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DRAWING NAME
 MEP GYM
 LEVEL 2
 NORTH CENTRAL

DRAWING NUMBER

MEP502

DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING

- 230000 HVAC BASIC REQUIREMENTS
- A. MINIMUM STANDARDS FOR ALL WORK SHALL BE CITY OF HOUSTON AMENDMENTS TO 2012 INTERNATIONAL BUILDING CODE, 2012 UNIFORM MECHANICAL CODE, AND 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
- B. REFERENCES: THE STANDARDS MENTIONED HEREIN WILL BE REFERRED TO IN THE DESIGN OF MECHANICAL SYSTEMS. THE ENGINEER WILL SELECT APPROPRIATE SECTIONS OF THE STANDARD TO BE APPLIED IN ACCORDANCE WITH ESTABLISHED ENGINEERING PRINCIPLES AND PRACTICES.
- C. APPLICABLE SECTIONS OF NFPA
1. AMERICANS WITH DISABILITIES ACT (ADA)
 2. TEXAS ACCESSIBILITY STANDARDS (TAS)
- D. SITE CONDITIONS: BEFORE SUBMITTING ANY PROPOSAL, EXAMINE THE PROPOSED SITE AND DETERMINE ANY CONDITIONS THAT MAY AFFECT THE WORK. NO ALLOWANCE SHALL BE MADE FOR FAILURE TO MAKE SURE EXAMINATIONS.
- E. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIALS, AND LABOR TO SATISFY A COMPLETE WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.
- F. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL OTHER TRADES INCLUDING ARCHITECT, STRUCTURAL, CIVIL, PLUMBING, AND ELECTRICAL.
- G. DO NOT SCALE FROM THE ENGINEER DRAWINGS. REFER TO THE DIMENSIONED DRAWINGS OF THE ARCHITECT FOR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC.
- H. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS REQUIRED FOR THE INSTALLATION OF WORK AND PAY ALL INCIDENTAL CHARGES.
- I. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING ALL TESTS NECESSARY TO PREVENT CONCEALMENT OF DEFECTIVE OR IMPROPER WORK. UPON COMPLETION OF WORK, TEST INSTALLATION THOROUGHLY AND RENDER IT FROM LEAKS OR IMPROPER CONNECTIONS.
- J. PROTECT EQUIPMENT AND WORK FROM DAMAGE DURING HANDLING AND INSTALLATION UNTIL COMPLETION OF CONSTRUCTION. REMOVE ALL EXCESS DEBRIS AND CLEAN ALL EQUIPMENT UPON COMPLETION OF WORK. TOUCH UP WITH PAINT WHERE REQUIRED.
- 230513 COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT
- A. PROVIDE HIGH EFFICIENCY MOTORS IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE.
- 230548 VIBRATION ISOLATION
- A. VIBRATION ISOLATION WILL BE PROVIDED AS REQUIRED TO MINIMIZE TRANSMISSION TO STRUCTURE. EQUIPMENT AND PIPING SHALL HAVE ISOLATORS INSTALLED AT POINTS OF SUPPORT. APPROVED MANUFACTURERS: AMBER/BOOTH, MASON, KINETICS NOISE CONTROL, VIBRO-ACOUSTICS.
