



ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

REQUEST FOR QUALIFICATIONS

RFQ 24-05-BOND Test & Balance

Issued by:

Connie Cox

Director of Finance

Phone: 979-864-8045

Fax: 979-864-8072

URL: www.angletonisd.net

Email: ccox@angletonisd.net

Submittal Deadline:

May 29, 2024, 2:00 PM (CST)

CONTACT FOR SOQ SUBMISSION QUESTIONS

Toni Dozier, Accounting Manager
Angleton Independent School District
Phone: (979) 864-8042
Email: tdozier@angletonisd.net

CONTACT FOR ALL OTHER SOQ QUESTIONS

Tameem Tulti
Prolégo Consulting Solutions
Email: TTulti@Prolego-CS.com

REQUEST FOR STATEMENT OF QUALIFICATIONS

This is an invitation and request for Request for Qualifications from qualified professional engineers to provide Test & Balance Commissioning. The contract, Angleton Independent School District “Agreement for Design Consultant Services”, will be executed between Angleton ISD and the engineering firm and will be dated upon approval. Responses to this Request for Qualifications will be received at the time and location designated and shall include the information requested hereafter.

DUE DATE

Qualifications must be submitted by Wednesday, May 29, 2024, no later than 2:00 PM (CST) to the Administration Building, 1900 N. Downing, Angleton, Texas 77515. See “Instructions” in the Submission Requirements section of this document for details. No submissions will be accepted after this time.

CONTRACT TERM

This contract will be effective for two (2) years, with renewal options for additional one-year periods (as listed below), at Angleton ISD’s option and with the acceptance of the awarded Firm. In the event this contract expires before another contract is awarded, Angleton ISD may extend the contract term on a month-to-month basis by mutual agreement with the Firm.

Initial Term	June 18, 2024 through June 17, 2026
First Renewal Option	June 18, 2026 through June 17, 2027

FEES

This Request for Qualifications does not ask for fee information. Upon selection of an engineering firm, Angleton ISD will meet with the selected firm to negotiate a fee.

ANTICIPATED SCHEDULE OF EVENTS

Request for Qualifications Issued:	May 1, 2024
Written Questions Due:	May 15, 2024
submit questions to Tameem Tulti at TTulti@Prolego-CS.com	

Statement of Qualifications Due: May 29, 2024, no later than 2:00 PM (CST)

Every effort will be made to adhere to the schedule set forth. The date of notification is subject to extension in the event that further clarification is in the best interest of Angleton ISD and in the event Angleton ISD requires more time to assure that the selection of the firm is in accordance with its policies, rules, and regulations.

INTRODUCTION

Angleton ISD is seeking Statement of Qualifications (SOQ) from qualified professional engineers to provide Test & Balance Commissioning for the new Elementary School and Junior High School as a part of the Districtwide 2022 Bond Projects . The new Elementary School and Junior High School projects will be paid from a variety of funding sources including, but not limited to, bond funds, general funds, and federal funds. The scope of the services required by Angleton ISD is the Test & Balance Commissioning for the new Elementary School and Junior High School.

The selected firm will be specifically authorized for the Test & Balance Commissioning for the New Elementary School and Junior High School projects. Angleton ISD and the selected firm agree that no specific quantity of work is guaranteed to be provided to the selected firm under the terms and conditions of this agreement. Angleton ISD does not guarantee the selected firm will be assigned a specific project during the term of the agreement. The selected firm shall provide all services required by, and in accordance with the project and such other necessary and incidental services that are required to provide professional services for the project.

DETAILED SCOPE OF WORK

The selected firm shall perform consultation, research, professional and technical services required for Test & Balance Commissioning, including, but not limited to, sampling, analysis, reports, and work related, on an as needed basis. The selected firm shall only perform work that is assigned in an authorized contract or Purchase Order. This Contract does not guarantee that a contract or Purchase Order shall be issued. The selected firm may provide services to Angleton ISD including, but not limited to, analysis & evaluation; sampling; analysis; reports; and work related to testing equipment calibration.

ADDITIONAL REQUIREMENTS:

- **Firm's Experience:** The verifiable experience for excellence and an outstanding record of successfully completed projects demonstrated by the firm.
- **Personnel Experience:** The level of experience, education, certification, and licensing profiles of the principal(s) and key personnel of the firm.
- **Registration and Licensing Requirements:** Confirmation of the firm personnel's registration and licensing in accordance with the State of Texas to provide professional services for Test & Balance.
- **Insurance Requirements:** Ability of the firm to provide professional liability insurance of the coverage type and amounts required for the particular service.

TERMS AND CONDITIONS

It is understood that in the performance of any services herein provided for, the selected firm shall be, and is, an independent contractor, and is not an agent or employee of Angleton ISD and shall furnish such services in its own manner and method, except as required by the contract. Further, the selected firm have and shall retain the right to exercise full control over the employment, direction, compensation, and discharge of all persons employed by the selected firm in the performance of the services hereunder. The selected firm shall be solely responsible for, and shall indemnify, defend, and save Angleton ISD harmless from all matters relating to the payment of its employees, including compliance with Social Security, withholding, and all other wages, salaries, benefits, taxes, exactions, and regulations of any nature whatsoever.

The selected firm agrees to indemnify and save harmless Angleton ISD and all its officers, agents, employees acting in their individual and official capacity, and all entities, their officers, agents, and employees who are participating in this contract effort, from all suits, claims, actions, damages, demands or other demands of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligence, act or fault of the selected firm, or of any agent, employee, subcontractor, or supplier in the execution of or performance under any contract that may

result from an award. The selected firm shall pay any judgments with costs, which may be obtained against Angleton ISD.

The selected firm shall certify that it is in compliance with Board Policy CJA (Legal) and TEC 22.0834 before entering into a contract with Angleton ISD. The selected firm shall certify that, for each employee of the selected firm who will have direct contact with students and will have continuing duties related to this contract, the selected firm has obtained national criminal history record information from a law enforcement or criminal justice agency for each employee hired before January 1, 2008, and national criminal history record information from the Texas Department of Public Safety for each employee hired on or after January 1, 2008. Any employee or independent contractor of the selected firm, who will have direct contact with students, must not have been convicted of an offense identified in TEC 22.085.

Once a contract is executed, the selected firm will be required to obtain from each and every subcontractor or independent contractor the completed form of certification related to criminal history record information. Copies of the certification shall be sent to both the architect and Angleton ISD.

INSURANCE REQUIREMENTS

The selected firm shall secure non-declining, non-expense within limits professional liability insurance in a minimum amount of \$1,000,000 from an insurer lawfully authorized to do business in the jurisdiction in which the project is located and which shall apply to claims made with respect to this contract for negligent acts, errors or omissions of the selected firm, and the selected firm's agents and employees, subject to the standard terms and conditions of such policies, as acceptable and approved by Angleton ISD's risk management standard. The selected firm shall furnish copies of certificates of such professional liability insurance. The costs and premiums for such insurance will be at the expense of the selected firm. The selected firm shall not commence work under the contract until satisfactory evidence of such insurance has been delivered to Angleton ISD.

The selected firm must present a certificate of worker's compensation coverage with a minimum coverage of \$100,000 each person and \$300,000 each accident, bodily injury liability; \$50,000 each accident and \$100,000 aggregate property damage liability. If the selected firm does not provide worker's compensation, a letter explaining alternate benefits should be included with the RFQ response.

INSTRUCTIONS FOR SUBMISSION – MINIMUM REQUIREMENTS

Submittals for Minimum Requirements shall be prepared simply and economically, and shall provide concise answers to the requested information in the order and format prescribed. Failure to do so may be cause for disqualification from further consideration. Emphasis will be placed upon clarity and completeness of the submitted response. A total of two (2) copies plus one electronic (USB) of each submittal shall be neatly packaged and sealed, with the address of the recipient affixed to the exterior face.

Statement of Interest

- Provide a narrative stating the primary firm's unique qualifications to deliver comprehensive Test & Balance services.
- Provide a history and important statistics about the primary firm indicating its size and ownership.
- Provide a statement about the availability and commitment of the primary firm and its principal(s) and key professionals to undertake the project.
- Provide a statement of willingness to accept the terms and conditions of the contract or indicating any objections to such terms and conditions.

Primary Firm Requirements

- Provide location of primary firm office and location(s) of proposed staff.
- Provide resumes indicating the experience and expertise of the principal(s) and key professional members of the primary firm involved in the project, including their experience with similar projects and the number of years each has with the primary firm.
- Describe proposed project assignments and lines of authority and communication for principal(s) and key professional members of the primary firm that will be involved in the project.
- For the specified project, list the members of the proposed team for this project who worked on each of the listed projects and describe their roles in those projects.

Project Team

- Provide an organizational chart showing the role of the primary firm and each consultant firm or individual.

Representative Projects

- List a maximum of five projects for which the primary firm provided or is providing services which are most related to this project. Provide the following information for each project listed:
 - Project name and location
 - Project Owner
 - Project Construction Management firm or General Contractor
 - Project construction cost
 - Project size in gross square feet
 - Description of professional services primary firm provided for the project
 - Detailed description of deliverables provided to the Owner at the conclusion of the project
 - Project description
 - Project Manager (individual responsible to the client or the overall success of the project)
 - Describe, if any, process management software used on the project and the value provided by the software

References

- Provide references for the projects listed in response to Item above to Include:
 - Owner's name
 - Owner's representative who served as the day-to-day liaison during planning, design, and construction of the project, and that person's telephone number.
 - Construction Contractor's firm name,
 - Contractor's representative who served as the day-to-day project liaison, and the Contractor's representative's telephone number.

Best Practices

- Describe the primary firm's quality assurance program, explaining the methods the firm uses to maintain quality control during all phases of the project. Provide specific examples indicating how these procedures were employed for the projects listed in Item Representative Projects Section.
- Provide details of software products the primary firm uses as standard practice for their services.

- Describe in detail the value these product(s) provide to the owner.
- Describe how the primary firm's services provide migration of data into the owner's operating and maintenance program. Provide examples.
- Provide a list of deliverables the primary firm would give to the owner at the conclusion of a contract.
- Include details of any operations manual that would be provided to the owner at the conclusion of the project.

Problem Resolution

- Describe any administrative or physical challenges the primary firm anticipates in providing professional services for the project and the primary firm's philosophy for resolution.
- For any of the projects listed in Representative Projects Section and completed within the last five years, describe any challenges with the owner, the construction contractor, or the subcontractors and describe the methods the primary firm used to resolve those issues.
- Describe the primary firm's past performance on projects for Angleton ISD in the last five years. If the primary firm has not previously provided professional services for Angleton ISD, then identify and describe the primary firm's past performance on projects for similar clients and of similar scope for which it has provided professional services in the past five years

Additional Information

- Provide additional information that the primary firm believes may better describe its qualifications, e.g. letters of recommendation.

Submission Materials:

The physical size of all submission materials shall be limited to an 8½" x 11" format, bound securely. Please avoid redundant and repetitious materials, limit the overall submittal packet to maximum of thirty (30) pages.

Supplemental Information:

It is unnecessary to provide supplemental information. However, if the respondent so chooses, additional information may be provided in the form of promotional brochures or similar material not exceeding 8½" x 11" in size or over ten (10) pages of material.

Submittal Deadline:

Provide two (2) hard copies plus one (1) electronic (USB) of your submittal, packaged and marked as:

Statement of Qualifications – RFQ #24-05-BOND – Test & Balance

Due no later than 2:00PM (CST) on May 29, 2024 to:

Toni Dozier, Business Office
Angleton Independent School District
1900 N. Downing Road
Angleton, Texas 77515

Telephone, electronic, or facsimile submissions will NOT be considered. Submissions received after the time and date of closing will not be considered. Angleton ISD reserves the right to reject any or all qualifications

and to waive informalities and minor irregularities in qualifications received, and to accept any portion of a qualification or all of the qualifications if deemed in the best interest of the district to do so. Angleton ISD will not be liable for any costs incurred by firms in preparation of these requested qualifications or in answering to the RFQ.

This RFQ contains specific requests for information. In those cases, where specific and mandatory requirements are stated, material failure to meet those requirements will result in disqualification of the firm's response.

This RFQ in no manner obligates Angleton ISD to eventual purchase of any services, products or equipment described, implied, or which may be proposed, until confirmed by written contract. Progress towards this end is solely at the discretion of Angleton ISD and may be terminated without penalty or obligation at any time prior to the signing of a contract. Angleton ISD reserves the right to cancel this RFQ at any time for any reason and to reject any or all qualifications completely or in part.

Proposing firms are restricted from contact with anyone in Angleton ISD including Board of Trustees, administrators, and staff regarding this RFQ. All communications to Angleton ISD must be made to Toni Dozier, tdozier@angletonisd.net. If proposing firms are found to have disregarded this requirement, the offending firm could be disqualified.

The RFQs can be mailed or hand delivered to the Angleton ISD Administration Building, 1900 N. Downing Road, Angleton, Texas 77515. Submission of RFQs is due no later than 2:00 PM (CST) on May 29, 2024.

Appendix A: General Information Sheet

Date:

Legal Name of Firm:

(If the firm is in a Joint Venture or in Association with another consulting firm provide all information for both firms. In addition, if the firm is in a Joint Venture or Association, provide specific contractual relationship status between the firms and how this contractual arrangement will be reflected in the agreement with Angleton ISD.)

Corporation Identification Number:

Federal Employer Identification Number:

Date Office Established:

Firm's Address:

Firm's Telephone #:

Website:

E-Mail:

Type of Organization (Partnership, Corporation, etc.):

Name of Project Manager, Title, License Number:

Total number of full-time office staff at your firm:

Breakdown of Staff:

Licensed Personnel:

Other Support Staff:

For the past five (5) years, the approximate total gross revenues attributed to the local office:

Approximate allocation of gross revenues of Test & Balance services:

Approximate allocation of gross revenues specifically allocated to K-12 Education clients:

Total number of school projects actually completed by this Firm in the last five (5) years:

End of Request for Qualifications Document

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

Pursuant of 2 CFR §200.321 Are you a HUB

Vendor, YES ____ NO ____ . If yes, submit Certificate with this proposal packet.

State of Texas Bid Requirement Page

(Must sign acknowledgement below and identify exceptions)

Vendors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. Bidder certifies that the company complies with Executive order 11246, entitled "Equal Employment Opportunity", as amended by Executive Order 11375 and as supplemented in Department of Labor Regulations.

VENDOR NON-COLLUSION BIDDING – form is attached

By submission of this bid or proposal, the Bidder certifies that:

- a) This proposal has been independently arrived at without collusion with any other Bidder or with any Competitor.
- b) This bid or proposal has not been knowingly disclosed and will not be knowingly disclosed, prior to the opening of bids, or proposals for this project, to any other Bidder, Competitor or potential Competitor.
- c) No attempt has been or will be made to induce my other person, partnership or corporation to submit or not to submit a bid or proposal.
- d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the Statements contained in this certification, and under the penalties being applicable to the Bidder as well as to the person signing in its behalf.

Complete form and return with proposal.

CONFLICT OF INTEREST QUESTIONNAIRE (FORM CIQ) – form is attached

Vendors are required to report business relationships at the time they begin contract negotiations or are solicited for bids or proposals. A vendor must disclose any business relationship with a district officer that might cause a conflict of interest. Vendors have 7 business days to file the Ethics commission's Conflict of Interest (CIQ) or face the possibility of a Class C Misdemeanor.

Complete form and return with proposal.

FELONY CONVICTION NOTIFICATION – form is attached

State of Texas Legislative Senate Bill No. 1, Section 44.034, Notification of Criminal History of Contractor states:

- a) A person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.
- b) A school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract.
- c) This section does not apply to a publicly-held corporation.

Complete form and return with proposal.

INSURANCE REQUIREMENTS – REQUIRED FOR WORK PERFORMED ON DISTRICT PROPERTY

The vendor shall carry Statutory Workmen's Compensation Insurance, Comprehensive General Liability Insurance covering premises operation and Contractor's Liability in the amount of \$100,000/\$300,000 for bodily injury and \$100,000 each accident property damage and Automobile Liability covering all owned, non-owned, and hired vehicles in the amount of \$100,000/\$300,000 bodily injury and \$100,000 each accident property damage. Certificates of Insurance shall be delivered to the Business & Finance Department before work is commenced.

Upon award of bid, the vendor shall supply purchasing proof of insurance, in the manner prescribed by the Texas Worker's Compensation Commission, informing all persons providing services on the project that they are required to be covered, and station how a person may verify coverage and report lack of coverage.

The undersigned agrees to fully comply in strict accordance with the above requirements, terms and specifications

Signature

Date

Printed Name

Title

Phone No.

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

Consultant/Contractors Certification Form

Introduction:

Texas Education Code Chapter 22 and Senate Bill 9 require service contractors to obtain criminal history record information regarding covered employees and to certify to the District that they have done so. Contractors must comply with Texas Education Code, Section 22.0834, regarding the Criminal History Record Information Review of Certain Contract Employees. Before work on this contract begins, Contractors shall obtain criminal history record information through the criminal history clearinghouse as provided by Section 411.0845, Government Code relating to an employee or applicant who has or will have continuing duties related to the contracted services; and the employee or applicant has or will have direct contact with students. The contractor must obtain criminal history record information before or immediately after employing or securing the services of the employee or applicant that has or will have direct contact with students. The contractor further agrees that he shall assume all expenses associated with the criminal background check and shall immediately remove any employee or agent who was convicted of a felony, or misdemeanor involving moral turpitude, as defined by the Texas law, from District property or the location where students are present. Please visit a Guide for School Contractors Section for additional information regarding Senate Bill 9.

Definitions:

Covered employees: All employees of a contractor who have or will have work duties that have been or will be performed on District property DURING THE TIME STUDENTS ARE SCHEDULED TO BE ON THE PROPERTY related to the service to be performed at the District and WILL HAVE ACCESS TO THE FACILITIES IN WHICH STUDENTS ARE IN OCCUPANCY. The District will be the final arbiter of what constitutes direct contact with students.

On behalf of _____ (Individual Consultant or Contractor's Name of Company), **I certify that the [check one]:**

☐ A.) Individual Contractor or Contractor's employees are covered employees and have been processed through the FACT Clearinghouse as **HAVING CONTACT with students.**

AND The following will be considered as proof of processing and will be used to assist in the FACT Clearinghouse inquiry:

A copy of the FAST PASS receipt if available. – FAST PASS TCN # _____
(Receipt only validates fingerprinting process was completed)

Individual has been fingerprinted and FAST PASS was processed at a school district.
Teaching Certificate # _____ School District _____

Contractor has setup a FACT Clearinghouse Record for employees.
ORI # _____ and Contractor ID # _____

AND ***MANDATORY DATA FOR INQUIRY (supply information for person having contact with students):**

*Date of Birth:	_____	*Social Security #:	_____
*Driver's License #:	_____	*State of Issuance:	_____
OR *State ID #:	_____	*State of Issuance:	_____
*E-mail address:	_____	*Phone #:	_____
*TXDPS SID# (FACT Clearinghouse State assigned ID #) <i>if available</i> : _____			

-Or-

☐ B.) Individual Consultant or Contractor's employees are not covered employees as defined above and **DO NOT HAVE CONTACT with students.**

If A is selected, I further certify that:

- (1) Consultant/Contractor has obtained all required criminal history record information through the Texas Department of Public Safety, regarding its covered employees. None of the covered employees have a disqualifying conviction. Contractor has taken reasonable steps to ensure that its employees who are not covered employees do not have continuing duties related to the contract services or direct contact with students.
- (2) If contractor receives information that a covered employee has a disqualifying conviction, Contractor will immediately remove the covered employee from the contract duties and notify the District in writing within 3 business days.
- (3) Upon request, Contractor will make available for the District's inspection the criminal history record information of any covered employee. If the District objects to the assignment of a covered employee on the basis of the covered employee's criminal history record information, Contractor agrees to discontinue using that covered employee to provide services at the District.

Noncompliance by Contractor with this certification may be grounds for contract termination, and may be a violation of State Law as described in Senate Bill 9 and/or TEC 22.

By submission of this form, I am indicating that I am complying with Senate Bill 9 and Texas Education Code Section 22.0834 Criminal History Record Information Review of Certain Contract Employees.