1. ROOF MOUNTED AIR HANDLING UNITS GREATER THAN 10 TONS: VIBRO-ACOUSTICS RTR (ROOFTOP RAIL) CURB WITH WIND LOAD RATINGS WITH MINIMUM 0.75" DEFLECTION
 2. SUSPENDED AIR HANDLING UNITS: VIBRO-ACOUSTICS SHRB COMBINATION SPRING AND NEOPRENE HANGER ISOLATORS WITH MINIMUM 0.75" DEFLECTION
 3. ROOF MOUNTED CONDENSING UNITS: VIBRO-ACOUSTICS SFS RESTRAINED SPRING FLOOR MOUNT.
- 230593 TESTING, ADJUSTING, AND BALANCING FOR HVAC
- B. ADJUST ALL AIR SYSTEM DAMPERS AND VOLUME CONTROLLERS TO OBTAIN PROPER AIR BALANCE THROUGHOUT THE CONDITIONED AREA. THE AIR QUANTITIES SHOWN ON THE DRAWINGS FOR INDIVIDUAL OUTLETS MAY BE CHANGED TO OBTAIN UNIFORM TEMPERATURE WITHIN EACH ZONE, BUT THE TOTAL AIR QUANTITY SHOWN FOR EACH ZONE MUST BE OBTAINED WITHIN +/- 10%. MAXIMUM TEMPERATURE VARIATION WITHIN A ZONE SHALL BE 2°F.
- C. ADJUST ALL BLOWER DRIVES TO OBTAIN PROPER TOTAL AMOUNTS OF AIR, INCLUDING EXHAUST AND OUTSIDE AIR SUPPLY.
- D. CALIBRATE, SET, AND ADJUST ALL AUTOMATIC TEMPERATURE CONTROLS.
- E. PROVIDE A WRITTEN REPORT TO THE OWNER AND ENGINEER IN ACCORDANCE WITH AABC, NEBB, OR ASHRAE 111.
- 230713 DUCT INSULATION
- A. INSULATION WRAP: 3/4" LB. DENSITY GLASS FIBER WRAP WITH FOIL BACK VAPOR BARRIER JACKET.
- B. ALL INSULATION THICKNESS SHALL MEET THE MINIMUM REQUIREMENTS OF INTERNATIONAL ENERGY CONSERVATION CODE.
- 230719 HVAC PIPING INSULATION
- A. CONDENSATE DRAIN PIPING SYSTEMS WITHIN AIR CONDITIONED SPACES: FACTORY MOLDED FIBERGLASS PIPE COVERING DENSITY NOT LESS THAN 3 LBS. PER CU.FT., CONDUCTIVITY (K) NOT HIGHER THAN 0.27 AT 75°F WITH FACTORY ATTACHED WHITE SELF SEALING LAP AS-3 S5L VAPOR BARRIER JACKET.
- 233113 METAL DUCTS
- A. DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCT SYSTEM, INDICATED DUCT LOCATIONS, CONFIGURATIONS, AND ARRANGEMENTS WERE USED TO SIZE DUCTS AND CALCULATE FRICTION LOSS FOR AIR-HANDLING EQUIPMENT SIZING AND FOR OTHER DESIGN CONSIDERATIONS. INSTALL DUCT SYSTEMS AS INDICATED UNLESS DEVIATIONS TO LAYOUT ARE APPROVED ON SHOP DRAWINGS.
- B. GENERAL MATERIAL REQUIREMENTS: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESS, AND DUCT CONSTRUCTION METHODS UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.
1. DUCTS CONNECTED TO AIR HANDLING EQUIPMENT: GALVANIZED SHEET STEEL: COMPLY WITH ASTM A 653/A 653M.
 - a. GALVANIZED COATING DESIGNATION: G60.
- C. HANGER SPACING: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-1, "RECTANGULAR DUCT HANGERS MINIMUM SIZE," AND TABLE 5-2, "MINIMUM HANGER SIZES FOR ROUND DUCT," FOR MAXIMUM HANGER SPACING. INSTALL HANGERS WITHIN 24 INCHES OF EACH ELBOW AND WITHIN 48 INCHES OF EACH BRANCH INTERSECTION.
- 233300 AIR DUCT ACCESSORIES
- A. FLEXIBLE CONNECTORS: PROVIDE FLEXIBLE CONNECTORS AT ALL AIR HANDLING EQUIPMENT.
1. INDOOR FLEXIBLE CONNECTOR FABRIC: GLASS FABRIC DOUBLE COATED WITH NEOPRENE.
 - a. MINIMUM WEIGHT: 26 OZ./SQ.YD.
 - b. TENSILE STRENGTH: 480 LBF/INCH N THE WARP AND 360 LBF/INCH IN THE FILLING.
 - c. SERVICE TEMPERATURE: MINUS 40 TO PLUS 200 DEG F.
 2. OUTDOOR FLEXIBLE CONNECTOR FABRIC: RUBBER DOUBLE COATED WITH WEATHERPROOF, SYNTHETIC RUBBER RESISTANT TO UV RAYS AND OZONE.
 - a. MINIMUM WEIGHT: 24 OZ./SQ.YD.
 - b. TENSILE STRENGTH: 530 LBF/INCH N THE WARP AND 440 LBF/INCH IN THE FILLING.
 - c. SERVICE TEMPERATURE: MINUS 50 TO PLUS 250 DEG F.
- 233600 FAN COIL UNITS (DX)
- A. CASINGS: CONSTRUCTED OF 18-GAUGE GALVANIZED STEEL, INSULATED WITH ONE-INCH, 1-1/2 LB DENSITY FIBERGLASS FIRE RESISTANT AND ODORLESS GLASS FIBER MATERIAL TO PROVIDE THERMAL AND ACOUSTICAL INSULATION. FAN HOUSING SIDES ARE DIRECTLY ATTACHED TO THE AIR HANDLER TOP AND BOTTOM PANELS STRENGTHENING THE ENTIRE UNIT ASSEMBLY. COIL ACCESS PANELS ARE LOCATED ON BOTH SIDES OF THE AIR HANDLER AND ALLOW EASY REMOVAL OF INTERNAL COILS AND DRAIN PAN. ACCESS PANELS PROVIDE ACCESS TO FAN, MOTOR, AND DRIVE FROM BOTH SIDES OF AIR HANDLER.
- B. INSULATION: INTERIOR SURFACE OF UNIT IS ACOUSTICALLY AND THERMALLY LINED WITH 1 INCH, 2.0 LB/CU FT. R-VALUE 4.3 DENSITY GLASS FIBER WITH A FOIL FACING. INSULATION IS UL LISTED AND MEETS NFPA-90A, UL 181, AND BACTERIOLOGICAL C665 STANDARDS.
- C. DX COIL: SEAMLESS COPPER TUBES EXPANDED INTO FULL FIN COLLARS FOR PERMANENT FIN-TUBE BOND AND TYPE H ALUMINUM FINS MECHANICALLY BONDED. 4 OR 6 ROW COILS WITH 12 FINS PER INCH FIN SPACING. COILS HAVE ROUNDED, SEAMLESS, COPPER PIPE LIQUID LINES AND SUCTION HEADERS WITH MALE SWEAT CONNECTIONS. SUCTION HEADERS HAVE BOTTOM CONNECTIONS TO AID DRAINAGE OF ANY OIL THAT MAY COLLECT IN COIL. LIQUID LINE AND SUCTION CONNECTIONS ARE OUTSIDE THE UNIT CASING ON SAME SIDE OF UNIT TO FACILITATE FIELD PIPING. COILS ARE DEHYDRATED AND SEALED WITH A DRY AIR CHARGED. COILS ARE RATED PER AHRI 410.
- D. GAS HEAT: FACTORY PROVIDED AND MOUNTED GAS FURNACE TO MEET ANSI Z 21.47/CSA 2.3.
- E. RESET BACK-UP PROTECTION: SECONDARY MANUAL RESET BACK-UP PROTECTION PROVIDED.
- F. DISCONNECT SWITCH: FACTORY PROVIDED DISCONNECT SWITCH WITH