Date: _____

Company Name (If Contractor / Company): _____

Address: _____

City: _____ **State:** _____ **Zip:** _____

Contact Person: _____

Phone: _____ **Fax:** _____

E-mail Address: _____

Authorized Signature: _____

ANGLETON INDEPENDENT SCHOOL DISTRICT

BUSINESS & FINANCE DEPARTMENT

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR Part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989, *Federal Register* (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency with which this transaction originated.

1.) By signing and submitting this form, the prospective lower tier participant (*vendor submitting proposal*) is providing the certification set out below in accordance with these instructions. 2.) The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant (*vendor submitting proposal*) knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 3.) The prospective lower tier participant (*vendor submitting proposal*) shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant (*vendor submitting proposal*) learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 4.) The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal", and "voluntarily excluded" as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. <https://www.federalregister.gov/articles/2010/07/19/2010-17429/nonprocurement-debarment-and-suspension> 5.) The prospective lower tier participant (*vendor submitting proposal*) agrees by submitting this form that, should the proposed covered transaction (*contract*) be entered into, it shall not knowingly enter into any lower tier covered transaction (*contract*) with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction (*contract*), unless authorized by the department or agency with which this transaction originated. 6.) The prospective lower tier participant (*vendor submitting proposal*) further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions (*contract*) and in all solicitations for lower tier covered transactions (*contract*). 7.) A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction (*contract*) that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Non-procurement List. 8.) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings. 9.) Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction (*contract*) with a person who is suspended, debarred, ineligible, or voluntarily excluded from participating in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ABOVE)

- (1) The prospective lower tier participant (*vendor submitting proposal*) certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant (*vendor submitting proposal*) is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned agrees to fully comply in strict accordance with the above requirements, terms and specifications

Name and Title of Authorized Representative	Organization Name
Signature of Authorized Representative	Date

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

Hold Harmless Agreement

The Proposer shall defend, indemnify, and hold harmless, Angleton ISD and all its trustees, officers, agents, and employees, from and against all suits, actions, or claims of any character brought forth or on account of any injuries or damages (including death) received or sustained by any person or property on account of, arising out of, or in connection with, any negligent act or omission of contractor or any agent, employee, subcontractor or supplier of contractor in the execution or performance under this contract as designated as CATALOG PROPOSAL.

The proposer shall also defend, indemnify and hold harmless, Angleton ISD and all of its trustees, officers, agents and employees, from and against claims by any subcontractor, supplier, laborer, material-man or mechanic for payment for work materials provided on behalf of the Contractor in the performance of the Contract and all such claimants shall look solely to Contractor and not Angleton ISD for satisfaction of such claims.

This Hold Harmless Agreement shall be binding upon the undersigned, and its successors, legal representatives, heirs and assigns.

DATED THIS _____ DAY OF _____, 20____.

Contractor:

Company Name

Name of Representative (Print)

Signature of Representative

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

RELEASE OF INFORMATION

At various times throughout the year, we will receive formal requests to provide your information to third parties. The requested files include records we received from you or from your company which may include, all purchase orders, quotes, check info, vendor info, contact info, line item descriptions quantities and pricing. Generally, the Public Information Act (the "Act") requires the release of requested information, but there are exceptions.

- | | | |
|--------------------------|---|--|
| <input type="checkbox"/> | I authorize release of my information to third party requestors. | |
| <input type="checkbox"/> | I do not authorize release of my information to third party requestors. | |

***Please note – if you marked that you “do not wish” to have information released when an open record request has the information is requested, you will receive a notice from Angleton ISD, so that you may send your rebuttal to the Office of the Attorney General.

This notice will be placed in our record with your proposal and will remain in effect thru the term of your proposal contract.

Texas Government Code Sec. 552.372 Bids and Contracts states:

(a) A contract described by Section [552.371 \(Certain Entities Required to Provide Contracting Information to Governmental Body in Connection With Request\)](#) must require a contracting entity to:

- (1) preserve all contracting information related to the contract as provided by the records retention requirements applicable to the governmental body for the duration of the contract;*
- (2) promptly provide to the governmental body any contracting information related to the contract that is in the custody or possession of the entity on request of the governmental body; and*
- (3) on completion of the contract, either:*

- (A) provide at no cost to the governmental body all contracting information related to the contract that is in the custody or possession of the entity; or*
- (B) preserve the contracting information related to the contract as provided by the records retention requirements applicable to the governmental body.*

(b) Unless Section [552.374 \(Termination of Contract for Noncompliance\)](#)(c) applies, a bid for a contract described by Section [552.371 \(Certain Entities Required to Provide Contracting Information to Governmental Body in Connection With Request\)](#) and the contract must include the following statement: "The requirements of Subchapter J, Chapter [552 \(Public Information\)](#), Government Code, may apply to this (include “bid” or “contract” as applicable) and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter."

(c) A governmental body may not accept a bid for a contract described by Section [552.371 \(Certain Entities Required to Provide Contracting Information to Governmental Body in Connection With Request\)](#) or award the contract to an entity that the governmental body has determined has knowingly or intentionally failed to comply with this subchapter in a previous bid or contract described by that section unless the governmental body determines and documents that the entity has taken adequate steps to ensure future compliance with the requirements of this subchapter.

The requirement of Subchapter J, Chapter 552, Government Code, may apply to this and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

ANGLETON INDEPENDENT SCHOOL DISTRICT

BUSINESS & FINANCE DEPARTMENT

FEDERAL COMPLIANCE GUIDELINES FOR THE USE OF FEDERAL FUNDS

Angleton ISD has elected to solicit pricing from Qualifying Vendors, Awarded Proposals Vendors and/or Cooperative Vendors as set forth under the requirements of the Code of Federal Regulations (CFR) Title 2 Grants and Agreements, Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. (2 CFR§200).

Following these federal requirements will allow for federal funds, entrusted to Angleton ISD, to be used to make purchases through the anticipated contract(s). The CFR is the codification of the general and permanent rules published in the Federal Register by the departments and agencies of the Federal Government produced by the Office of the Federal Register (OFR) and the Government Publishing Office. The CFR may change during the term of the contract and the supplier may be required to make adjustments as necessary.

It is necessary for the supplier to certify and agree that they, as a company, understand and comply with all applicable areas identified below and included with this attachment. Some of the areas may not be applicable to this solicitation and it is the supplier's sole responsibility to identify which areas are appropriate for the solicitation. Failure to affirm and agree to these requirements may, at Angleton ISD's discretion, disqualify the associated response to this solicitation or limit the use of the awarded contract based on the funding source.

Angleton ISD reserves the right, at any time within the contract term, to require an awarded supplier to reaffirm, sign and resubmit proper documentation stating their company is not debarred, or if any other circumstances change related to the original response.

The following terms are applicable to all solicitations:

1. General. Included for all solicitations regardless of type of specialty.

1.1 Debarment and Suspension (executive Orders 12549 and 12689). A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide Excluded Parties List System in the System of Award Management (SAM), in accordance with the OBM guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR Part 1986 Comp., p. 189) and 12689 (3 CFR Part 1989 Comp., p. 235), "Debarment and Suspension" The Excluded Parties Listed System in SAM (sam.gov) contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. Prior to award, Angleton ISD will verify that the supplier is not currently listed as debarred by the Federal government. If the supplier is found to be on the Federal debarment list, Angleton ISD, at its sole option, may elect to not award to the supplier. If awarded, and during the contract term, the supplier becomes debarred, the supplier must notify Angleton ISD within five (5) Angleton ISD business days of the debarment. Angleton ISD, at its sole judgement, may elect to cancel the associated contract or limit the contract to non-federal funds. Such judgement will be done in writing within twenty (20) Angleton ISD business days. During this assessment period, no contract orders can be placed by Angleton ISD using federal funds.

1.2 Conflict of Interest. 2 CFR 200.318(c)(1) states that Angleton ISD must maintain written standards of conduct covering conflicts of interest and governing the actions of its employees engaged in the selection, award and administration of contract. No employee, officer, or agent may participate in the selection, award, and administration of a contract supported by a Federal award if he or she has a real or apparent conflict of interest. Such a conflict of interest would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated herein, has a financial or other interest in or a tangible personal benefit from the contract awarded to a specific supplier. The officers, employees, and agents of Angleton ISD may neither solicit nor accept gratuities, favors, or anything of monetary value from suppliers or parties to subcontracts. However, Angleton ISD may set standards for situations in which the financial interest is not substantial or the gift is an unsolicited item of nominal value. The standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of

Angleton ISD. It is the responsibility for the supplier to identify and make Angleton ISD aware of any potential conflicts of interest that exist between their company and Angleton ISD. Failure to do so will cause the associated supplier response to be disqualified from further consideration, or if already awarded, the associated contract will be cancelled based on cause.

1.3 HUB Certification. Pursuant of 2 CFR 200.321. Bidding companies that have been certified by the State of Texas as Historically Underutilized Business (HUB) entities are encouraged to **attach a copy of the HUB Certification** when responding to this proposal invitation. This information will be included in the vendor profiles and may be used for consideration of purchase(s).

1.4 Termination for Cause. All federal contracts, in excess of \$10,000, must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be affected and the basis for settlement. As per Angleton ISD terms and conditions outlined within proposals, and/or purchase order, Angleton ISD does not have a threshold, all contracts for any amount may be terminated for cause.

2. Small Purchases (2 CFR 200.320). Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that do not cost more than the *Simplified Acquisition Threshold (SAT)*.

2.1 If small purchase procedures are used, price and rate quotations must be obtained from an adequate number of qualified sources. Specifically for multiple award catalog-based or non-identifiable pricing based on a percentage off catalog, Angleton ISD may be required to submit a request for quotation from the contracted vendors for the purpose of meeting the competitive bidding requirements of this section.

3. Large Purchases. For individual purchases that exceed the *Simplified Acquisition Threshold*.

3.1 Simplified Acquisition Threshold Contracts for more than the Simplified Acquisition Threshold (SA) currently set at \$250,000 which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulation Council (Councils) as authorized by 41 U.S.C. 1980, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate. In any case, contracts in excess of the state's or state agency threshold must address the foregoing. Any purchase that meets or exceeds the SAT threshold will require additional cost/price analysis by Angleton ISD. The supplier may be required to provide additional documentation to support this requirement based on the federal requirements at the time of the purchase.

3.2 Cost Analysis/Negotiation of Profit (2 CFR 200.323). For contracts over the SAT, Angleton ISD must negotiate profit as a separate element of the price for each contract in which there is no price competition, including solicitations that received only one viable response. In all cases, a cost analysis is to be performed by Angleton ISD. To establish a fair and reasonable profit, consideration must be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.

3.3 Supplier Violation or Breach of Contract Terms. For contract awards valued at or greater than the SAT, Angleton ISD must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate. The remedies under the contract are in addition to any other remedies that may be available under law or in equity.

4. CERTIFICATIONS REQUIRED UNDER FEDERAL CONTRACT PROVISIONS (2 CFR 200.326)

4.1 The following pages contain the required Contract Provisions that must be certified by the vendor of use with Federal Contracts. By initialing the following statements, you Certify your Company will hold true to these provisions for the duration of the proposal.

- 4.2 It is the responsibility for the supplier to identify and make Angleton ISD aware of any potential changes that exist between their company and Angleton ISD. Failure to do so will cause the associated supplier response to be disqualified from further consideration, or if already awarded.

REQUIRED FORM OF UNDERSTANDING – RETURN THIS COMPLETE PAGE WITH PROPOSAL

Does vendor certify? Yes _____

Initials of Authorized Representative _____

Company Name _____ **Date** _____

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

EDGAR CERTIFICATIONS

Addendum FOR CONTRACT FUNDED BY a U.S. FEDERAL GRANT

Please read all certification and notification statements below. Each statement should be initialed by an authorized representative to indicate compliance. Exceptions should be noted separately.

Initial	As per Section 14.52 of the Texas Family Code, added by S.B. 84, Acts, 73rd Legislature, R.S. (1993), all bidders must complete and submit with the bid the following affidavit: I, the undersigned vendor, do hereby acknowledge that NO sole proprietor, partner, majority shareholder of a corporation, or an owner of 10% or more of another business entity is 30 days or more delinquent in paying child support under a court order or a written repayment agreement. I understand that under this provision, a sole proprietorship, partnership, corporation or other entity in which a sole proprietor, partner, majority shareholder or a corporation, or an owner of 10% or more of another entity is 30 days or more delinquent in paying child support under a court order or a written repayment agreement is NOT eligible to bid or receive a state contract.
Initial	Resident Nonresident Vendor: The 1985 Texas Legislature passed House Bill 620 (now Chapter 2252 of Texas Government Code) relative to the award of contracts to nonresident respondents (out of state contractors whose corporate offices or principal place of business are outside of the state of Texas). This law provides that, in order to be awarded a contract, a nonresident vendor's response for construction, improvements, supplies or services in Texas be an amount lower than the lowest Texas resident's response by the same amount that a Texas resident vendor would be required to underbid a nonresident vendor in order to obtain a comparable contract in the state in which the nonresident's principal place of business is located. As defined by Texas Government Code 2252.001, a "resident vendor" means a vendor whose principal place of business is in Texas, including a contractor whose ultimate parent company or majority owner has its principal place of business in Texas. A "nonresident vendor" means a vendor whose principal place of business is not in Texas, but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in Texas.
Initial	Certification Regarding House Bill 89: Pursuant to Texas Government Code Chapter 2270, vendor represents and warrants to the District that vendor does not currently boycott Israel nor will they boycott Israel during the term of this Agreement (to include any optional contract extension terms, if applicable).
Initial	Vendor hereby certifies that it is not a company identified on the Texas Comptroller's list of companies known to have contracts with, or provide supplies or services to, a foreign organization designated as a Foreign Terrorist Organization by the U.S. Secretary of State.

REQUIRED CONTRACT PROVISIONS FOR CONTRACTS UNDER FEDERAL AWARDS

The following provisions are required and apply when federal funds are expended by AISD for any contract resulting from this procurement process.

Initial	Violation or Breach of Contract Terms: Contracts for more than the simplified acquisition threshold currently set at \$150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.
Initial	Termination for cause and for convenience by the grantee: When federal funds are expended by AISD, the District reserves the right to immediately terminate any agreement in excess of \$10,000 resulting from this procurement process in the event of a breach or default of the agreement by vendor, in the event vendor fails to: 1) meet schedules, deadlines, and/or delivery dates within the time specified in the procurement solicitation, contract, and/or purchase order; 2) make any payments owed; or 3) otherwise perform in accordance with the contract and/or the procurement solicitation. AISD also reserves the right to terminate the contract immediately, with written notice to vendor, if the District believes that it is in its best interest to do so. The vendor will be compensated for work performed and accepted and goods accepted by AISD as of the termination date.

Initial	<p>Equal Employment Opportunity: Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of “federally assisted construction contract” in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, “Equal Employment Opportunity” (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”</p>
Initial	<p>Davis-Bacon Act, as amended (40 U.S.C. 3141-3148): When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. Current prevailing wage determinations issued by the Department of Labor are available at www.wdol.gov. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor or sub-recipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.</p>
Initial	<p>Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708): Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.</p>
Initial	<p>Rights to Inventions Made Under a Contract or Agreement: If the Federal award meets the definition of “funding agreement” under 37 CFR §401.2 (a) and the recipient or sub-recipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or sub-recipient must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.</p>
Initial	<p>Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended: Contracts and sub-grants of amounts in excess of \$150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251- 1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).</p>

Initial	Debarment and Suspension (Executive Orders 12549 and 12689): A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.
Initial	Vendor certifies that vendor is in compliance with all applicable provisions of the Buy America Act. Purchases made in accordance with the Buy America Act must still follow the applicable procurement rules calling for free and open competition.
Initial	Required Affirmative Steps for Small, Minority, And Women-Owned Firms for Contracts Paid for with Federal Funds - 2 CFR § 200.32 I - When federal funds are expended by AISD, Vendor is required to take all affirmative steps set forth in 2 CFR 200.321 to solicit and reach out to small, minority and women owned firms for any subcontracting opportunities on the project, including: 1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists 2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources; 3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises; 4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and 5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.
Initial	When federal funds are expended by AISD for any contract resulting from this procurement process, the vendor certifies that the vendor will be in compliance with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L.94-A63.89 Stat. 871).
Initial	Record Retention Requirements for Contracts Paid for with Federal Funds: When federal funds are expended by Angleton ISD for any contract resulting from this procurement process, the vendor certifies that it will comply with the record retention requirements detailed in 2 CFR § 200.333. The vendor further certifies that vendor will retain all records as required by 2 CFR § 200.333 for a period of three years after grantees or sub-grantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.
Initial	Byrd Anti-Lobbying Amendment (31 U.S.C. 1352): Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier-to-tier up to the non-Federal award. The undersigned further certifies that: 1) No Federal appropriated funds have been paid or will be paid for on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with the awarding of a Federal contract, the making of a Federal grant, the making of a Federal loan, the entering into a cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement; 2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions; and 3) The undersigned shall require that the language of this certification be included in the award

	documents for all covered sub-awards exceeding \$100,000 in Federal funds at all appropriate tiers and that all sub-recipients shall certify and disclose accordingly.
Initial	Procurement of Recovered Materials: A non-federal entity that is a state entity or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designed in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
Initial	Compliance with EPA Regulations: When federal funds are expended by AISD for any contract resulting from this procurement process in excess of \$100,000, the vendor certifies that the vendor is in compliance with all applicable standards, orders, regulations, and/or requirements issued pursuant to the Clean Air Act of 1970, as amended (42 U.S.C. 1857(h)), Section 508 of the Clean Water Act, as amended (33 U.S.C. 1368), Executive Order 117389 and Environmental Protection Agency Regulation, 40 CFR Part 15.

VENDOR AGREES TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, REGULATIONS, AND ORDINANCES. IT IS FURTHER ACKNOWLEDGED THAT VENDOR CERTIFIES COMPLIANCE WITH ALL PROVISIONS, LAWS, ACTS, REGULATIONS, ETC. AS SPECIFICALLY NOTED ABOVE.

Vendor's Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Fax
Number: _____

Email Address: _____

Signature of Authorized Representative: _____

Printed Name: _____ Title: _____

Date: _____

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

AD-1048 (2/89)

**U.S. Department of Agriculture Lobbying
Certification Regarding Lobbying Form**

Applicable to Grants, Sub-grants, Cooperative Agreements, and Contracts Exceeding \$100,000.00 in Federal Funds
Submission of this certification is a prerequisite for making or entering into this transaction and is imposed by section 1352, Title 31, U.S. Code. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with the award of a Federal contract, the making of a Federal grant, the making of a Federal loan, the entering into a cooperative agreement, and the extension continuation, renewal, amendment, or modification of a Federal contract, grant, loan or cooperative agreement.
- (2) **If any funds other than Federal appropriated funds have been paid or will be paid to any person for influence or attempting to influence an officer or employee of any agency, a Member of Congress, an officer of employee of congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form –LLL, “disclosure Form to Report Lobbying,” in accordance with its instructions.**

(Form not included in this packet but can be accessed through Purchasing Federal Compliance Website and must be completed and submitted IF APPLICABLE).

- (3) The undersigned shall require that the language of this certification be included in the award documents for all covered sub-awards exceeding \$100,000.00 in Federal funds at all appropriate tiers and that all sub-recipients shall certify and disclose accordingly.

Vendor's Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Signature of Authorized Representative: _____

Printed Name: _____ Title: _____

Date: _____

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

NON COLLUSION FORM

“The undersigned affirms that they are duly authorized to execute this contract, that this company, corporation, firm, partnership or individual has not prepared this proposal in collusion with any other Bidder, and that the contents of this proposal as to prices, terms or conditions of said proposal have not been communicated by the undersigned nor by any employee or agent to any other person engaged in this type of business prior to the opening of this proposal.”

(Please print or type)

Vendor's Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ Fax
Number: _____

Email Address: _____

PERSON COMPLETING PROPOSAL:

Signature: _____

Printed Name: _____ Title: _____

Date: _____

AUTHORIZED REPRESENTATIVE:

Signature: _____

Printed Name: _____ Title: _____

Date: _____

THIS FORM MUST BE SIGNED. FAILURE TO SIGN THIS FORM WILL BE SUFFICIENT REASON FOR REJECTION OF PROPOSAL.