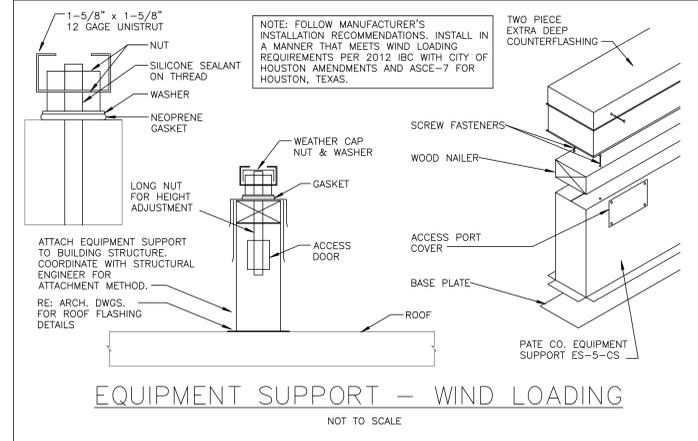
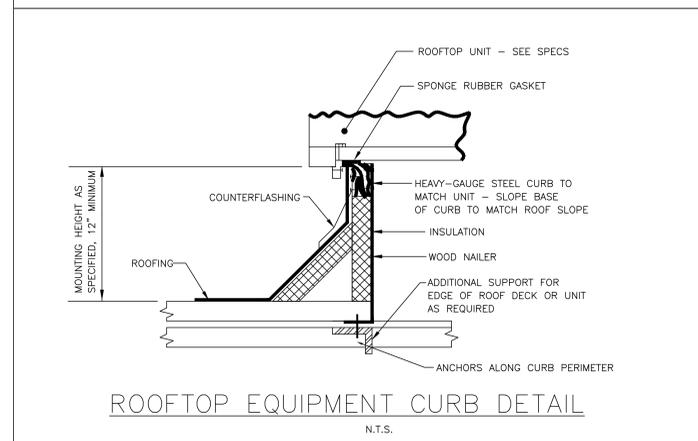
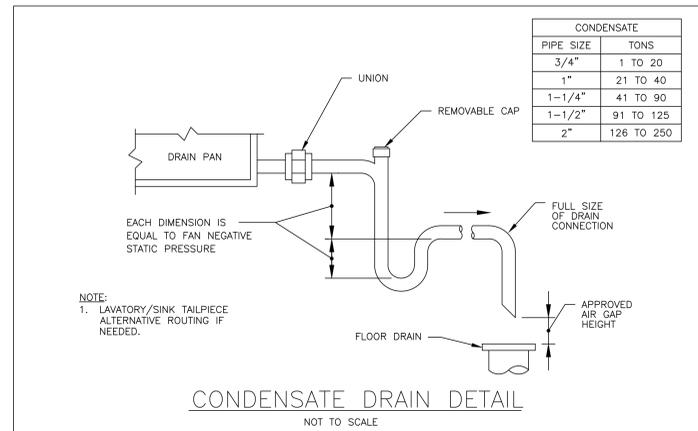
- G. AN INTERLOCKING DOOR ON THE HEATER CONTROL PANEL.
- H. LINE FUSE: SAFETY FUSE LOCATED IN ELECTRIC HEATER'S LINE OF POWER TO PREVENT POWER SURGE DAMAGE TO ELECTRIC HEATER.
- I. FAN FANS ARE FORWARD CURVED, CENTRIFUGAL BLOWER TYPE EQUIPPED WITH HEAVY-DUTY ADJUSTABLE SPEED V-BELT DRIVES. FAN SHAFT IS SUPPORTED BY HEAVY-DUTY, PERMANENTLY SEALED BALL BEARINGS. FAN IS DYNAMICALLY BALANCED.
- J. FILTER: UNITS ARE EQUIPPED WITH 2" FLAT PLEATED MEDIA FILTERS, MOTOR 8 PER ASHRAE 52.2.
- K. MOTOR: 60 HZ, 1750 RPM MOTOR WITH +/- 10% VOLTAGE UTILIZATION RANGE. MOTOR IS OPEN DRIP-PROOF WITH PERMANENTLY SEALED BALL BEARINGS. I INTERNAL OVERLOAD PROTECTION, MINIMUM 1-15 SERVICE FACTOR, AND SIZE 56 RESILIENT BASE FRAMES. MOTOR IS FACTORY INSTALLED AND WIRE TO THE AIR HANDLER JUNCTION BOX.
- L. DRAIN PAN: DRAIN PAN IS NONCORROSIVE AND DOUBLE SLOPED TO ALLOW CONDENSATE DRAINAGE. DRAIN PAN IS CONSTRUCTED OF STAINLESS STEEL. COILS MOUNT ABOVE THE DRAIN PAN TO ALLOW THE DRAIN PAN TO BE FULLY INSPECTED AND CLEANED. DRAIN PAN CAN BE REMOVED FOR CLEANING. MAIN DRAIN CONNECTION IS LOWEST POINT OF DRAIN PAN. AN AUXILIARY DRAIN CONNECTION IS PROVIDED ON THE SAME SIDE AS THE MAIN CONNECTION.
- M. THERMOSTAT CONTROL INTERFACE: EXISTING TEMPERATURE SENSOR CONNECTED TO EXISTING BAS.
- N. ACCEPTABLE MANUFACTURERS: TRANE, YORK, CARRIER.
- 236313 AIR COOLED CONDENSING UNITS
- A. CONDENSING UNIT SHALL INCLUDE COMPRESSORS, AIR-COOLED CONDENSING COILS, CONDENSING FAN SUCTION AND LIQUID CONNECTION VALVES, AND UNIT CONTROLS.
- B. CONSTRUCTION
1. UNIT SHALL BE COMPLETELY FACTORY ASSEMBLED, PIPED, WIRED, AND SHIPPED IN ONE SECTION.
 2. UNIT SHALL BE SPECIFICALLY DESIGNED FOR OUTDOOR APPLICATION.
- C. ELECTRICAL
1. UNIT SHALL BE PROVIDED WITH STANDARD POWER BLOCK FOR CONNECTING POWER TO THE UNIT.
 2. CONTROL CIRCUIT TRANSFORMER AND WIRING SHALL PROVIDE 24 VAC CONTROL VOLTAGE FROM THE LINE VOLTAGE PROVIDED TO THE UNIT.
- D. REFRIGERATION SYSTEM
1. COMPRESSORS SHALL BE SCROLL TYPE WITH THERMAL OVERLOAD PROTECTION AND INDEPENDENTLY CIRCUITED.
 2. EACH COMPRESSOR SHALL INCLUDE A CRANKCASE HEATER.
 3. COMPRESSORS SHALL BE MOUNTED IN AN ISOLATED SERVICE COMPARTMENT WHICH CAN BE ACCESSED WITHOUT AFFECTING UNIT OPERATION. LOCKABLE ACCESS DOORS SHALL PROVIDE ACCESS TO COMPRESSORS.