ANGLETON INDEPENDENT SCHOOL DISTRICT

BUSINESS & FINANCE DEPARTMENT

FELONY CONVICTION NOTIFICATION

The Texas Education Code, Section 44.034(a) states that a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of the felony.

Furthermore, Section 44.034(b) states that a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract.

Lastly, Section 44.034(c) states that this section does not apply to a publicly held corporation.

- () My firm is a publicly held corporation, therefore this requirement is not applicable.
- () My firm is not owned nor operated by anyone who has been convicted of a felony.
- () My firm is owned or operated by the following individual(s) who has/have been convicted of a felony:

I, the undersigned agent for the firm named below, certify that the information concerning notification of felony conviction has been received by me and that the information furnished above is true to the best of my knowledge.

Vendor's Name: _____

Authorized Company Official's Name: _____

Authorized Company Official's Title: _____

Signature

Date

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes

☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes

☐ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 _____

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

- (a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

- (2) the vendor:

(A) has an employment or other business relationship with the local government officer or family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

- (a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity. (a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

- (2) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

- (3) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or (C) of a family relationship with a local government officer.

Angleton ISD Board Members and Administrators
Provided to vendors/contractors for purposes of Form CIQ

BOARD MEMBERS

Tommy Gaines	President
Kimi Hunter	Vice-President
Dana Tolbert	Board Secretary
Regina Bieri	Board Member
Heather Brewer	Board Member
Justin Journeay	Board Member
Michael Stroman	Board Member

Administrators

Phil Edwards	Superintendent
Roberto Muñoz	Assistant Superintendent of Student Services
Adam Stephens, Ed.D.	Assistant Superintendent of Curriculum
Amy Grant	Director of Child Nutrition
Jason Brittain	Director of Athletics
Hanna Chalmers	Director of Public Relations
Connie Cox	Director of Finance
Roy Gardner	CTE Director
Jerome Griffin	Chief of Police
Vicki Harmon	Director of Elementary Education
Angel Kersten	Director of Transportation
Patrick Monaghan	Director of Special Education
Jose Macedo	Director of Maintenance
Maria Macedo	Director of Academics and Leadership
Laurin Moore	Director of AISD Education Foundation
Bridgette Percle	Director of Instructional Programs and Professional Development
Alicia Press	Director of Administrative Services
Tyler Press	Director of Secondary Education
Cyndy Pullen	Director of Human Resources
Jeff Stout	Director of Technology

School and Principals

Angleton High School	Anthony Smedley
AHS – CATS/JJAEP	Colleen Tribble
Angleton Junior High School	Trisha Terrell
Central Elementary School	Amber McCormick
Frontier Elementary School	Stephanie Ramirez
Northside Elementary School	Alicia Howell
Rancho Isabella Elementary	Stephanie Gay
Southside Elementary School	Jerri McNeill
Westside Elementary	Robin Braun

ANGLETON INDEPENDENT SCHOOL DISTRICT
BUSINESS & FINANCE DEPARTMENT

Preferred Method of Payment

To Whom It May Concern:

Angleton ISD is in the process of converting as many invoice payments to electronic payment as possible and would ultimately like all vendor payments to be through electronic payment. However, you always have an option as to how you wish to receive your payments. To that end, please indicate your preferred method of payment:

Check – please continue to mail a check to our updated vendor address ☐

ACH – please complete the attached form and return to Angleton ISD ☐

ACH Vendor Direct Deposit Form

Angleton ISD is now offering payment by ACH direct deposit to all Accounts Payable vendors. Payments by ACH are deposited directly into your bank account. A notification of the upcoming deposit is sent by email, with the same memo information that would appear on a check stub. If you would like to receive your payments by Electronic Funds Transfer through ACH, please complete and sign this form and return to the Accounts Payable department by email at acctspayable@angletonisd.net or by mail to Angleton ISD, ATTN: Accounts Payable, 1900 N. Downing, Angleton, TX 77515. ***Please attach a voided check to this form for authorization.***

VENDOR INFORMATION:

Vendor name: _____

Remittance address: _____

Remittance City/State/Zip: _____

Contact name: _____

Phone #: _____

E-mail for ACH notification: _____

BANKING INFORMATION:

Vendor's Bank Name: _____

Bank Address: _____

Bank's City/State/Zip: _____

Bank's Contact Name: _____

Bank's Phone #: _____

ABA Routing #: _____

Account #: _____

Personal or Business Acct: _____

Checking or Savings Acct: _____

I authorize Angleton ISD to credit my account with the depository named above. If the district should erroneously deposit funds into my account, upon notification by the district, I authorize the necessary debit entry to correct the error, not to exceed the amount deposited in error.

This authorization will remain in effect until the district has received written notification from me that it is to be terminated.

Signature

Date

Printed Name

Title

Phone No.

Request for Taxpayer Identification Number and Certification

► Go to www.irs.gov/FormW9 for instructions and the latest information.

Give Form to the
requester. Do not
send to the IRS.

Print or type.
See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
2 Business name/disregarded entity name, if different from above	
3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
<input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► _____ Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner. <input type="checkbox"/> Other (see instructions) ► _____	<input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ (Applies to accounts maintained outside the U.S.)
5 Address (number, street, and apt. or suite no.) See instructions.	Requester's name and address (optional)
6 City, state, and ZIP code	
7 List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number	
____ - ____ - ____	
or	
Employer identification number	
____ - ____	

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ►	Date ►
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General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
 - Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
 - Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
 - Form 1099-S (proceeds from real estate transactions)
 - Form 1099-K (merchant card and third party network transactions)
 - Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
 - Form 1099-C (canceled debt)
 - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.
- If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What is backup withholding*, later.

ANGLETON INDEPENDENT SCHOOL DISTRICT

BUSINESS & FINANCE DEPARTMENT

House Bill 1295

As of January 1, 2016, a new state policy was implemented that affects all proposals which are awarded by our Board of Trustees. HB1295 basically states the following...

House Bill 1295 amended the Texas Government Code by adding Section 2252.908, the Disclosure of Interested Parties. Under this Section 2252.908, (Angleton ISD) is prohibited from entering into a contract resulting from an RFP with a business entity unless the business entity submits a Disclosure of Interested Parties (Form 1295) to the District at the time business entity submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Texas Ethics Commission.

Changes to the law requiring certain businesses to file a Form 1295 are in effect for contracts entered into or amended on or after **January 1, 2018**. The changes exempt certain businesses from filing a Form 1295 for certain types of contracts and replace the need for a completed Form 1295 to be notarized. Instead, the person filing a 1295 needs to complete an “unsworn declaration.”

Detailed Instructions for Compliance with HB1295

VENDOR’S Responsibility for Compliance:

- 1) Go to the Ethics Commission Website using the following link to register and complete FORM 1295 - Certificate of Interest Parties Electronic Filing Application:
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm
Proposers must complete the filing application Form 1295 electronically with the Texas Ethics Commission using their online filing application.

As a “business entity,” all vendors must electronically complete, print, sign and submit Form 1295 with their proposals or contracts even if there are no conflicting interested parties within the district unless:

Form 1295 is not required for the following contracts if entered into or amended on or after January 1, 2018:

- (1) a sponsored research contract of an institution of higher education;
 - (2) an interagency contract of a state agency or an institution of higher education;
 - (3) a contract related to health and human services if:
 - (a) the value of the contract cannot be determined at the time the contract is executed; and
 - (b) any qualified vendor is eligible for the contract;
 - (4) a contract with a publicly traded business entity, including a wholly owned subsidiary of the business entity;*
 - (5) a contract with an electric utility, as that term is defined by [Section 31.002, Utilities Code](#);* or
 - (6) a contract with a gas utility, as that term is defined by [Section 121.001, Utilities Code](#).*
- 2) Proposers must print a copy of the completed form, which will include a certification of filing containing a unique certification number
 - 3) Fill out the bottom (number 6 on the form) titled “Unsworn Declaration” and sign at the bottom. This Form 1295 must be signed by an authorized agent of the business entity.
 - 4) Send a copy of the form via email to Toni Dozier, tdozier@angletonisd.net or by fax to our Business & Finance Department at 979-864-8072.

ADDITIONAL NOTATION: The Form 1295 must be completed for every contract entered into with Angleton ISD that will be awarded by the board.

Angleton ISD Responsibility for Compliance:

- 1) Once received, Angleton ISD must acknowledge the receipt of the filed Form 1295 by notifying the Texas Ethics Commission of the receipt of the filed Form 1295 **no later than the 30th day after the date the contract is approved at our board meeting.** After Angleton ISD acknowledges the Form 1295, the Texas Ethics Commission will post the completed Form 1295 to its website within seven business days.
- 2) The completed Form 1295 with the certification of filing will be filed with your completed proposal or contract that was provided to the district for board award.
- 3) Upon award of the proposal, and review of all required signed documents, Business & Finance will process vendor numbers to staff for issuance of purchase order.

ADDITIONAL NOTATION: Failure to comply with HB 1295 will result in your vendor packet being suspended from processing and no business can be conducted with your company until compliance has been provided by your company to Angleton ISD.

Additional Information to Help Clarify HB1295:

- Should you have questions, concerns or require additional information, please contact the Texas Ethics Commission at 512-463-5800; their office hours are from 8:00 am to 5:00 pm Monday through Friday.
- For questions submitting Form 1295 to Angleton ISD:
 - Contact Toni Dozier at 979-864-8042, or by email at tdozier@angletonisd.net
 - You may fax your signed copy to 979-864-8072

*Angleton ISD is not required at this time to keep the original documentation; therefore, it can be scanned electronically and received by email or by fax to the Business & Finance Department or submitted with proposal documentation.

*HB1295 affects all Government Entities (including public school districts) entering into contracts whereby their Board of Trustees awards the contracts. Therefore, should you enter into any other contracts with other school districts, universities, colleges, or government municipalities be prepared to complete this form for their contracts as well.

Definitions Utilized for Completing Form 1295 include:

“Interested Party” means a person:

- Who has a **controlling interest** in a business entity with whom AISD contracts; or
- Who actively participates in **facilitating the contract or negotiating the terms of the contract** with Angleton ISD, including a broker, intermediary, adviser, or attorney for the business entity

“Business Entity” means an entity:

- Who is recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation.
 - This includes Non-Profit and For-Profit Organizations as a Business Entity

“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:
 - Receives compensation from the business entity for the person’s participation
 - Communicates directly with Angleton ISD on behalf of the business entity regarding the contract
 - AND is not an employee of the business entity

“Controlling Interest” means a person:

- Whereby has ownership interest or participating interest in the business entity by virtue of units, percentage, shares, stock, or otherwise that exceeds 10 percent
- Is a member 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
- Who serves 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

RFQ 24-05-BOND TEST & BALANCE

EXHIBIT 1 Mechanical Drawings

FOR INFORMATIONAL
PURPOSES ONLY

Plot Stamp:

MECHANICAL PIPING LEGEND	
DESCRIPTION	ABBV.
PUMPED CONDENSATE RETURN	PCR
HOT WATER SUPPLY	HWS
HOT WATER RETURN	HWR
CONDENSER WATER SUPPLY	CWS
CONDENSER WATER RETURN	CWR
CHILLED WATER SUPPLY	CHS
CHILLED WATER RETURN	CHR
GEOTHERMAL WATER SUPPLY	GS
GEOTHERMAL WATER RETURN	GR
CONDENSATE DRAIN (INSULATED)	CD
REFRIGERANT LINE (LIQUID)	RL
REFRIGERANT LINE (SUCTION)	RS
REFRIGERANT LINE (HOT GAS)	RHG
LOW PRESSURE STEAM	LPS
LOW PRESSURE CONDENSATE	LPC
MEDIUM PRESSURE STEAM	MPS
MEDIUM PRESSURE CONDENSATE	MPC
HIGH PRESSURE STEAM	HPS
HIGH PRESSURE CONDENSATE	HPC

MECHANICAL PIPING LEGEND		
DRAWINGS	DETAILS	DESCRIPTION
		DIRECTION OF FLOW
		DROP IN PIPE
		RISE IN PIPE
		GATE VALVE
		BALL VALVE
		CHECK VALVE
		SUPERVISED VALVE WITH FLOW SWITCH
		PLUG VALVE / GAS COCK
		BUTTERFLY VALVE
		HOT WATER BALANCING VALVE
		PIPE UNION
		PRESSURE CONTROL VALVE
		3-WAY VALVE
		SOLENOID VALVE
		FLOW SWITCH
		PRESSURE GAUGE WITH GAUGE COCK
		THERMOMETER
		T & P RELIEF VALVE
		STRAINER
		CAP
		FLEXIBLE CONNECTION
		NEW CONNECTION TO EXISTING PIPING

NOTES:

1. NOT ALL SYMBOLS MAY BE USED ON THESE DRAWINGS.

MECHANICAL RENOVATIONS NOTES	
1.	CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID DATE.
2.	OWNER RETAINS SALVAGE RIGHTS. PROVIDE A MINIMUM OF 72 HOURS NOTICE PRIOR TO REMOVAL OF EQUIPMENT.
3.	PATCH AND SEAL ALL SLAB, ROOF AND WALL OPENINGS WITH LIKE MATERIAL WHERE MECHANICAL EQUIPMENT COULD PENETRATED.
4.	ALL FLOOR DRAINS EXISTING TO REMAIN. CONTRACTOR SHALL CLEAN AND KEEP FLOOR DRAINS UNOBSTRUCTED AND REUSE.
5.	UNLESS SHOWN OTHERWISE, CONTRACTOR SHALL UTILIZE EXISTING OPENINGS IN WALLS, ROOF AND FLOOR SLABS FOR PIPING ETC. PROVIDE NEW SLEEVES FOR PIPING AND INFILL ANNULAR SPACES.
6.	FLUSH AND CLEAN EXISTING CHILLED WATER LOOPS AND PROVIDE NEW CHEMICAL TREATMENT.
7.	CONTRACTOR TO AVOID EXISTING CABLE RUNS DURING CONSTRUCTION.
8.	PROVIDE ALL NEW PIPE SUPPORTS WHERE PIPING IS SCHEDULED TO BE REPLACED.
9.	RE-INSTALL ANY CEILING AFTER COMPLETION OF WORK. REPLACE ANY EXISTING DAMAGED CEILING TILES IN THE AREAS OF CONSTRUCTION.
10.	CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN EXISTING BUILDING CLIMATE CONTROLLED DURING CONSTRUCTION. ALL REQUIRED EQUIPMENT AND ASSOCIATED POWER, WIRING SHALL BE PROVIDED BY THE CONTRACTOR.
11.	CONTRACTOR TO PROVIDE NEW DUCT DETECTOR AS REQUIRED BY CODE ON ALL AIR HANDLING UNITS EQUAL TO OR MORE THAN 2,000 CFM SUPPLY. DETECTOR MANUFACTURER TO MATCH EXISTING DEVICES AND BE COMPATIBLE WITH EXISTING FACTORY CONTRACTOR TO PROVIDE AND INSTALL ALL CABLING AND EQUIPMENT MODULES AS REQUIRED TO CONNECT ADDITIONAL DEVICES TO EXISTING FIRE ALARM CONTROL PANEL.

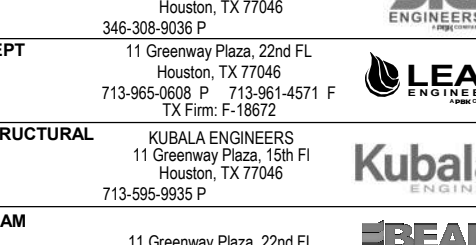
MECHANICAL DEMOLITION NOTES	
1.	DEMOLISH EQUIPMENT SCHEDULED FOR REPLACEMENT. EQUIPMENT NOT SCHEDULED FOR REPLACEMENT SHALL REMAIN.
2.	PATCH AND SEAL ALL ROOF AND WALL OPENINGS WHERE MECHANICAL EQUIPMENT ONCE PENETRATED.
3.	DEMOLITION DOES NOT INCLUDE PLUMBING EQUIPMENT.
4.	CONTRACTOR TO FIELD VERIFY EXISTING CONDITION TO PRIOR TO DEMOLITION.
5.	COORDINATE ALL WORK WITH ALL OTHER TRADES.

MECHANICAL SYMBOLS LEGEND		
SYMBOL	DESCRIPTION	ABBV.
	SUPPLY AIR CEILING DIFFUSER	SAG/SAR
	RETURN AIR GRILLE / REGISTER	RAG / RAR
	EXHAUST GRILLE / REGISTER	EG / ER
	SUPPLY AIR CEILING DIFFUSER	CD
	LINEAR SLOT DIFFUSER	LD
	SIDEWALL SUPPLY AIR GRILLE/REGISTER	SAG/SAR
	SIDEWALL RETURN AIR GRILLE/REGISTER	RAG/RAR
	DUCT MTD. SIDEWALL SUPPLY AIR GRILLE/REGISTER	SAG/SAR
	SUPPLY DUCT RISE/DROP	
	RETURN DUCT RISE/DROP	
	EXHAUST DUCT RISE/DROP	
	DOOR GRILLE	DG
	UNDERCUT DOOR	UC
	LINED RETURN TRANSFER DUCT ABOVE CEILING (SIZE AS INDICATED)	TD
	SQUARE ELBOW WITH DOUBLE THICKNESS TURNING VANES	
	VOLUME DAMPER	MVD
	FLEXIBLE DUCT	FLEX.CONN.
	NEW DUCTWORK	
	EXISTING DUCTWORK / EQUIPMENT	
	DEMO DUCTWORK / EQUIPMENT	
	NEW MECHANICAL EQUIPMENT	
	THERMOSTAT SENSOR	
	HUMIDISTAT SENSOR	
	COMBINATION TEMPERATURE AND CO2 SENSOR	
	COMBINATION TEMPERATURE, HUMIDITY, & CO2 SENSOR	
	COMBINATION TEMPERATURE & HUMIDITY SENSOR	
	SMOKE DAMPER	SD
	FIRE DAMPER	FD
	COMBINATION FIRE AND SMOKE DAMPER	F/SD
	CARBON DIOXIDE SENSOR	CO2
	CARBON MONOXIDE SENSOR	CO
	BAROMETRIC DAMPER	BD
	SMOKE DETECTOR (BY DIVISION 28)	2
	PNEUMATIC DAMPER ACTUATOR	A
	BACKDRAFT DAMPER	BDD
	FLOW MEASURING STATION	FMS
	SPIN-IN VOLUME DAMPER	
	MOTORIZED DAMPER	M
	AIRFLOW DIRECTION	
	SUPPLY AIR	SA
	RETURN AIR	RA
	OUTSIDE AIR	OA
	EXHAUST AIR	EA
	OWNER-FURNISHED EQUIPMENT	OFE
	ABOVE FINISHED FLOOR	AFF
	BOTTOM OF DUCT	BOD
	NOT IN CONTRACT	NIC
	FURNISHED BY OTHERS	FBO
	CONNECT TO EXISTING	
	PLAN SECTION SECTION NUMBER SHEET NUMBER	
	DIFFUSER SCHEDULE DIFFUSER NECK SIZE CFM	NOTE: DUCT RUNOUT TO NECK SAME SIZE UNLESS OTHERWISE NOTED
	DRAWING REFERENCE DETAIL NUMBER SHEET NUMBER	

NOTES:

1. NOT ALL SYMBOLS SHOULD BE USED ON THESE DRAWINGS.

MECHANICAL GENERAL NOTES	
1.	ALL WORK SHALL BE PERFORMED AS PER THE LOCAL MECHANICAL CODE, THE LOCAL BUILDING CODES AND LOCAL ENERGY CONSERVATION CODE.
2.	PROVIDE ALL MATERIALS, LABOR, EQUIPMENT AND ANY OTHER INCIDENTALS ESSENTIAL FOR A COMPLETE AND OPERATIONAL INSTALLATION OF THE HVAC WORK SHOWN ON THE PLANS.
3.	ALL DUCTWORK SHALL BE FABRICATED PER THE LATEST SMACNA STANDARDS.
4.	DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL INFO FOR COORDINATION AND POTENTIAL CONFLICTS. THE MECHANICAL SUBCONTRACTOR SHALL, WITHOUT EXTRA COST TO THE PROJECT SHALL MAKE REASONABLE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICTS WITH OTHER TRADES, OR FOR PROPER EXECUTION OF THE WORK.
5.	DUCT DIMENSIONS INDICATED ON DRAWINGS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.
6.	ALL NEW HVAC EQUIPMENT SHALL BE CLEANED AFTER THE FINISHING OF DRYWALL AND PRIOR TO THE RELEASE OF BUILDING TO THE OWNER. IF THE DUCTWORK AND AIR DEVICES ARE NOT PROPERLY PROTECTED DURING CONSTRUCTION THAN IT SHALL BE CLEANED AS WELL. CONTRACTOR TO PROVIDE DOCUMENTATION WITH DATE AND TIME OF ALL THE PERFORMED SERVICES.
7.	ALL WALL MOUNTED TEMPERATURE, HUMIDITY AND CO2 SENSORS SHALL BE MOUNTED AT THE SAME ELEVATION AS THE LIGHT SWITCHES. COORDINATE WITH ELECTRICAL DRAWINGS AND ARCHITECTURAL ELEVATION PLAN.
8.	REFER TO MECHANICAL ROOF PLAN FOR ROOF MOUNTED EQUIPMENTS.
9.	REFER TO CHILLED WATER AND HEATING WATER PIPING DIAGRAMS FOR PIPE SIZES.
10.	NEW PIPING TO BE INSTALLED AS TO NOT BLOCK ANY ACCESS DOORS FROM FULL SWING OPENING.
11.	PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY MANUFACTURER'S RECOMMENDED AND CODE REQUIRED CLEARANCES ARE AVAILABLE.
12.	COORDINATE ALL WORK WITH ALL OTHER TRADES.
13.	PROVIDE FIRE DAMPERS, SMOKE DAMPERS, OR COMBINATION FIRE/SMOKE DAMPERS IN ALL DUCTWORK AND RETURN AIR OPENINGS WHICH PENETRATE FIRE OR SMOKE RATED WALL OR FLOOR SLABS. FIRE OR SMOKE RATED WALLS CAN INCLUDE BUT NOT LIMITED TO CORRIDOR WALLS, MECHANICAL ROOMS, ELECTRICAL ROOMS, AND STORAGE ROOMS. REFER TO ARCHITECTURAL PLANS FOR PARTITION AND WALL TYPES INDICATING FIRE OR SMOKE RATED WALL LOCATION AND RATING.
14.	REFER TO ARCHITECTURAL, LOUVER SCHEDULE AND ELEVATION PLANS FOR EXACT SIZE, LOCATION AND ELEVATION.
15.	ALL FAN POWERED BOXES SHALL BE EQUIPPED WITH FACTORY PROVIDED AND MOUNTED INDUCED AIR INLET ELOWB SOUND ATTENUATOR.
16.	ALL TERMINAL UNITS AND INLINE EXHAUST FANS SHALL BE INSTALLED IN PROPER ACCESSIBLE AREA.
17.	PROVIDE 24"x24" ACCESS PANEL IN THE GYP BOARD CEILING WHERE TERMINAL UNITS AND INLINE EXHAUST FANS ARE INSTALLED. COORDINATE WITH ARCHITECTURAL CEILING PLANS.
18.	COORDINATE ALL AIR DEVICES LOCATIONS WITH FINAL ARCHITECTURAL REFLECTED CEILING PLAN.
19.	ALL SUPPLY AND RETURN AIR CEILING DEVICES SHALL BE INSULATED ON TOP OF DEVICES IN PREVENT CONDENSATION. INSULATE DEVICES WITH 1-1/2" WRAPAROUND INSULATION AND TOTALLY COVER ALL SURFACES; SECURE INSULATION IN PLACE AND APPLY INSULATION PRIOR TO MOUNTING AIR DEVICES.
20.	PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY MANUFACTURER'S RECOMMENDED AND CODE REQUIRED CLEARANCES ARE AVAILABLE.
21.	PROVIDE TURNING VANES ON ALL RECTANGULAR ELBOWS.
22.	ALL EXPOSED DUCTWORK SHALL BE DOUBLE WALL DUCT. REFER TO SPECIFICATION, PAINT DUCTWORK, COORDINATE COLOR WITH THE ARCHITECT.
23.	PROVIDE 18x16 RETURN AIR OPENING IN WALL ABOVE CEILING WHERE WALLS GO UP TO DECK AND RETURN OPENING NOT SHOWN ON THE DRAWINGS. SHOW RETURN AIR OPENINGS IN DUCT SHOP DRAWINGS.
24.	PROVIDE INTERNALLY LINED DUCT FOR THE FOLLOWING DUCTWORK UNLESS OTHERWISE NOTED ON THE DRAWINGS. -FIRST 20'-0" OF SUPPLY AND RETURN DUCT FROM ROOF MOUNTED AIR HANDLING UNITS. -FIRST 10'-0" OF ROOF MOUNTED EXHAUST FANS. -ALL RETURN AIR BOOTS AND TRANSFER DUCTS.
25.	BUILDING AUTOMATION SYSTEM THERMOGRAPHICS SHALL BE UPDATED TO REFLECT CURRENT FLOW, VENT, FAN, ROOM NAMES AND ALL ASSOCIATED HVAC EQUIPMENT.
26.	CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE ELECTRICAL AND PLUMBING CHANGES FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
27.	ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE BETWEEN CONTRACTORS SHALL BE WITHOUT ANY ADDITIONAL COST TO THE PROJECT.
28.	ALL DUCTWORK (SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR) IN UNCONDITIONED / NON-RETURN PLENUM SHALL BE PROVIDED WITH DUCT WRAP INSULATION.
29.	REFER TO SNAP 'N' SHIELD REFRIGERANT PIPING SUPPORT DETAIL FOR REFRIGERANT PIPING SUPPORT.
30.	PROVIDE INSULATED CONDENSATE DRAIN PIPE FROM FLOOR MOUNTED OR SUSPENDED UNIT TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR EXACT DRAIN LOCATION.
31.	PROVIDE CLEAR, WEATHERPROOF ENCLOSURE FOR THE CONTROL VALVE ACTUATORS LOCATED OUTDOORS.
32.	ALL EXPOSED AND OUTDOOR REFRIGERANT AND CONDENSATE PIPING SHALL BE PROVIDED WITH ALUMINUM JACKET.
33.	ALL OUTSIDE AIR INTAKE OPENINGS SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY PLUMBING VENT, FUEL-FIRED APPLANCE VENT OR EXHAUST AIR DISCHARGE.
34.	FOR ALL OPEN SPACES (MAIN CORRIDOR, GYM, CAFETERIA, LIBRARY ETC), PROVIDE SENSORS IN CLEAR LOCKABLE PROTECTIVE ENCLOSURE.
35.	NOT ALL SYMBOLS OR ABBREVIATIONS MAY BE USED ON THESE DRAWINGS.



ARCHITECT


HOUSTON

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0088 P
713-961-4571 F
TX Firm: BR 1608


PBK Architects, Inc.

PBK.com


<p>CIVIL</p> <p>DIG ENGINEERS 11 Greenway Plaza, 19th Fl Houston, TX 77046 361-365-8938 P</p>	<p>MEPT</p> <p>11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0028 P 713-961-4571 F TX Firm: 11-0857</p>	<p>DIG DIG ENGINEERS 11 Greenway Plaza, 22nd Fl Houston, TX 77046 361-365-8938 P</p> <p>LEAF LEAF ENGINEERS 11 Greenway Plaza, 19th Fl Houston, TX 77046 713-556-9335 P</p>
<p>STRUCTURAL</p> <p>KUBALA ENGINEERS 11 Greenway Plaza, 19th Fl Houston, TX 77046 713-556-9335 P</p>	<p>Kubala KUBALA ENGINEERS 11 Greenway Plaza, 19th Fl Houston, TX 77046 713-556-9335 P</p>	
<p>BEAM</p> <p>11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-565-3300 P</p>		
<p>LANDSCAPE</p> <p>EDGELAND 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-490-3989 P</p>		
<p>FOOD SERVICE</p> <p>Edgeland 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-490-3989 P</p>		
<p>ACOUSTICS</p> <p>BAI 4728 Rainbow Run Sugarland, TX 77479 281-873-9018 P</p>		



LEAF ENGINEERS



BAI



CBAI


NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2

PACKAGE 1

Address Line 1

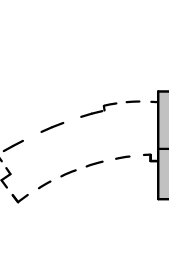
Address Line 2


ISSUE FOR PROPOSAL




ANGLETON ISD
Independent School District

KEY PLAN






NORTH: PLAN



TRUE



STATE OF TEXAS
MAY 12, 1892
LEAF ENGINEERS
P-18672

CLIENT

ANGLETON ISD

DATE

09/15/2023

DRAWING HISTORY

No.	Description	Date

PROJECT NUMBER

220348

ISSUE FOR PROPOSAL

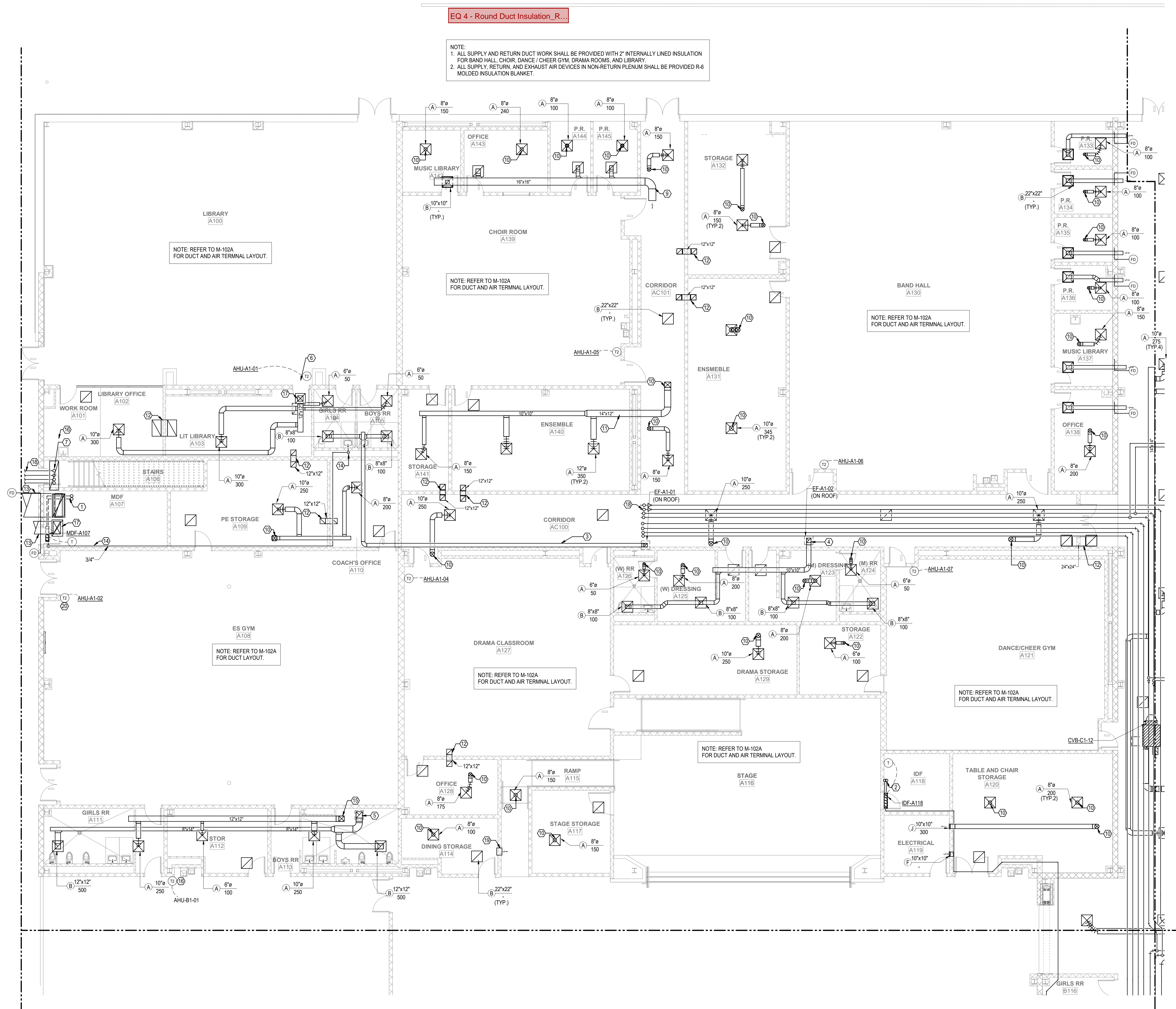
BUILDING NUMBER

MECHANICAL

GENERAL NOTES AND

LEGENDS

ISSUE FOR PROPOSAL



KEYED NOTES:

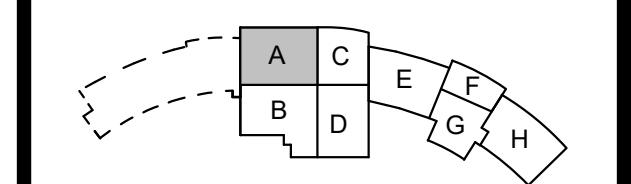
- ① REFRIGERANT LINES UPTO ACCUA14107 ON ROOF THROUGH MEZZANINE SLAB. REFER TO M-102A FOR CONTINUATION.
- ② REFRIGERANT LINES UPTO ACCUA14118 ON ROOF.
- ③ 8"x8" EXHAUST FAN DUCT WORK UPTO EXHAUST FAN EF-A1-01. TRANSITION TO UNIT LEVEL.
- ④ 10"x10" EXHAUST FAN DUCT WORK UPTO EXHAUST FAN EF-A1-02. TRANSITION TO UNIT LEVEL.
- ⑤ 14"x14" EXHAUST FAN DUCT WORK UPTO EXHAUST FAN EF-A1-03. TRANSITION TO UNIT LEVEL.
- ⑥ 12" x 12" SUPPLY DUCT FROM HIGHER ELEVATION. REFER FOR M-102A FOR CONTINUATION.
- ⑦ 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-A1-02. TRANSITION TO UNIT LEVEL.
- ⑧ 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-A1-03. TRANSITION TO UNIT LEVEL.
- ⑨ PROVIDE 2" INTERNAL LINED RETURN DUCTWORK.
- ⑩ DUCTWORK FROM HIGHER ELEVATION. REFER TO SHEET M-102A FOR CONTINUATION.
- ⑪ LINED DUCTWORK WITH 2" THICK FIBERGLASS DUCT LINER.
- ⑫ 2" LINED RETURN AIR TRANSFER DUCT.
- ⑬ DUCTWORK FROM MECHANICAL ROOM ABOVE. REFER TO SHEET M-102A FOR CONTINUATION.
- ⑭ CONDENSATE TO SINK TAILPIPE. REFER TO DETAIL 12 / M-04.
- ⑮ 12" x 12" SUPPLY DUCT FROM HIGHER ELEVATION. REFER TO SHEET M-102A FOR CONTINUATION.
- ⑯ RETURN AIR DUCT THROUGH THE MEZZANINE SLAB. REFER TO M-102A FOR CONTINUATION.
- ⑰ SUPPLY DUCT THROUGH THE MEZZANINE SLAB. REFER TO M-102A FOR CONTINUATION.
- ⑱ CHW SR AND HW SR PIPING FROM HIGHER ELEVATION. REFER TO M-102A FOR CONTINUATION.
- ⑲ 16" x 16" RETURN AIR OPENING IN WALL ABOVE CEILING.
- ⑳ PROVIDE SENSOR IN PROTECTIVE ENCLOSURE.



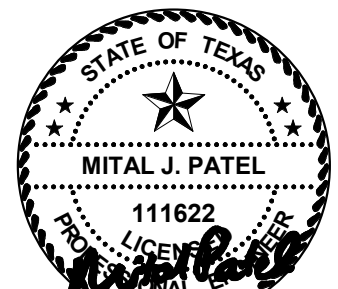
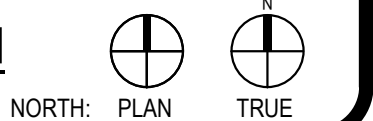
ARCHITECT	HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-865-0808 P 713-861-4571 F TX Firm: BR: 1608	PBK Architects, Inc. PBK.com
CIVIL	DC ENGINEERS 11111 Katy, Suite 1000 Houston, TX 77056 281-556-8939 P	DIG DIGINCORP.COM
MEPT	11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0626 P TX Firm: 10872	LEAF LEAF-ARCHITECTS.COM
STRUCTURAL	KUBALA ENGINEERS Houston, TX 77046 713-556-9939 P	Kubala KUBALAE.COM
BEAM	11 Greenway Plaza, 22nd Floor Houston, TX 77056 713-545-3300 P	BEAM BEAM-ARCHITECTS.COM
LANDSCAPE	EDGE LAND 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-446-5989 P	EDGE LAND EDGE-ARCHITECTS.COM
FOOD SERVICE	Foodcity Inc./Design Professionals 2701 Cambridge Dr. Houston, TX 77058 281-350-3232 P	FOODCITY FOODCITY-ARCHITECTS.COM
ACOUSTICS	844 415 Broadway Row Sugarland, TX 77478	(BAI) BAI-ARCHITECTS.COM



**NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1**



KEY PLAN



09/15/2023
LEAF ENGINEERS
F-18672

<div style="text-align: center;"> CLIENT ANGLETON ISD </div>		
DATE 09/15/2023	PROJECT NUMBER 220348	
DRAWING HISTORY		
No.	Description	Date
ADD-2 PKG-1	ADDENDUM 2 - PACKAGE 1	09/29/2023
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

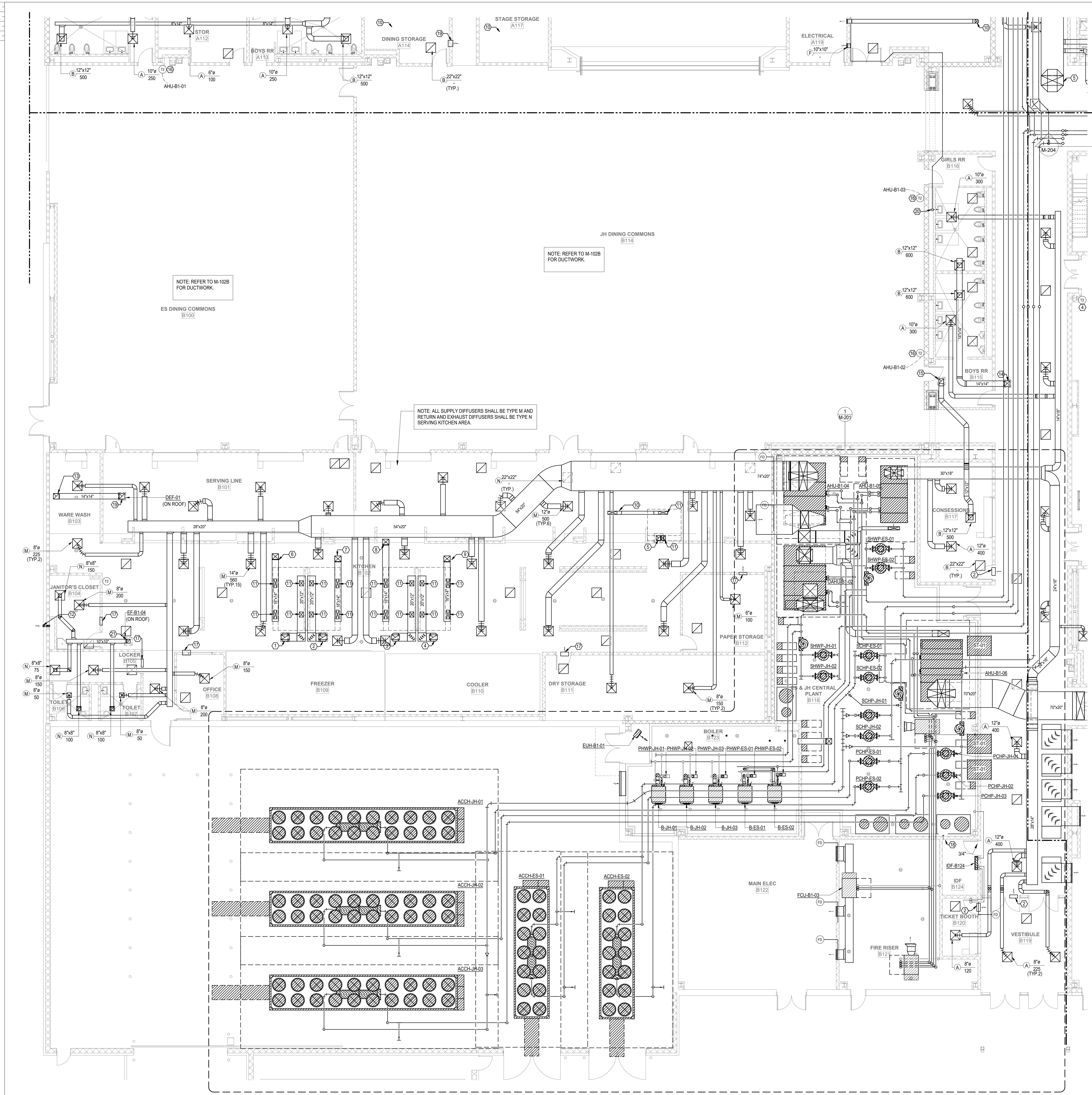
ISSUE FOR PROPOSAL

BUILDING NUMBER

**1ST FLOOR
MECHANICAL PLAN -
AREA A**

M-101A ADD-
PKG.

ISSUE FOR PROPOSAL



KEYED NOTES:

- 20" x 12" EXHAUST DUCT UPTO EXHAUST FAN KEF-01 ON ROOF, TRANSITION TO UNIT INLET.
- 20" x 12" EXHAUST DUCT UPTO EXHAUST FAN KEF-02 ON ROOF, TRANSITION TO UNIT INLET.
- 20" x 12" EXHAUST DUCT UPTO EXHAUST FAN KEF-03 ON ROOF, TRANSITION TO UNIT INLET.
- 20" x 12" EXHAUST DUCT UPTO EXHAUST FAN KEF-04 ON ROOF, TRANSITION TO UNIT INLET.
- 12" x 12" EXHAUST DUCT UPTO EXHAUST FAN KEF-05 ON ROOF, TRANSITION TO UNIT INLET.
- 16" x 14" SUPPLY MAKE-UP AIR DUCT UPTO MAKE-UP AIR UNIT MALU-01 ON ROOF, TRANSITION TO UNIT INLET.
- 16" x 14" SUPPLY MAKE-UP AIR DUCT UPTO MAKE-UP AIR UNIT MALU-02 ON ROOF, TRANSITION TO UNIT INLET.
- 16" x 14" SUPPLY MAKE-UP AIR DUCT UPTO MAKE-UP AIR UNIT MALU-03 ON ROOF, TRANSITION TO UNIT INLET.
- 16" x 14" SUPPLY MAKE-UP AIR DUCT UPTO MAKE-UP AIR UNIT MALU-04 ON ROOF, TRANSITION TO UNIT INLET.
- 12" x 12" SUPPLY MAKE-UP AIR DUCT UPTO MAKE-UP AIR UNIT MALU-05 ON ROOF, TRANSITION TO UNIT INLET.
- DUCT TAP DOWN TO KITCHEN HOOD CONNECTION. REFER TO FOOD SERVICE DRAWINGS FOR DUCT COLLAR SIZE.
- ROUTE 4" DRYER EXHAUST THRU THE EXTERIOR WALL TO THE LOUVER WITH RAIN HOOD AND BIRD SCREEN.
- CONNECT TO DISHWASHER HOOD. DUCT UPTO DEF-B1-01 ON ROOF.
- 14" x 14" EXHAUST DUCT UPTO EXHAUST FAN EF-B1-01 ON ROOF, TRANSITION TO UNIT INLET.
- 12" x 12" EXHAUST DUCT UPTO EXHAUST FAN EF-B1-02 ON ROOF, TRANSITION TO UNIT INLET.
- PROVIDE SENSOR IN PROTECTED ENCLOSURE.
- 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- CONDENSATE PIPING TO NEAREST FLOOR DRAIN IN MECHANICAL ROOM. REFER TO PLUMBING DRAWINGS FOR NEAREST FLOOR DRAIN.
- 14" x 14" DISHWASHER HOOD EXHAUST DUCT UPTO EXHAUST FAN DEF-01, TRANSITION TO UNIT INLET.
- CONNECT 3/4" CONDENSATE PIPING TO SINK TAIL PIECE. REFER TO PLUMBING DRAWINGS FOR CONNECTION DETAIL.
- 10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-B1-04 ON ROOF, TRANSITION TO UNIT INLET.

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm BR 1608

PKB Architects, Inc.
PKB.com

CIVIL

11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm C 1807

DIG ENGINEERS

MEPT

11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm E 1807

LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0808 P

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

IBRAM ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
20250 LAMAR BLVD
HOUSTON, TX 77058
281-355-2332 F

BAI

ACOUSTICS

BAI
4725 BARCLAY BLVD
HOUSTON, TX 77056
281-813-8138 F

BAI

LEAF ENGINEERS

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
713-961-4571 F

ANGLETON
Independent School District

MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-16872

CLIENT

ANGLETON ISD

DATE

09/15/2023

PROJECT NUMBER

220346

DRAWING HISTORY

No.	Description	Date
ADD-5	ADDENDUM 5 - PACKAGE 1	10/13/2023
PNS-1		

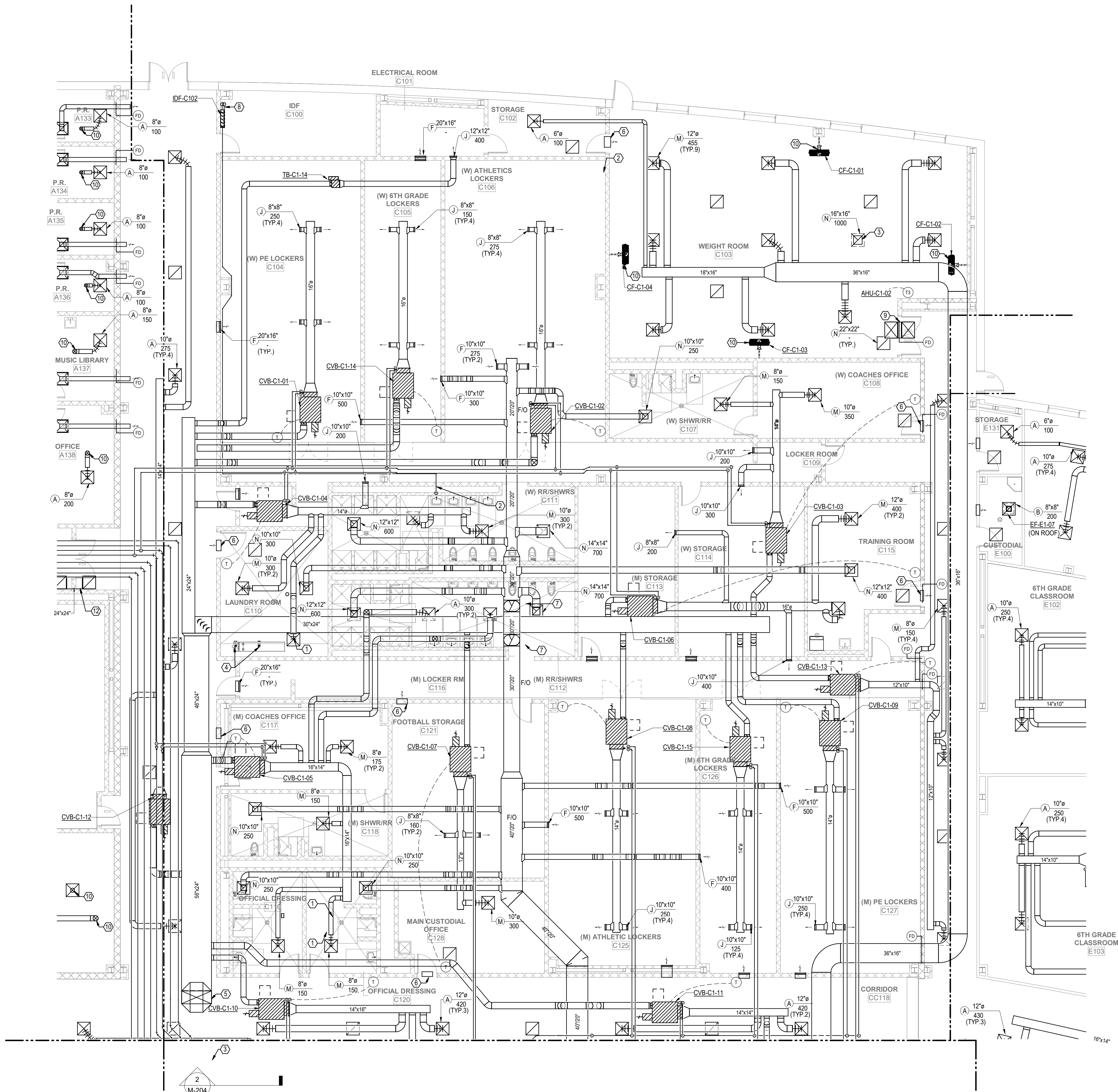
ISSUE FOR PROPOSAL

BUILDING NUMBER

1ST FLOOR
MECHANICAL PLAN -
AREA B

M-101B

ISSUE FOR PROPOSAL



NOTE:
1. ALL EXPOSED DUCTWORK SHALL BE DOUBLE DUCT.
2. ALL SUPPLY, RETURN & EXHAUST AIR DEVICES SHALL BE STAINLESS STEEL OR ALUMINUM TYPE SERVING THE LOCKERS AND WEIGHT ROOM AREAS.
3. ALL EXPOSED HEATING AND CONDENSATE PIPING SHALL BE WRAPPED WITH ALUMINUM JACKET.

KEYED NOTES:

- ROUTE DUCT UP AND THROUGH STRUCTURE.
- CONDENSATE PIPING TO SINK TAIL PIECE. REFER TO PLUMBING DRAWINGS FOR DETAIL.
- 18" x 16" EXHAUST DUCT UP TO EXHAUST EF-C1-05 ON ROOF. TRANSITION TO UNIT INLET.
- 8" Ø DRYER VENT UP TO THE ROOF.
- SUPPLY DUCT FROM HIGHER ELEVATION. REFER TO M-102C FOR CONTINUATION.
- 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- EXHAUST DUCT TO RISE UP AND ROUTE BETWEEN STRUCTURE.
- REFRIGERANT PIPING UP TO CONDENSING UNIT ON ROOF. TRANSITION TO UNIT INLET. ALL EXPOSED AND OUTDOOR PIPING SHALL BE WRAPPED WITH ALUMINUM JACKET.
- 30" x 24" LINED RETURN AIR TRANSFER DUCT.
- WALL MOUNTED CIRCULATING FAN.

ARCHITECT

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P.
TX Firm BR 1606

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P.
TX Firm BR 1607

MEPT

LEAF ENGINEERS
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P.
TX Firm BR 1607

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P.

BEAM

IBRAM
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P.

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P.

FOOD SERVICE

Foodservice Design Professionals
20220 LAMAR BLVD
HOUSTON, TX 77058
281-355-2332 P.

ACOUSTICS

BAI
4728 BARCLAY BLVD
HOUSTON, TX 77056
281-813-8138 P.

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1
Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-16672

CLIENT
ANGLETON ISD
DATE
09/15/2023
PROJECT NUMBER
220346

No.	Description	Date
ADD-2 PKG-1	ADDENDUM 2 - PACKAGE 1	09/29/2023
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

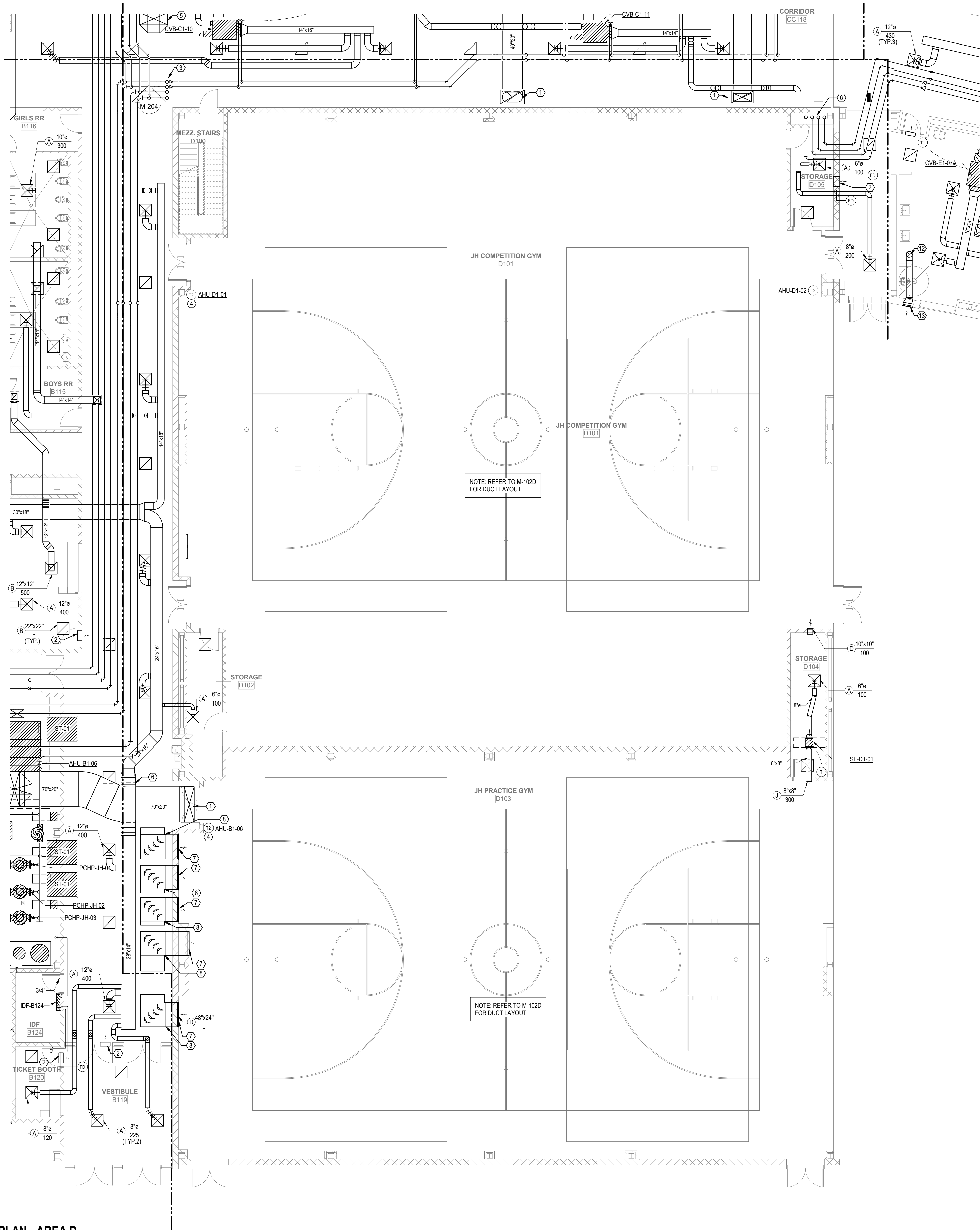
ISSUE FOR PROPOSAL

BUILDING NUMBER

1ST FLOOR MECHANICAL PLAN - AREA C

M-101C

ISSUE FOR PROPOSAL



KEYED NOTES:

- DUCTWORK FROM MEZZANINE ABOVE THROUGH THE SLAB. REFER TO M-102D FOR CONTINUATION.
- 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- CHW S/R AND HW S/R PIPING UP TO SECOND FLOOR. REFER TO M-102D FOR CONTINUATION.
- PROVIDE SENSOR IN PROTECTED ENCLOSURE.
- CHW S/R AND HW S/R PIPING FROM MEZZANINE ABOVE THROUGH THE SLAB. REFER TO M-102D FOR CONTINUATION.
- DUCTWORK TO RISE UP AND ROUTE IN BETWEEN STRUCTURE. COORDINATE WITH STRUCTURE DRAWINGS.
- RETURN GRILLE AT 11' - 0" A.F.F.
- 48" x 24" LINED RETURN ELBOW CONNECTED TO RETURN GRILLE.

ARCHITECT

PBK Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

PBK.com

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0608 P
TX Firm C-13672

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P
TX Firm E-13672

LEAF ENGINEERS

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0608 P

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

IBeam ENGINEERS

LANDSCAPE

EDGELAND
11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

EDGELAND

FOOD SERVICE

Foodservice Design Professionals
4725 BARCLAY BLVD
HOUSTON, TX 77056
281-355-2332

Foodservice Design Professionals

ACOUSTICS

BAI
4725 BARCLAY BLVD
HOUSTON, TX 77056
281-355-2332

BAI

LEAF ENGINEERS

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P

ANGLETON

Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS

MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-16872

CLIENT

ANGLETON ISD

DATE

09/15/2023

PROJECT NUMBER

220346

DRAWING HISTORY

No.	Description	Date
ADD-5	ADDENDUM 5 - PACKAGE 1	10/13/2023
PKG-1		

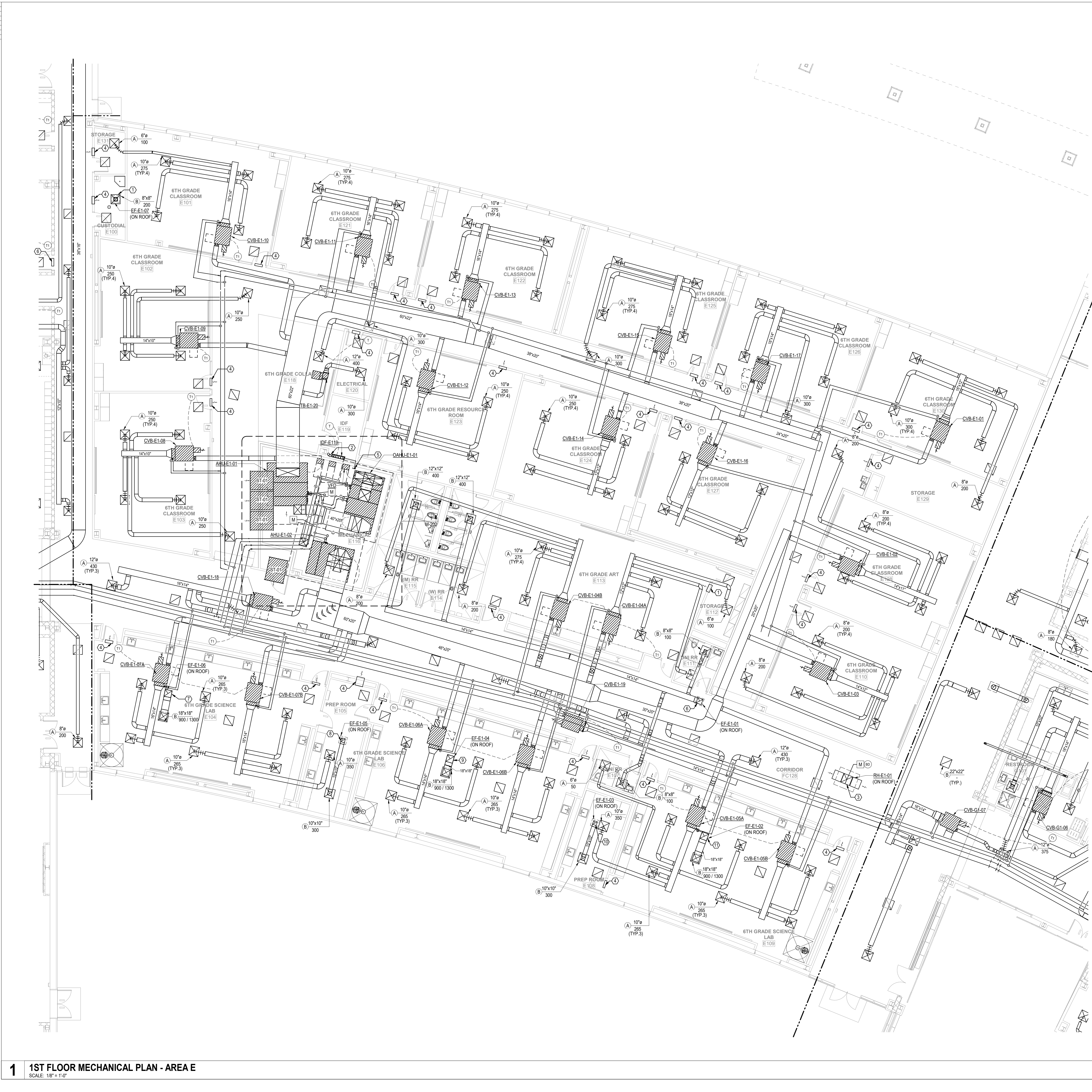
ISSUE FOR PROPOSAL

BUILDING NUMBER

1ST FLOOR MECHANICAL PLAN - AREA D

M-101D

ADD-5
PKG-1



KEYED NOTES:

- 8"x8" EXHAUST DUCT UPTO EXHAUST FAN EF-E1-07 ON ROOF.
- REFRIGERANT LINES UPTO ACCL-E119 ON ROOF.
- 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-A1-03, TRANSITION TO UNIT INLET.
- 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- CONDENSATE PIPING TO NEAREST FLOOR DRAIN IN MECHANICAL ROOM. REFER TO PLUMBING DRAWINGS FOR NEAREST DRAIN LOCATION.
- 14" x 14" EXHAUST DUCT UPTO EXHAUST FAN EF-E1-01 ON ROOF.
- 18" x 18" EXHAUST DUCT UPTO EXHAUST FAN EF-E1-06 ON ROOF.
- 10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-E1-08 ON ROOF.
- 18" x 18" EXHAUST DUCT UPTO EXHAUST FAN EF-E1-04 ON ROOF.
- 10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-E1-03 ON ROOF.
- 18" x 18" EXHAUST DUCT UPTO EXHAUST FAN EF-E1-02 ON ROOF.