 4. COMPRESSORS SHALL BE ISOLATED FROM THE BASE PAN WITH COMPRESSOR MANUFACTURER'S RECOMMENDED RUBBER VIBRATION ISOLATORS.
 5. EACH REFRIGERATION CIRCUIT SHALL BE EQUIPPED WITH AUTOMATIC RESET LOW-PRESSURE AND MANUAL RESET HIGH-PRESSURE REFRIGERANT SAFETY CONTROL TYPE SERVICE FITTINGS ON BOTH THE HIGH-PRESSURE AND LOW-PRESSURE SIDES, AND SERVICE VALVES FOR LIQUID AND SUCTION CONNECTIONS. LIQUID LINE FILTER DRIERS SHALL BE FACTORY PROVIDED. FINISHED FIELD INSTALLED REFRIGERANT CIRCUITS SHALL INCLUDE THE LOW-SIDE COOLING COMPONENTS, REFRIGERANT THERMAL EXPANSION VALVE, LIQUID LINE, INSULATED HOT GAS BYPASS LINE, AND INSULATED SUCTION LINE.
 6. UNITS SHALL INCLUDE A FACTORY HOLDING CHARGE OF R-410A REFRIGERANT AND OIL.
 7. DIGITAL COMPRESSOR SHALL BE EQUIPPED WITH A 5 MINUTE OFF DELAY TIMER TO PREVENT COMPRESSOR SHORT CYCLING.
 8. THE UNIT SHALL BE CAPABLE OF STABLE COOLING OPERATION TO A MINIMUM OF 55°F OUTDOOR TEMPERATURE.
- E. CONDENSERS - AIR COOLED
1. CONDENSER FANS SHALL BE VERTICAL DISCHARGE, AXIAL FLOW, DIRECT DRIVE FANS.
 2. FAN MOTOR SHALL BE WEATHER PROTECTED, SINGLE PHASE, DIRECT DRIVE, AND OPEN DRIP PROOF WITH INHERENT OVERLOAD PROTECTION.
 3. COILS SHALL BE DESIGNED FOR USE WITH R-410A REFRIGERANT AND CONSTRUCTED OF COPPER TUBES WITH ALUMINUM END CASINGS. FIN DESIGN SHALL BE SINE WAVE RIPPLED.
 4. COILS SHALL BE DESIGNED FOR A MINIMUM OF 10°F OF REFRIGERANT SUB-COOLING.
- F. CONTROLS
1. UNITS SHALL BE PROVIDED WITH THERMAL BLOCK FOR FIELD INSTALLATION OF CONTROLS.
- G. WARRANTY
1. COMPRESSOR: NOT LESS THAN 5 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
- H. ACCEPTABLE MANUFACTURERS: TRANE, CARRIER, YORK.
- 237313 MODULAR INDOOR CENTRAL-STATION AIR-HANDLING UNITS CASINGS
1. G-90 GALVANIZED STEEL BASE RAILS, 14-GAUGE MINIMUM.
 2. CASING PANELS CONSTRUCTED OF G-90 GALVANIZED STEEL, DOUBLE WALL PANEL ASSEMBLIES R-13 MINIMUM.
 3. ACCESS DOORS: DOUBLE WALL PANEL ASSEMBLIES R-13 MINIMUM, HINGED, GASKETED.
 4. CONDENSATE DRAIN PAN: DOUBLE WALL, STAINLESS STEEL.
- B. FAN: FORWARD CURVE, CENTRIFUGAL, BELT DRIVE, INTERNAL VIBRATION ISOLATION, TOTALLY ENCLOSED, FAN COOLED MOTOR.
- C. COIL: ALUMINUM FINS WITH STAINLESS STEEL CASING, STEEL HEADER D. FILTRATION SECTION: 2" PLEATED MERV 8.
- E. ELECTRICAL: SINGLE POINT CONNECTION.
- F. ACCEPTABLE MANUFACTURERS: TRANE, CARRIER, YORK.
- G. ENERGY EFFICIENCY: PROVIDE HIGH EFFICIENCY UNITS EXCEEDING MINIMUM ENERGY EFFICIENCY RATINGS IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE.
- H. WARRANTY:
1. MANUFACTURER'S STANDARD, BUT NOT LESS THAN ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
- 237413 PACKAGED, OUTDOOR, CENTRAL STATION AIR HANDLING UNITS
- J. UNITS SHALL BE SPECIFICALLY DESIGNED FOR OUTDOOR APPLICATION. STRUCTURAL MEMBERS AND CASING PANELS SHALL BE ALL GALVANIZED. ROOF AND SIDE WALL PANELS SHALL BE GALVANIZED SHEET STEEL CONSTRUCTION WITH MINIMUM 1/2" THICK, 1 LB DENSITY, FLEXIBLE FIBERGLASS INSULATION, NEOPRENE COATED ON THE AIR SIDE. ROOF AND SIDEWALL SEAMS SHALL BE CONTINUOUSLY CALKED AND COVERED WITH SEAM CAPS.
- K. COILS: ALUMINUM PLATE FIN AND SEAMLESS COPPER TUBE IN STEEL CASING WITH EQUALIZING-TYPE VERTICAL. POLYMER STRIP SHALL PREVENT ALL COPPER COILS FROM CONTACTING STEEL COIL FRAME OR CONDENSATE PAN. COIL SPACING: FACE SPLIT. FACE VELOCITY SHALL NOT EXCEED 500 FPM. CAPACITY RATINGS SHALL BE BASED ON 105°F AMBIENT.
- L. EVAPORATOR FAN: BLOWER FAN SHALL BE VAN AXIAL FAN DESIGN WITH 75% LESS MOVING PARTS THAN A CONVENTIONAL BELT DRIVE SYSTEM. CAST ALUMINUM STATOR AND HIGH IMPACT COMPOSITE MATERIAL ON ROTOR AND AIR INLET CASING.
- M. BELT-DRIVEN SUPPLY-AIR FANS: DOUBLE WIDTH, FORWARD CURVED, CENTRIFUGAL, WITH PERMANENTLY LUBRICATED, SINGLE-SPEED MOTOR INSTALLED ON AN ADJUSTABLE FAN BASE RESILIENTLY MOUNTED IN THE CASING. ALUMINUM OR PAINTED-STEEL WHEELS, AND GALVANIZED- OR PAINTED-SHEET FAN SCROLLS.
- N. CONDENSER-COIL FAN: PROPELLER, MOUNTED ON SHAFT OF PERMANENTLY LUBRICATED MOTOR.
- O. REFRIGERANT CIRCUIT COMPONENTS:
1. COMPRESSOR: HERMETIC, TWO STAGE SCROLL, MOUNTED ON VIBRATION ISOLATORS; WITH INTERNAL OVERCURRENT AND HIGH-TEMPERATURE PROTECTION, INTERNAL PRESSURE RELIEF, AND CRANKCASE HEATER.
 2. REFRIGERATION SPECIALTIES:
 - a. REFRIGERANT: R-410A.
 - b. EXPANSION VALVE WITH REPLACEABLE THERMOSTATIC ELEMENT
 - c. REFRIGERANT FILTER/DRYER
 - d. MANUAL-RESET HIGH-PRESSURE SAFETY SWITCH.
 - e. AUTOMATIC-RESET LOW-PRESSURE SAFETY SWITCH.
 - f. MINIMUM OFF-TIME RELAY.
 - g. AUTOMATIC-RESET COMPRESSOR MOTOR THERMAL OVERLOAD.
 - h. BRASS SERVICE VALVES INSTALLED IN COMPRESSOR SUCTION AND LIQUID LINES.
 - i. LOW-AMBIENT KIT HIGH-PRESSURE SENSOR.
 - j. EQUIPMENT SHALL BE RATED FOR 105°F AMBIENT.
- G. ELECTRIC HEAT: HEATER ELEMENT OPEN COIL RESISTANCE WIRE, NICKEL-CHROME ALLOY, 0.29 INCHES INSIDE DIAMETER, STRUNG THROUGH CERAMIC INSULATORS MOUNTED ON METAL FRAME. COIL ENDS STAKED AND WELDED TO TERMINAL SCREW SLOTS.
- H. PROVIDE FOR SINGLE CONNECTION OF POWER TO UNIT WITH