ARCHITECT

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0688 P
TX Firm BR 1608

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0688 P
TX Firm BR 1607

MEPT

LEAF ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0688 P
TX Firm BR 1607

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0688 P

BEAM

EDGELAND
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0688 P

LANDSCAPE

EDGELAND
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0688 P

FOOD SERVICE

Foodservice Design Professionals
4725 RAMBLING HILL
HOUSTON, TX 77056
281-355-2332 P

ACOUSTICS

BAI
4725 RAMBLING HILL
HOUSTON, TX 77056
281-355-2332 P

LEAF ENGINEERS

11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0688 P

ANGLETON

Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS

MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-16872

CLIENT

ANGLETON ISD

DATE

09/15/2023

PROJECT NUMBER

220346

DRAWING HISTORY

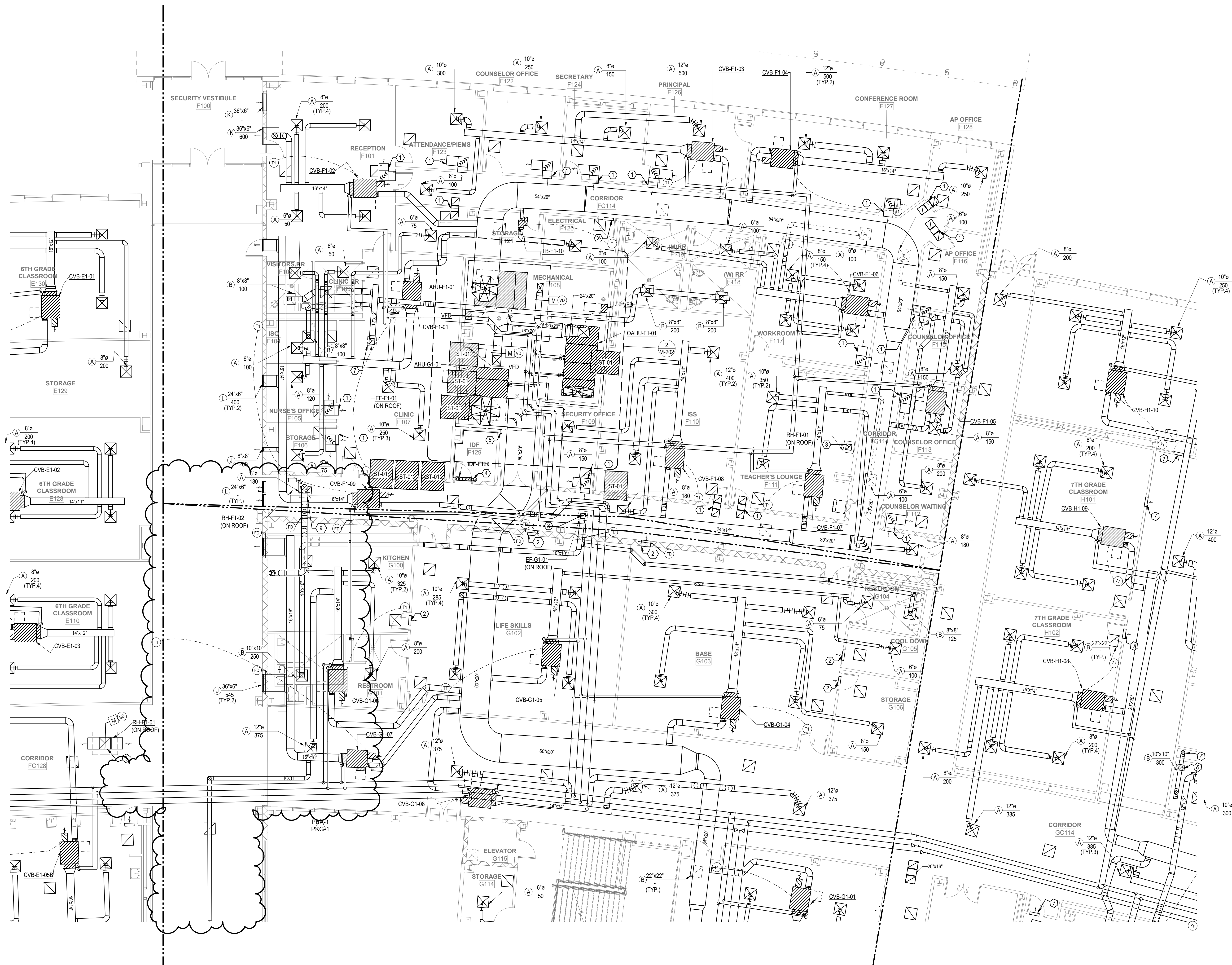
No.	Description	Date
ADD-2	ADDENDUM 2 - PACKAGE 1	09/29/2023
PKG-1		

ISSUE FOR PROPOSAL

BUILDING NUMBER

1ST FLOOR MECHANICAL PLAN - AREA E

M-101E



KEYED NOTES:

- ① 20" x 16" LINED RETURN AIR BOOT ABOVE CEILING.
- ② 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- ③ 12" Ø EXHAUST DUCT FROM VENT HOOD UPTO RELIEF HOOD RF-H1-01 ON ROOF. TRANSITION TO UNIT KLET.
- ④ REFRIGERANT PIPING FROM WALL UNIT DF-F129 UPTO AIR COOLED CONDENSING UNIT ACCU-F129 ON ROOF.
- ⑤ ROUTE CONDENSATE PIPING TO CLOSEST DRAIN IN MECHANICAL ROOM. REFER TO PLUMBING DRAWINGS FOR EXACT DRAIN LOCATION.
- ⑥ 4" Ø EXHAUST DUCT FOR DRYER UPTO ROOF. TERMINATE WITH ROOF CAP. REFER TO DETAIL.
- ⑦ 12" x 12" EXHAUST DUCT UPTO EXHAUST FAN EF-F1-01 ON ROOF.
- ⑧ 10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-G1-01 ON ROOF.
- ⑨ 12" Ø EXHAUST DUCT FROM VENT HOOD UPTO RELIEF HOOD RF-H1-02 ON ROOF. TRANSITION TO UNIT KLET.

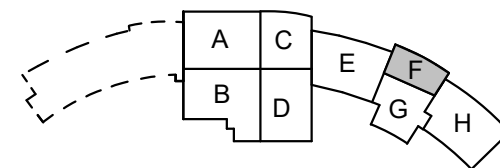


ARCHITECT	HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-865-0808 P 713-861-4571 F TX Firm: BR 1608	PKB Architects, Inc. PKB.com
CIVIL	DO ENGINEERS 11 Greenway Plaza, 22nd Floor Houston, TX 77046 361-558-8939 P	DIG DIG.com
MEPT	11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0026 P 713-965-4571 F TX Firm: 10827	LEAF leaf.com
STRUCTURAL	KUBALA ENGINEERS Houston 5001 N. Loop West Houston, TX 77056 713-556-9933 P	Kubala Kubala.com
BEAM	11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-545-3300 P	FRAM fram.com
LANDSCAPE	EDGE LAND 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-446-5983 P	EDGE LAND edgeland.com
FOOD SERVICE	Foodservice Design Partners 2015 CARPENTERS DR HOUSTON, TX 77058 281-350-3232 P	Foodservice Design Partners fdesign.com
ACOUSTICS	844 415 BARROW RD SUGARLAND, TX 77478	(BAI) bai.com

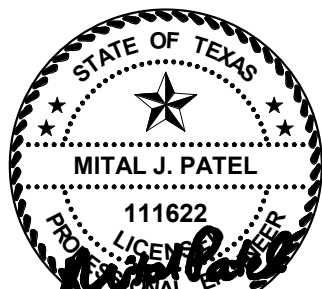


**NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1**

Address Line 1
Address Line 2



KEY PLAN



09/15/2023
LEAF ENGINEERS
F-18672

CLIENT ANGLETON ISD		
DATE 09/15/2023	PROJECT NUMBER 220348	
DRAWING HISTORY		
No.	Description	Date
ADD-2 PKG-1	ADDENDUM 2 - PACKAGE 1	09/29/2023
PBA-1 PKG-1	POST-BID ADDENDUM 1 - PACKAGE 1	10/24/2023

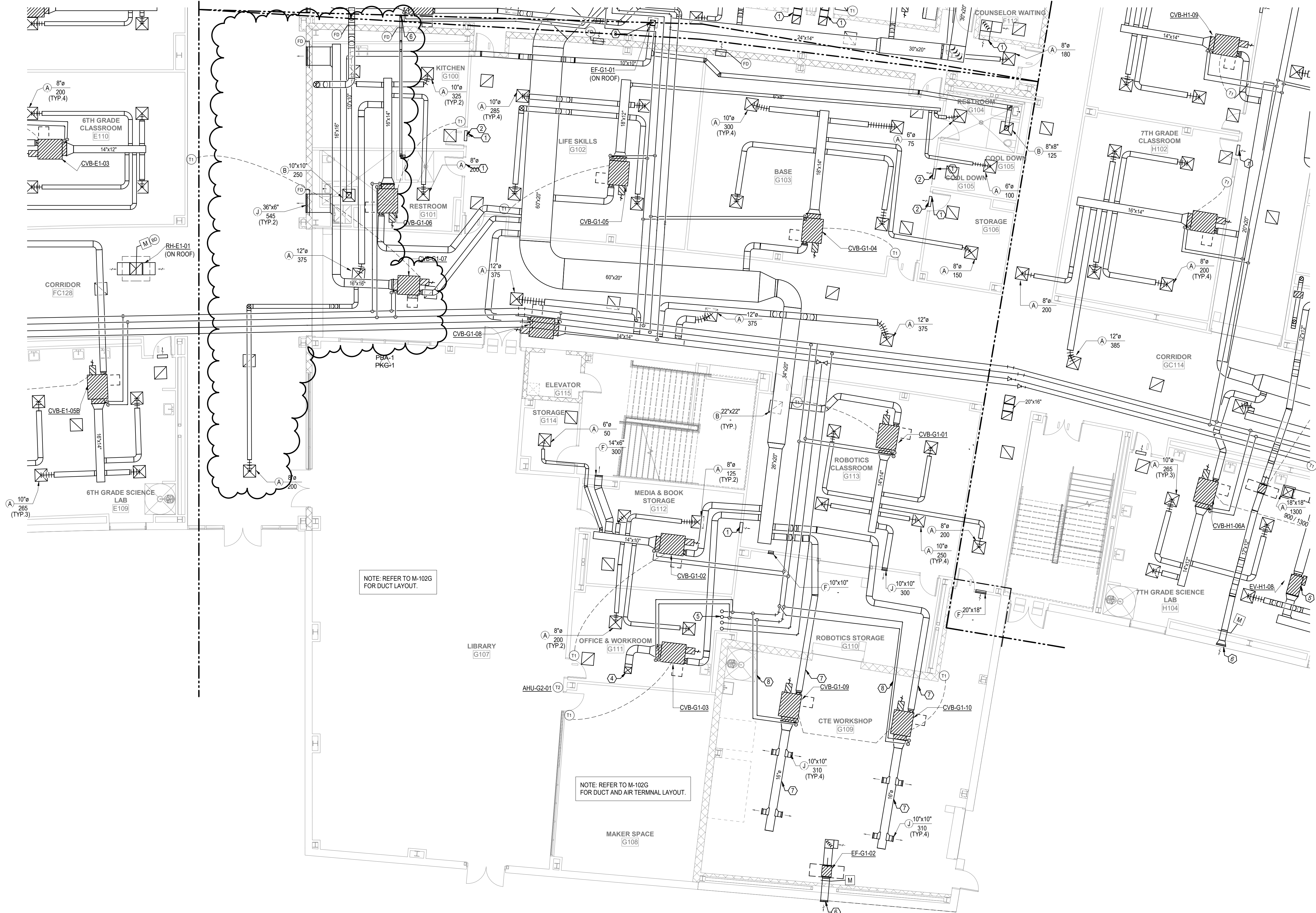
ISSUE FOR PROPOSAL

BUILDING NUMBER

**1ST FLOOR
MECHANICAL PLAN -
AREA F**

M-101F

ISSUE FOR PROPOSAL



KEYED NOTES:

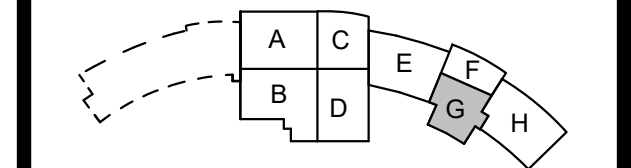
- 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- 12" x 12" EXHAUST DUCT FROM VENT HOOD UP TO RELIEF HOOD RHE-G1-01 ON ROOF.
- 4" DRYER EXHAUST DUCT UP TO ROOF.
- DUCTWORK UP TO SECOND FLOOR. REFER TO SHEET M-102G FOR CONTINUATION.
- CHW SR AND HW SR UP TO HIGHER ELEVATION. REFER TO SHEET M-102G FOR CONTINUATION.
- 14" x 14" EXHAUST LOUVER. REFER TO ARCH DRAWINGS FOR ADDITIONAL DETAILS.
- ALL EXPOSED DUCTWORK SHALL BE DOUBLE WALL DUCT. REFER TO METAL DUCT SPECS.
- ALL EXPOSED PIPING SHALL BE WRAPPED WITH ALUMINUM JACKET.



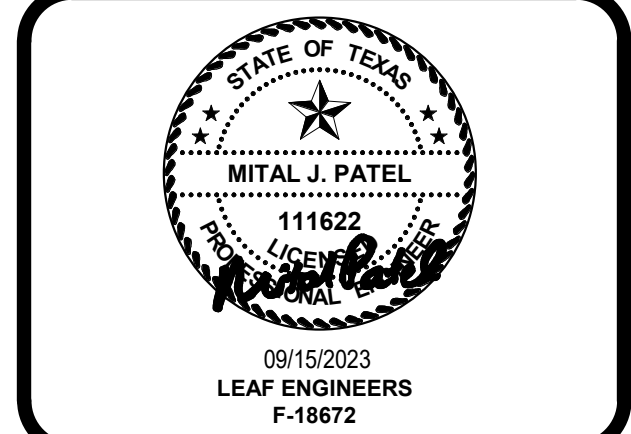
ARCHITECT	PBK Architects, Inc. HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P TX Firm BR 1606
CIVIL	DIG ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0608 P TX Firm BR 1607
MEPT	LEAF ENGINEERS 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0608 P TX Firm BR 1608
STRUCTURAL	KUBALA ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0608 P
BEAM	IBeam 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0608 P
LANDSCAPE	EDGE LAND 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0608 P
FOOD SERVICE	Foodservice Design Professionals 20201 LAWRENCE ST WILLOWDALE, TX 77601 281-355-2332 P
ACOUSTICS	BAI 4725 BARRETT BLVD HOUSTON, TX 77056 281-813-8138 P



NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1



KEY PLAN



CLIENT		
ANGLETON ISD		
DATE		PROJECT NUMBER
09/15/2023		220348
DRAWING HISTORY		
No.	Description	Date
ADD-2 PKG-1	ADDENDUM 2 - PACKAGE 1	09/29/2023
PBA-1 PKG-1	POST-BID ADDENDUM 1 - PACKAGE 1	10/24/2023

ISSUE FOR PROPOSAL

1ST FLOOR
MECHANICAL PLAN -
AREA G

M-101G

ISSUE FOR PROPOSAL

File Path: BIN\360\Angleton ISD_220348_ES No.7 and JH_No.2.rvt
Checked By: MP
Drawn By: FS
Plot Stamp: 10/17/2023 11:10:20 AM



KEYED NOTES:

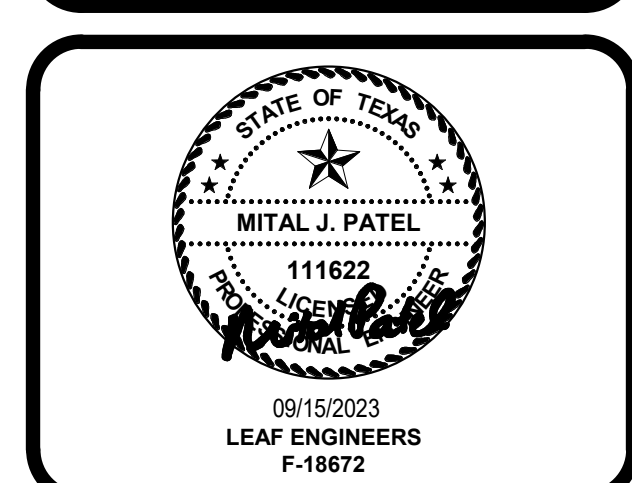
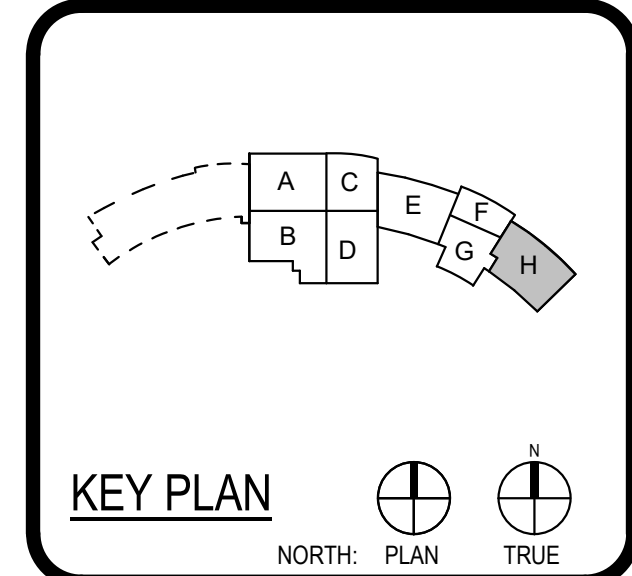
- 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- DUCTWORK FROM OUTSIDE AIR UNIT 04HLH1-01 UP THROUGH SECOND FLOOR MECHANICAL ROOM AND UPTO ROOF. REFER TO SHEET M-102H FOR CONTINUATION.
- CONNECT TO FUME HOOD EXHAUST OUTLET.
- 3/4" CONDENSATE PIPING TO NEAREST FLOOR DRAIN IN MECHANICAL ROOM. REFER TO PLUMBING DRAWINGS FOR NEAREST FLOOR DRAIN.
- REFER TO EXHAUST RISER DIAGRAM FOR DUCT SIZES.
- 18" x 18" EXHAUST LOUVER. REFER TO ARCHITECT DRAWINGS AND SPECS FOR ADDITIONAL DETAILS.
- 8" KILN EXHAUST DUCTWORK UPTO SECOND FLOOR, REFER TO M-102H FOR CONTINUATION.
- BLOWER WITH MOTOR PROVIDED BY KILN MANUFACTURER. REFER TO DETAIL DRAWING.