- UNIT-MOUNTED DISCONNECT SWITCH ACCESSIBLE FROM OUTSIDE UNIT AND CONTROL-CIRCUIT TRANSFORMER WITH BUILT-IN OVERCURRENT PROTECTION.
- I. FILTER VELOCITY: 350 FPM MAXIMUM (MERV 13).
- J. UNIT CONTROLS: EXISTING SENSOR CONNECTED TO BAS.
- K. ACCEPTABLE MANUFACTURERS: TRANE, CARRIER, YORK.
- L. ENERGY EFFICIENCY: PROVIDE HIGH EFFICIENCY UNITS EXCEEDING MINIMUM ENERGY EFFICIENCY RATINGS IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE.
- M. WARRANTIES:
1. COMPRESSORS: MANUFACTURER'S STANDARD, BUT NOT LESS THAN FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
 2. ELECTRIC HEAT: MANUFACTURER'S STANDARD, BUT NOT LESS THAN FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
 3. PARTS: MANUFACTURER'S STANDARD, BUT NOT LESS THAN ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
- N. ROOF CURB: PROVIDE ROOF CURB IN ACCORDANCE WITH SECTION 230548 VIBRATION ISOLATION.
- COMMISSIONING PLAN
- A. AIR SYSTEM BALANCE
1. ADJUST ALL AIR SYSTEM DAMPERS AND VOLUME CONTROLLERS TO OBTAIN PROPER AIR BALANCE THROUGHOUT THE CONDITIONED AREA. THE AIR QUANTITIES SHOWN ON THE DRAWINGS FOR INDIVIDUAL OUTLETS MAY BE CHANGED TO OBTAIN UNIFORM TEMPERATURE WITHIN EACH ZONE AND SHALL BE WITHIN +/- 10% OF SCHEDULED VALUES AND THE TOTAL AIR QUANTITY SHOWN FOR EACH ZONE MUST BE OBTAINED WITHIN +/- 10%. MAXIMUM TEMPERATURE VARIATION WITHIN A ZONE SHALL BE 2°F.
 2. ADJUST ALL BLOWER DRIVES TO OBTAIN PROPER TOTAL AMOUNTS OF AIR, INCLUDING EXHAUST AND OUTSIDE AIR SUPPLY.
 3. CALIBRATE, SET, AND ADJUST ALL AUTOMATIC TEMPERATURE CONTROLS.
- B. FUNCTIONAL PERFORMANCE TESTING
1. EQUIPMENT FUNCTIONAL PERFORMANCE TESTING SHALL DEMONSTRATE THE INSTALLATION AND OPERATION OF COMPONENTS, SYSTEMS, AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS SUCH THAT OPERATION, FUNCTION, AND MAINTENANCE SERVICEABILITY FOR EACH OF THE COMMISSIONED SYSTEMS IS CONFIRMED. TESTING SHALL INCLUDE ALL MODES AND SEQUENCE OF OPERATION, INCLUDING UNDER FULL-LOAD, PART-LOAD, AND THE FOLLOWING EMERGENCY CONDITIONS:
 - a. ALL MODES AS DESCRIBED IN SEQUENCE OF OPERATION.
 - b. REDUNDANT OR AUTOMATIC BACK-UP MODE.
 - c. PERFORMANCE OF ALARMS.
 2. MODE OF OPERATION UPON A LOSS OF POWER AND RESTORATION OF POWER.
 - a. EXCEPTION: UNITARY OR PACKAGED HVAC EQUIPMENT LISTED IN TABLES C403.2.3(1) THROUGH C403.2.3(3) THAT DO NOT REQUIRE SUPPLY AIR ECONOMIZERS.
- C. CONTROLS
1. HVAC CONTROL SYSTEMS SHALL BE TESTED TO DOCUMENT THAT CONTROL DEVICES, COMPONENTS, EQUIPMENT, AND SYSTEMS ARE CALIBRATED AND ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.
 2. SEQUENCES OF OPERATION SHALL BE FUNCTIONALLY TESTED TO DOCUMENT THEY OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.
- D. ECONOMIZERS
1. AIR ECONOMIZERS SHALL BE FUNCTIONALLY TESTED TO DOCUMENT THAT THEY OPERATE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- E. COMMISSIONING REPORT
1. MECHANICAL CONTRACTOR SHALL PROVIDE A REPORT OF THE ABOVE COMMISSIONING TEST PROCEDURES AND RESULTS AND PROVIDE TO GENERAL CONTRACTOR TO COMPLY WITH ELECTRICAL AND PLUMBING REPORTS.
 2. REPORT SHALL IDENTIFY ANY DEFICIENCIES THAT HAVE NOT YET BEEN CORRECTED. DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION BECAUSE OF CLIMATIC CONDITIONS, AND CLIMATIC CONDITIONS REQUIRED FOR PERFORMANCE OF THE DEFERRED TESTS.
 3. GENERAL CONTRACTOR SHALL PROVIDE COMPILED REPORT TO OWNER/REPRESENTATIVE.
- DOCUMENTATION REQUIREMENTS
- A. WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE THE FOLLOWING DOCUMENTS SHALL BE PROVIDED TO THE OWNER:
1. MANUALS: OPERATING AND MAINTENANCE MANUALS SHALL BE PROVIDED AND INCLUDE THE FOLLOWING:
 - a. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
 - b. OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
 - c. NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY.
 - d. HVAC CONTROLS SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET-POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR FOR DIGITAL CONTROL SYSTEMS IN PROGRAMMING COMMENTS.
 - e. A COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SUGGESTED SET-POINTS.