ARCHITECT	PBK Architects, Inc. HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm BR 1608
CIVIL	DIG ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm BR 1607
MEPT	LEAF ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm BR 1607
STRUCTURAL	Kubala ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm BR 1607
BEAM	IBRAM ENGINEERS 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm BR 1608
LANDSCAPE	EDGELAND 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm BR 1608
FOOD SERVICE	Foodservice Design Professionals 4725 BARCLAY BLVD HOUSTON, TX 77056 281-355-2332 F
ACOUSTICS	BAI 4725 BARCLAY BLVD HOUSTON, TX 77056 281-355-2332 F



NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2 PACKAGE 1

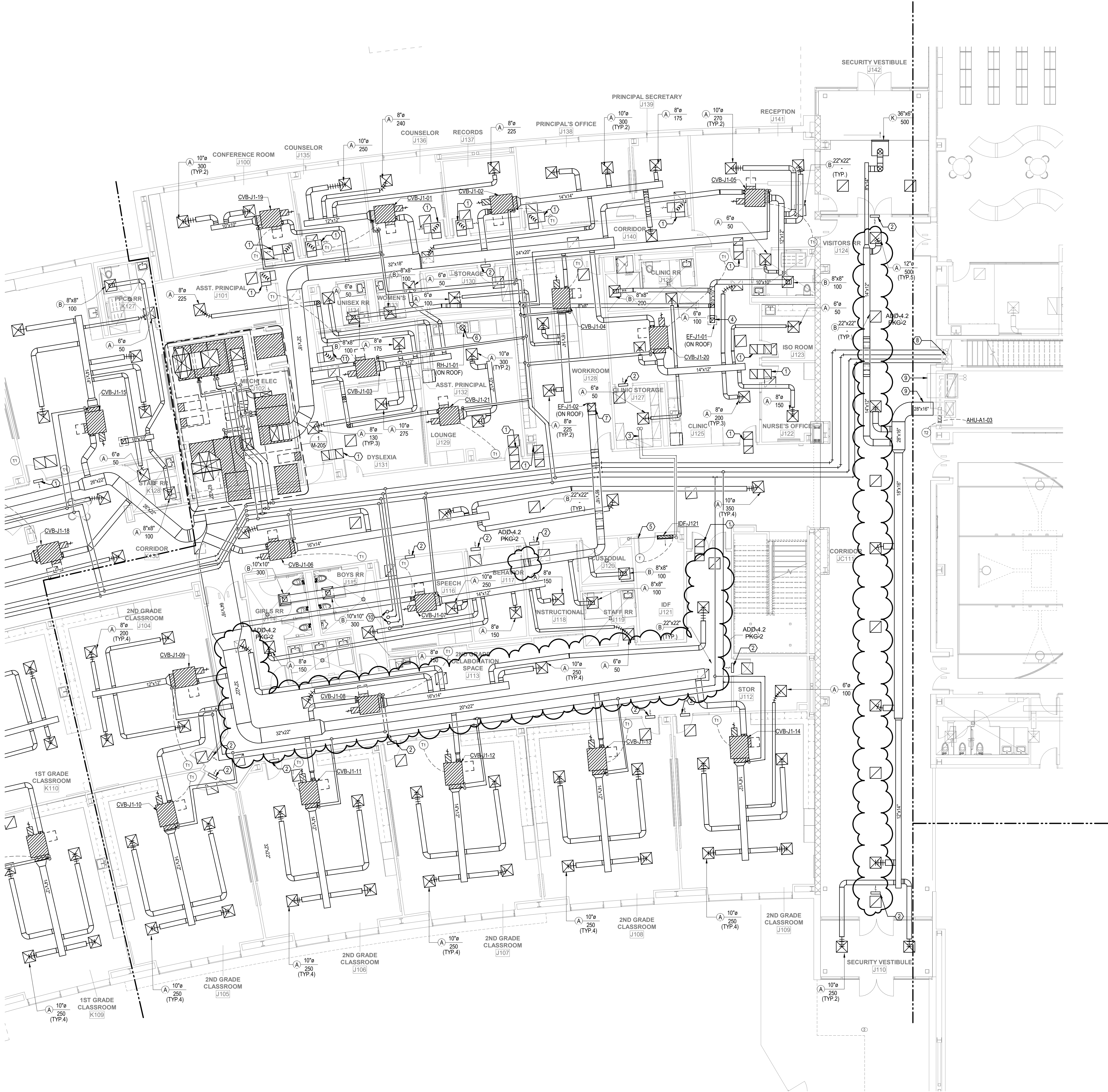


CLIENT		
ANGLETON ISD		
DATE	PROJECT NUMBER	
09/15/2023	220348	
DRAWING HISTORY		
No.	Description	Date
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023
ADD-1 PKG-1	ADDENDUM 7 - PACKAGE 1	10/17/2023

ISSUE FOR PROPOSAL
BUILDING NUMBER
1ST FLOOR
MECHANICAL PLAN -
AREA H

M-101H

11ST FLOOR MECHANICAL PLAN - AREA J
SCALE: 1/8" = 1'-0"



KEYED NOTES:

- 20" x 16" LINED RETURN AIR BOOT ABOVE CEILING.
- 20" x 16" RETURN AIR OPENING IN WALL ABOVE CEILING.
- LIQUID AND SUCTION REFRIGERANT PIPES TO CONDENSING UNIT ON ROOF. SIZE PER MANUFACTURERS RECOMMENDATION. PROVIDE SHAMP-AN SHIELD REFRIGERANT PIPING SUPPORT. REFER TO DETAIL DRAWING. ALL EXPOSED AND OUTDOOR PIPING SHALL BE WRAPPED WITH ALUMINUM JACKET.
- 10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-J1-01 ON ROOF, TRANSITION TO UNIT INLET.
- 3/4"Ø CONDENSATE DRAIN DOWN TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR NEAREST FLOOR DRAIN. PROVIDE ALUMINUM JACKET ON ALL EXPOSED PIPING.
- 6" ROUND EXHAUST DUCT UPTO RELIEF HOOD RH-J1-01 ON ROOF, TRANSITION TO UNIT INLET.
- 10" x 16" EXHAUST DUCT UPTO EXHAUST FAN EF-J1-02 ON ROOF, TRANSITION TO UNIT INLET.
- PIPING FROM MECHANICAL ROOM A200 ON SECOND FLOOR FROM PACKAGE ONE. REFER TO M-102A CONTINUATION.
- SUPPLY AND RETURN AIR DUCT FROM MECHANICAL ROOM A200 ON SECOND FLOOR FROM PACKAGE ONE. REFER TO M-102A CONTINUATION.
- CHILLED AND HEATING WATER PIPING UPTO SECOND FLOOR. REFER TO 4M-205 FOR CONTINUATION.
- 20" x 16" LINED RETURN AIR ELBOW.

ARCHITECT

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm BR 1606

PKB.com

CIVIL

ONE ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm C-1867

DIG
DESIGN

MEPT

ONE ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm C-1867

LEAF
ENGINEERS

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0608 P

Kubala
ENGINEERS

BEAM

ONE ENGINEERS
11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

BEAM
ENGINEERS

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
4025 LAMAR BLVD
HOUSTON, TX 77056
281-355-2332 F

FD

ACOUSTICS

BAI
4755 BARNEY BLVD
HOUSTON, TX 77056
281-813-8138 F

BAI

LEAF
ENGINEERS

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD
DATE
01/12/2024
PROJECT NUMBER
220348

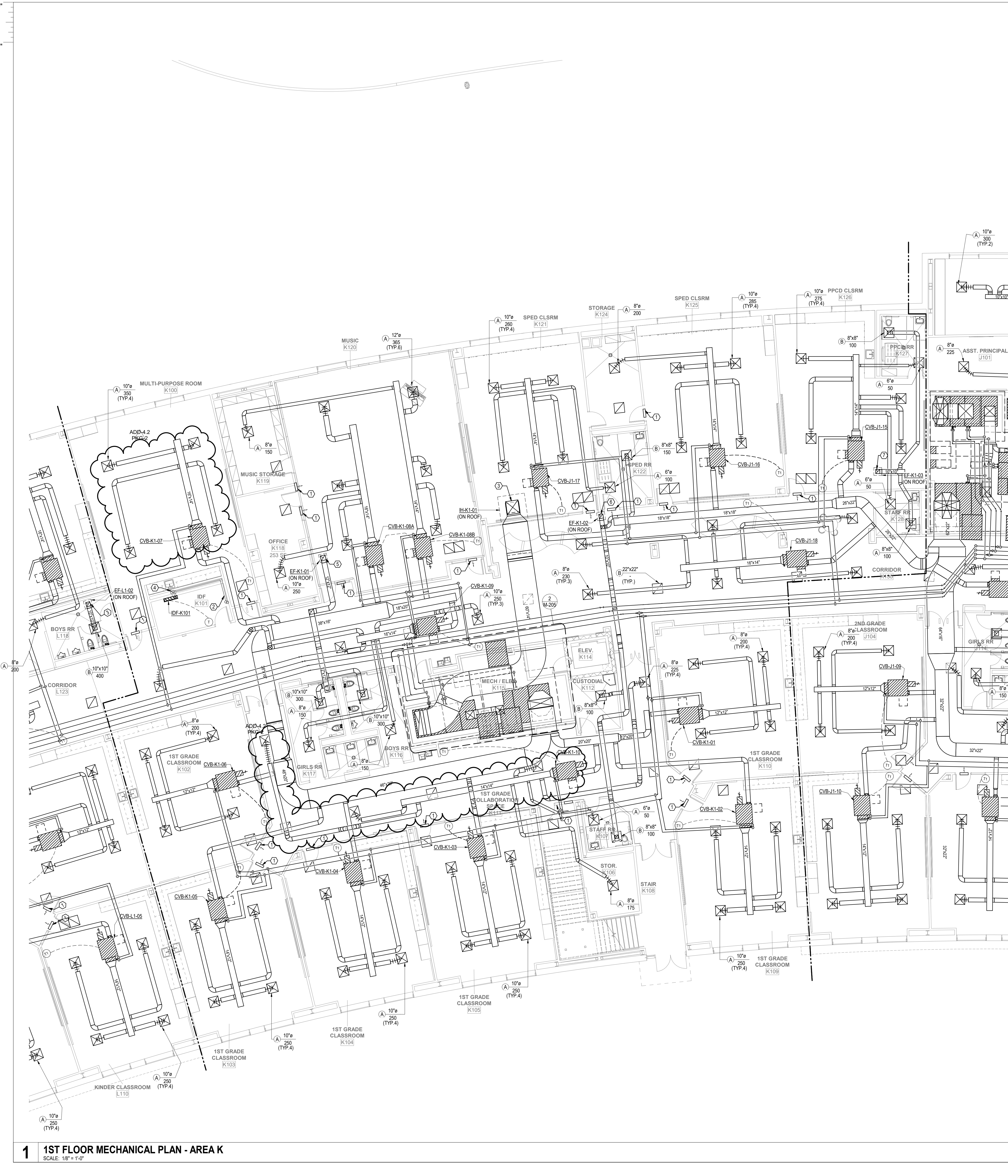
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ADD-4.2	ADDENDUM 4 - PACKAGE 2	02/16/2024
PKG-2		

ISSUE FOR PROPOSAL

BUILDING NUMBER

1ST FLOOR
MECHANICAL PLAN -
AREA J

M-101J



- KEYED NOTES:
- 1

20" x 16" RETURN OPENING IN WALL ABOVE CEILING.
- 2

LIQUID AND SUCTION REFRIGERANT PIPES TO CONDENSING UNIT ON ROOF. SIZE PER MANUFACTURERS RECOMMENDATION. PROVIDE SNAP-N-SHIELD REFRIGERANT PIPING SUPPORT. REFER TO DETAIL DRAWING. ALL EXPOSED AND OUTDOOR PIPING SHALL BE WRAPPED WITH ALUMINUM JACKET.
- 3

60" x 14" OUTSIDE AIR DUCT UPTO INTAKE HOOD EF-K1-01 ON ROOF. TRANSITION TO UNIT INLET.
- 4

3/4"Ø CONDENSATE DRAIN TO SINK TAIL PIECE. REFER TO PLUMBING DRAWINGS FOR DETAIL. PROVIDE ALUMINUM JACKET ON ALL EXPOSED PIPING.
- 5

12" x 12" EXHAUST DUCT UPTO EXHAUST FAN EF-K1-01 ON ROOF. TRANSITION TO UNIT INLET.
- 6

10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-K1-02 ON ROOF. TRANSITION TO UNIT INLET.
- 7

10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-K1-03 ON ROOF. TRANSITION TO UNIT INLET.

PKB

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P
TX Firm C-1807

DIG ENGINEERS

MEPT

LEAF ENGINEERS
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P
TX Firm C-1807

LEAF ENGINEERS

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P

Kubala ENGINEERS

BEAM

IBRAM PROFESSIONALS
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P

IBRAM PROFESSIONALS

LANDSCAPE

EDGE LANDSCAPE
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P

EDGE LANDSCAPE

FOOD SERVICE

Foodservice Design Professionals
4755 RANDOLPH BLVD.
HOUSTON, TX 77056
281-355-2332 P

Foodservice Design Professionals

ACOUSTICS

BAI
4755 RANDOLPH BLVD.
HOUSTON, TX 77056
281-355-2332 P

BAI

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 2

25445 FM 521
ANGLETON, TX 77515
ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD

DATE
01/12/2024

PROJECT NUMBER
220348

DRAWING HISTORY

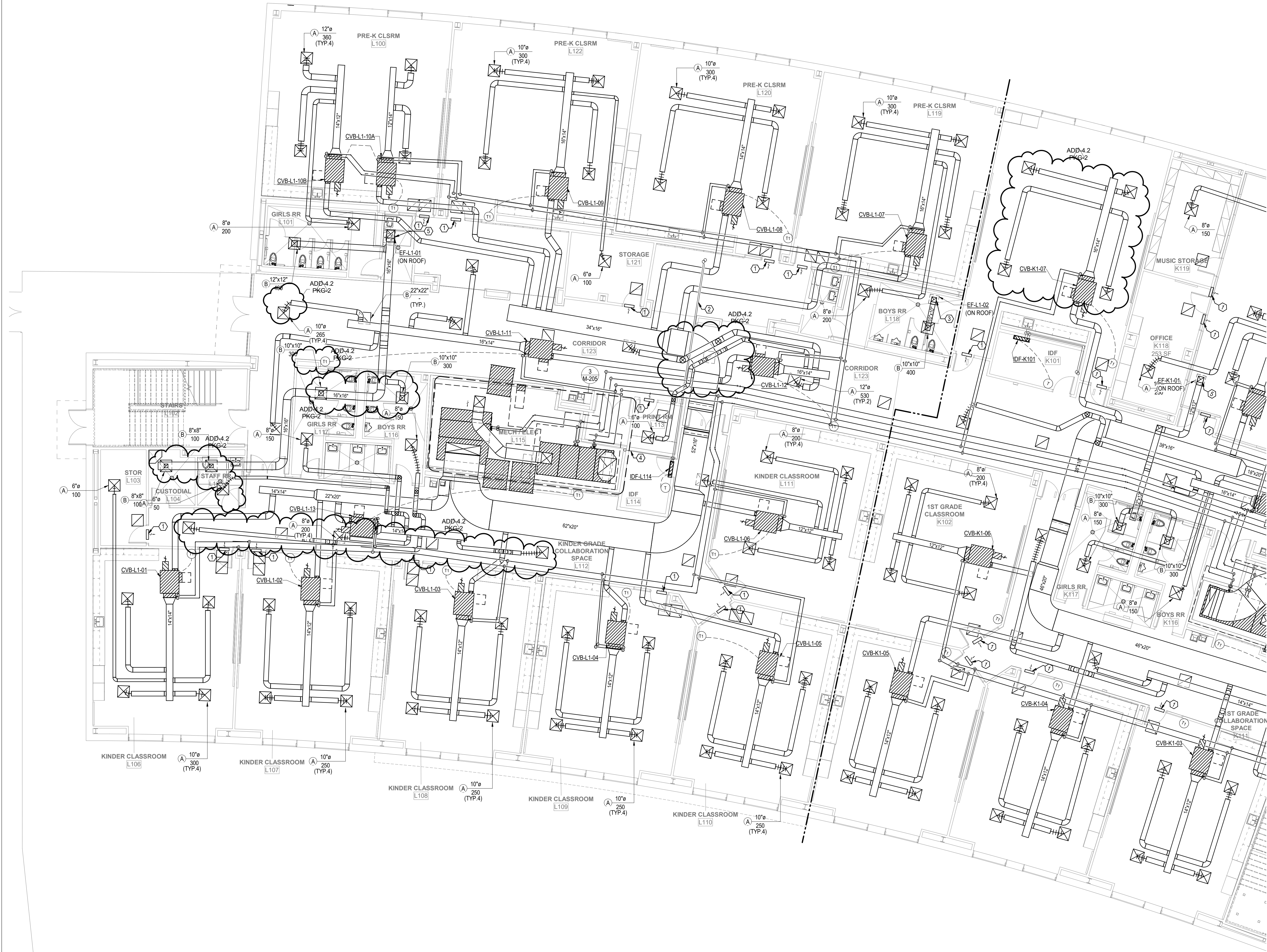
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ADD-4.2	ADDENDUM 4 - PACKAGE 2	02/16/2024
PKC-2		

ISSUE FOR PROPOSAL

BUILDING NUMBER

1ST FLOOR
MECHANICAL PLAN -
AREA K

M-101K



KEYED NOTES:

- 20" x 16" RETURN OPENING IN WALL ABOVE CEILING.
- LIQUID AND SUCTION REFRIGERANT PIPES TO CONDENSING UNIT ON ROOF. SIZE PER MANUFACTURERS RECOMMENDATION. PROVIDE SNAP-N-SHIELD REFRIGERANT PIPING SUPPORT. REFER TO DETAIL DRAWING. ALL EXPOSED AND OUTDOOR PIPING SHALL BE WRAPPED WITH ALUMINUM JACKET.
- 10" x 10" EXHAUST DUCT UPTO EXHAUST FAN EF-L1-02 ON ROOF, TRANSITION TO UNIT INLET.
- 3/4"Ø CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR DETAIL. PROVIDE ALUMINUM JACKET ON ALL EXPOSED PIPING.
- 16" x 16" EXHAUST DUCT UPTO EXHAUST FAN EF-L1-01 ON ROOF, TRANSITION TO UNIT INLET.