SYSTEM	DUCT/PIPING MATERIAL	INSULATION MATERIAL
CONDENSATE DRAINS	TYPE "L" HARD DRAWN COPPER	AP ARMAFLEX (25/50 RATED), 3/4" THICKNESS MINIMUM, THICKER IF REQUIRED TO PREVENT CONDENSATION AT 85°F AND 70% RELATIVE HUMIDITY
SUPPLY & RETURN DUCT (RECTANGULAR)	GALVANIZED SHEET METAL LINER	JOHNS MANVILLE PERMACOTE LINACOUSITIC OR EQUAL, 1-1/2 LB/CU FT. NFPA 25/50 FLAME SPREAD AND SMOKE DEVELOPED RATING. MINIMUM INSTALLED R-8 INSIDE AND R-8 OUTSIDE BUILDING ENVELOPE.
SUPPLY & RETURN DUCT (SPIRAL/ROUND)	SPIRAL/ROUND DUCT LINER INSULATION	CERTANTEED TOUGHGUARD ULTRA-ROUND SPIRAL DUCT LINER, NFPA 25/50 FLAME SPREAD AND SMOKE DEVELOPED RATING. MINIMUM INSTALLED R-8 INSIDE AND R-8 OUTSIDE BUILDING ENVELOPE.
SUPPLY, RETURN & OUTSIDE AIR DUCT	GALVANIZED SHEET METAL DUCT WRAP	1-1/2 LB/CU FT DENSITY FIBERGLASS FOIL-BACK, FLAME SPREAD RATING 25 OR LESS, SMOKE DEVELOPED RATING 50 OR LESS. MINIMUM INSTALLED R-8 INSIDE AND R-8 OUTSIDE BUILDING ENVELOPE.
CHILLED WATER SUPPLY & RETURN	SCHEDULE 40 BLACK STEEL	PHENOLIC FOAM INSULATION, 2" THICK
REFRIGERANT PIPING	TYPE "L" HARD DRAWN COPPER	ARMAFLEX 1" THICKNESS MINIMUM FOR LIQUID WITH MANUFACTURER-APPROVED PROTECTION FOR INSULATION EXPOSED TO WEATHER

NOTES:

1. DUCT AND PLENUMS SHALL BE SEALED IN ACCORDANCE WITH THE MECHANICAL CODE AND SMACNA METHOD A.



YES PREP MEP REPLACEMENTS MULTI-CAMPUS

NO.	DESCRIPTION	DATE
	ISSUE FOR CONSTRUCTION	09.03.20

PROJECT NUMBER
2020423

DRAWN BY
SEH

CHECKED BY
SEH

DRAWING NAME
SPECIFICATIONS

DRAWING NUMBER