ARCHITECT

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1606

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0808 P
TX Firm C-13673

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P
TX Firm C-13673

LEAF ENGINEERS

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0808 P

Kubala

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

BEAM

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-465-0881 F

EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
30255 LAMAR BLVD STE 300
HOUSTON, TX 77058
281-355-2332 F

ACOUSTICS

BAI
4728 BAYVIEW BLVD
HOUSTON, TX 77059
281-813-8138 F

BAI

LEAF ENGINEERS

ANGLETON
Independent School District

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD

DATE
01/12/2024

PROJECT NUMBER
220348

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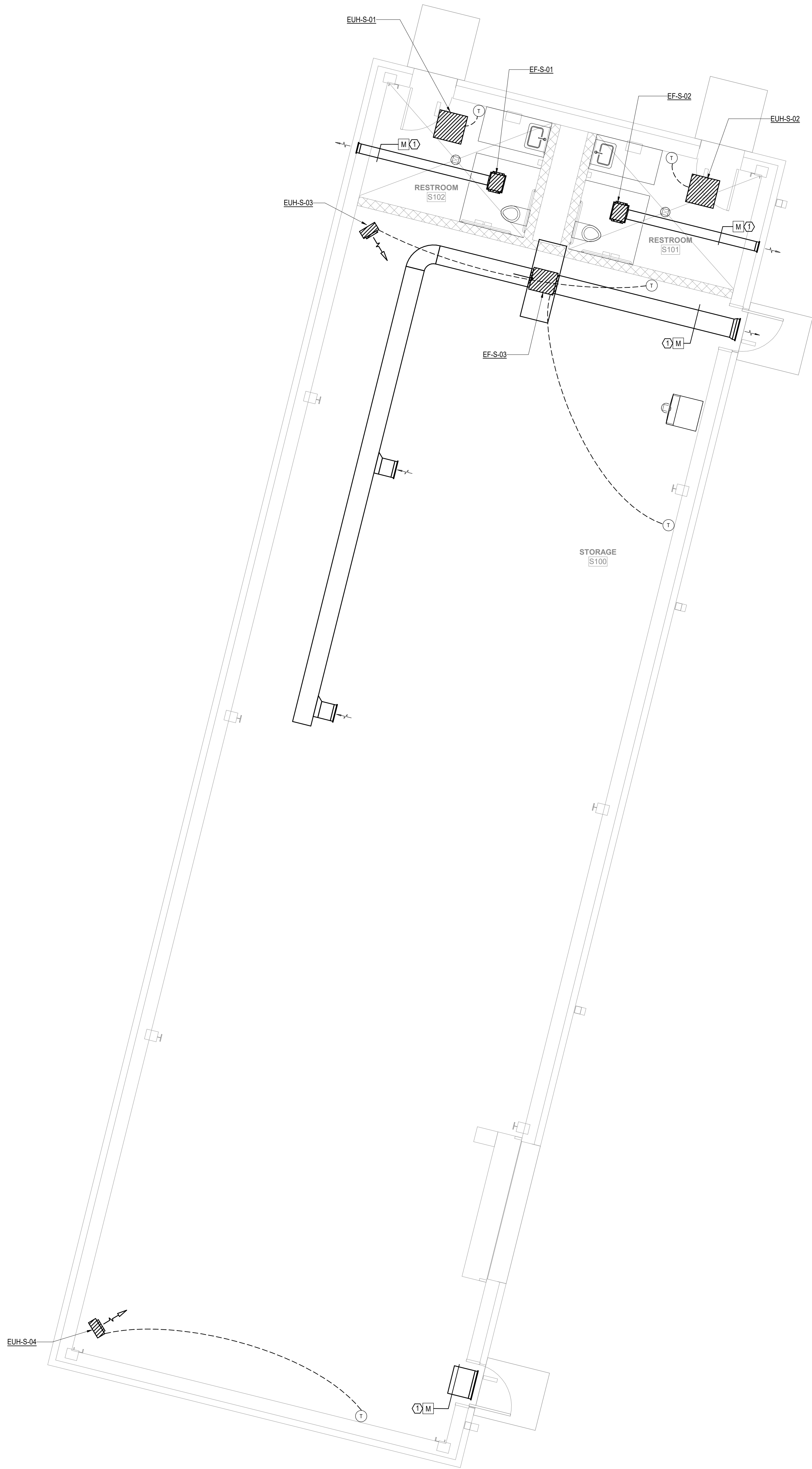
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ADD-2.2	ADDENDUM 2 - PACKAGE 2	02/02/2024
ADD-4.2	ADDENDUM 4 - PACKAGE 2	02/16/2024
PKG-2		

ISSUE FOR PROPOSAL

BUILDING NUMBER

1ST FLOOR
MECHANICAL PLAN -
AREA L

M-101L



1 INTERLOCK MOTORIZED DAMPER WITH ASSOCIATED EXHAUST FAN

PBK

PBK Architects, Inc.
PBK.com

ARCHITECT

HOUSTON
 11 Greenway Plaza, 22nd Floor
 Houston, TX 77046
 713-865-0608 P
 713-961-4571 F
 TX Firm: BK 1608

DIG
DESIGN

LEAF
ENGINEERS

Kubala
ARCHITECTS

IFBEAM
PRESTRESSING

EDGELAND

BAI
INCORPORATED

CIVIL

DIG ENGINEERS
 11 Greenway Plaza, 19th Fl
 Houston, TX 77046
 360-558-9370 F

MEPT

IFBEAM
 11 Greenway Plaza, 22nd Fl
 Houston, TX 77046
 713-960-6268 P, 713-961-4571 F
 TX firm: F 1602

STRUCTURAL

KUBALA ARCHITECTS
 11 Greenway Plaza, 18th Fl
 Houston, TX 77046
 713-565-0532 P

BEAM

11 Greenway Plaza, 22nd Fl
 Houston, TX 77046
 713-960-3333 P

LANDSCAPE

EDGELAND
 11 Greenway Plaza, 22nd Fl
 Houston, TX 77046
 713-460-0888 P

FOOD SERVICE

Foodservice Design Professionals
 2875 LAWRENCE ST
 WOODLANDS, TX 77069
 281-360-3023 P

ACOUSTICS

BAI
 4728 DAWSON BLVD
 SEAGRAM, TX 77479
 281-813-8103 P

Address Line 1


Address Line 2

ISSUE FOR PROPOSAL


NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2


PACKAGE 1


LEAF
ENGINEERS




KEY PLAN


 NORTH


 PLAN


 TRUE



MITAL J. PATEL
 111622
 LEAF ENGINEERS
 F-16072

09/15/2023
 LEAF ENGINEERS
 F-16072

CLIENT

ANGLETON ISD

DATE

09/15/2023

DRAWING HISTORY

No.	Description	Date

PROJECT NUMBER

220348

ISSUE FOR PROPOSAL

PACKAGE NUMBER

ATHLETIC STORAGE BUILDING - AREA S

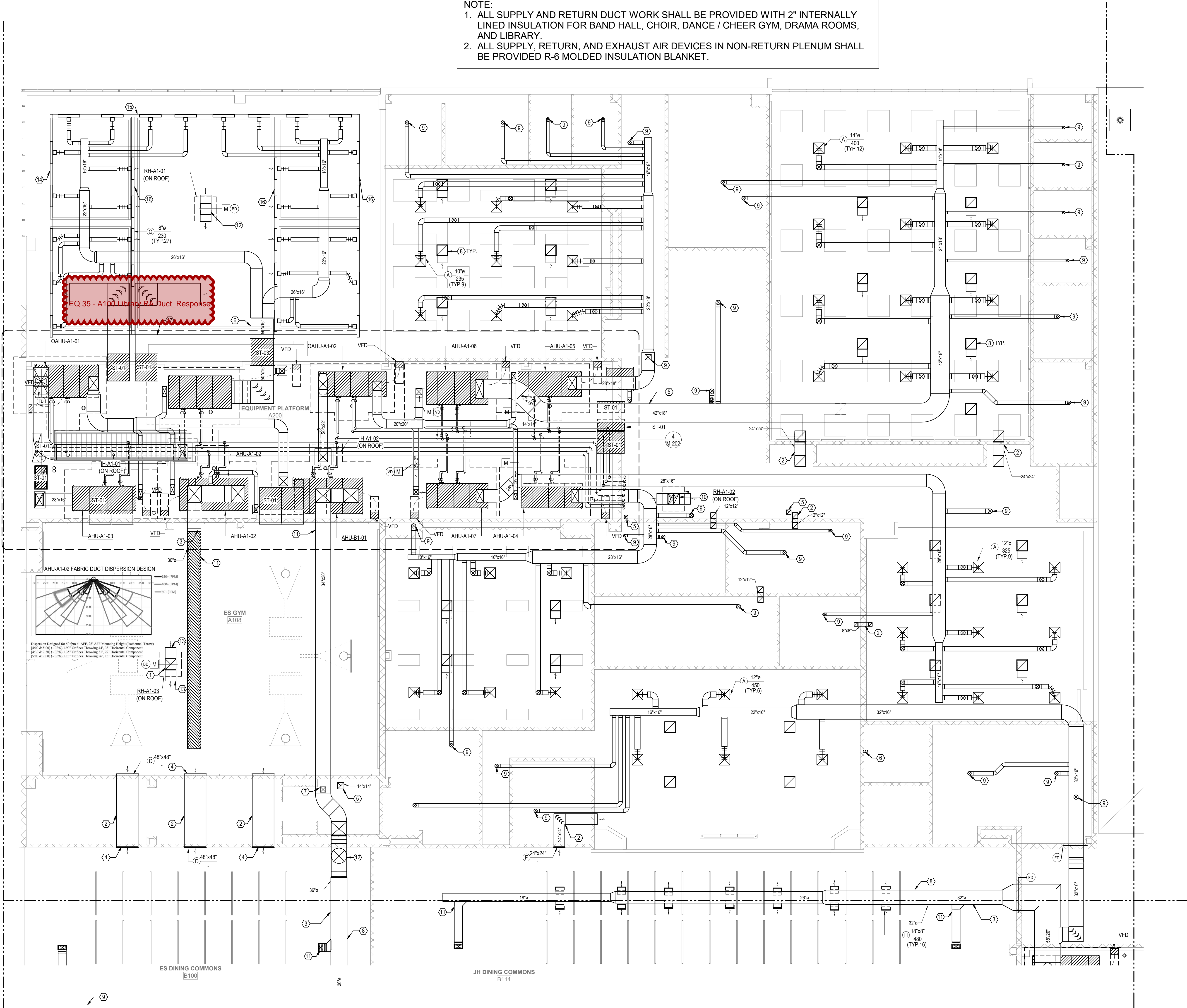
M-101S

ISSUE FOR PROPOSAL

File Path: BIN 3602\Angleton ISD_220346_ES No 7 & JHS No 2\1021_220346_Angleton ISD_ES_No7_and_JH_No2.rvt

CHECKED BY: MP
DRAWN BY: FS
Plot Stamp: 10/13/2023 11:24:27 AM

NOTE:
1. ALL SUPPLY AND RETURN DUCT WORK SHALL BE PROVIDED WITH 2" INTERNALLY LINED INSULATION FOR BAND HALL, CHOIR, DANCE / CHEER GYM, DRAMA ROOMS, AND LIBRARY.
2. ALL SUPPLY, RETURN, AND EXHAUST AIR DEVICES IN NON-RETURN PLENUM SHALL BE PROVIDED R-6 MOLDED INSULATION BLANKET.



KEYED NOTES:

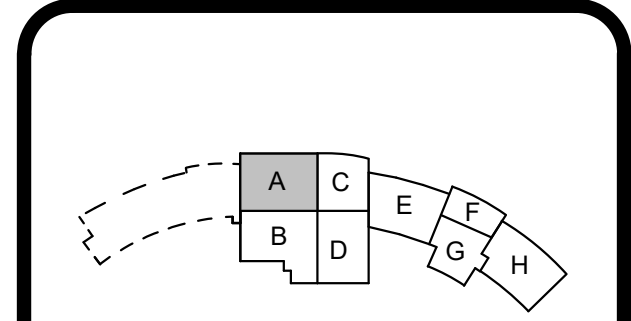
- 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-A1-03, TRANSITION TO UNIT INLET.
- 2" INTERNALLY LINED RETURN DUCT AND ELBOW.
- TRANSITION TO FABRIC DUCT.
- RETURN AIR GRILLES MOUNTED 20" 6" A.F.F.
- EXHAUST DUCT FROM LOWER LEVEL TO EXHAUST FAN ON ROOF.
- REFRIGERANT PIPING FROM IDF-A118 UPTO ACQU-A118 ON ROOF.
- 12" x 12" SUPPLY DUCT DOWN TO LOWER ELEVATION. REFER TO SHEET M-101A FOR CONTINUATION.
- 22" x 22" LINED RETURN AIR DUCT CONNECTED TO RETURN AIR GRILLE. REFER TO DETAIL.
- DUCT TO LOWER ELEVATION. REFER TO M-101A FOR CONTINUATION.
- 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-A1-02 ON ROOF, TRANSITION TO UNIT INLET.
- DUCT TO ROUTE BETWEEN THE STRUCTURE. REFER TO STRUCTURAL DRAWINGS.
- DUCT TO RISE UP AND ROUTE BETWEEN STRUCTURE. REFER TO STRUCTURAL DRAWINGS.
- PROVIDE ALUMINUM WIRE MESH AT OPEN END.
- APPROXIMATELY 40 FEET CONTINUOUS LINEAR SLOT WITH 4 FEET SUPPLY SECTIONS WITH INSULATED PLENUM. INACTIVE SECTIONS IN BETWEEN SUPPLY DIFFUSERS SHALL BE OPEN FOR RETURN AIR. PROVIDE LIGHT SHIELD.
- APPROXIMATELY 56 FEET CONTINUOUS LINEAR SLOT WITH 4 FEET SUPPLY SECTIONS WITH INSULATED PLENUM. INACTIVE SECTIONS IN BETWEEN SUPPLY DIFFUSERS SHALL BE OPEN FOR RETURN AIR. PROVIDE LIGHT SHIELD.
- APPROXIMATELY 40 FEET CONTINUOUS LINEAR SLOT WITH 4 FEET SUPPLY SECTIONS WITH INSULATED PLENUM. INACTIVE SECTIONS IN BETWEEN SUPPLY DIFFUSERS SHALL BE OPEN FOR RETURN AIR. PROVIDE WITH LIGHT SHIELDS.
- APPROXIMATELY 56 FEET CONTINUOUS LINEAR SLOT WITH 4 FEET RETURN AIR SECTIONS. PROVIDE WITH LIGHT SHIELDS.
- 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-A1-01, TRANSITION TO UNIT INLET.



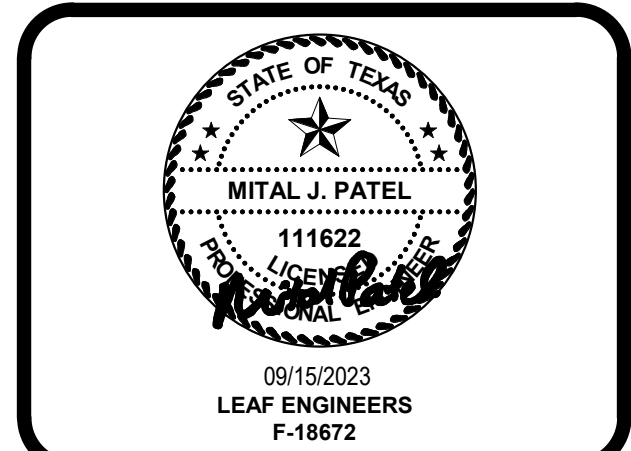
ARCHITECT	PBK Architects, Inc. HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0808 P TX Firm BR 1608
CIVIL	DIG ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0808 P TX Firm BR 1607
MEPT	11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P TX Firm BR 1607
STRUCTURAL	KUBALA ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0808 P
BEAM	11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P
LANDSCAPE	EDGE LAND 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P
FOOD SERVICE	Foodservice Design Professionals 20201 LAMAR BLVD HOUSTON, TX 77058 281-355-2332 F
ACOUSTICS	BAI 4725 BARBER BLVD HOUSTON, TX 77056 281-813-8138 F



NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1



KEY PLAN
NORTH: PLAN TRUE

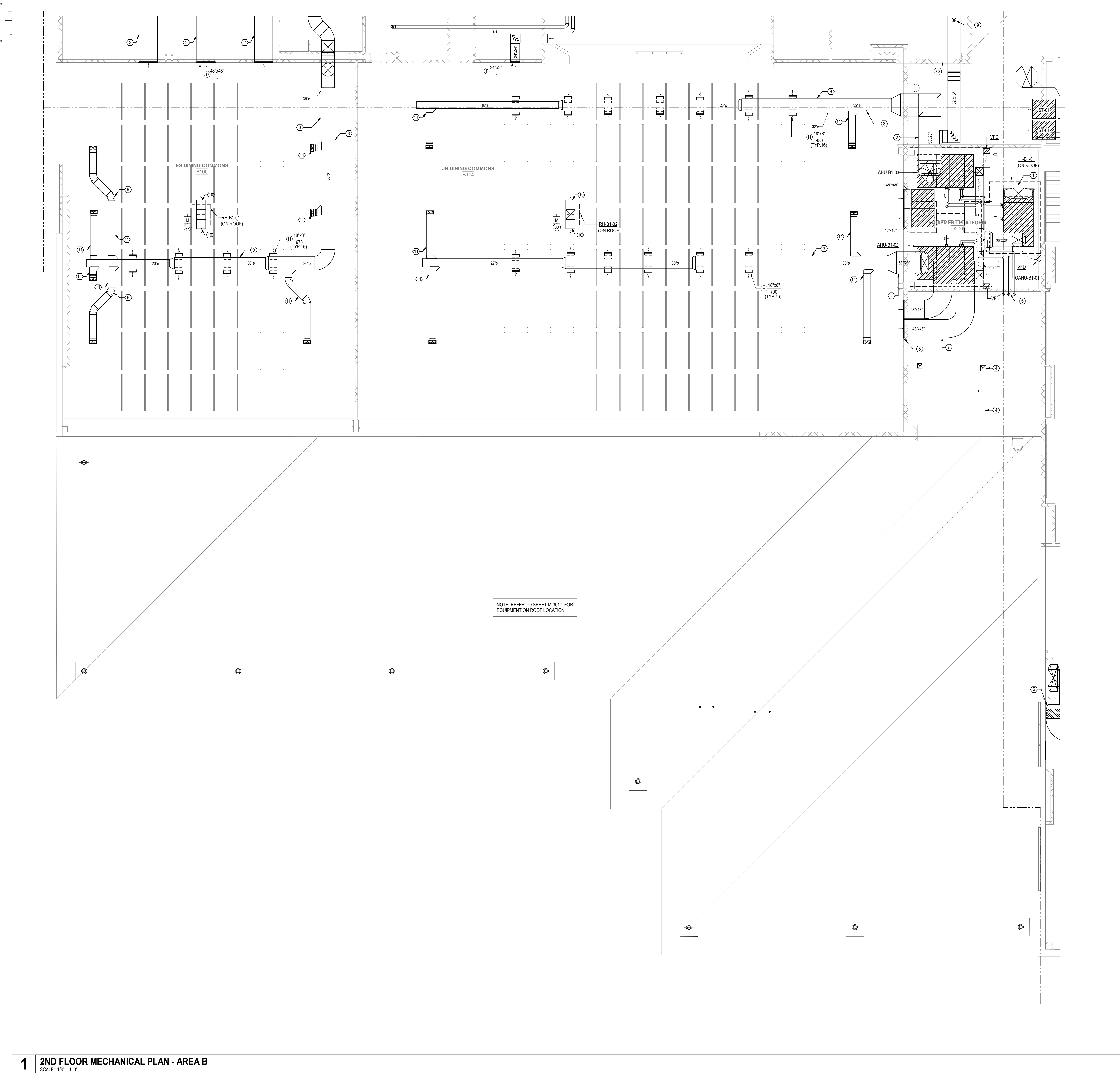


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ANGLETON ISD		
DATE		PROJECT NUMBER
09/15/2023		220348
DRAWING HISTORY		
No.	Description	Date
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

ISSUE FOR PROPOSAL
BUILDING NUMBER
2ND FLOOR
MECHANICAL PLAN -
AREA A

M-102A

ADD-5
PKG-1



KEYED NOTES:

- OUTSIDE AIR DUCT FROM OUTSIDE AIR UNIT QA-HU-B1-01 TO INTAKE HOOD B1-B1-01 ON ROOF. TRANSITION TO UNIT INLET.
- PROVIDE DOUBLE WALL DUCT. REFER TO SPECIFICATIONS.
- ALL EXPOSED DUCTWORK SHALL BE DOUBLE WALL DUCT. REFER TO METAL DUCT SPECS.
- EXHAUST DUCT FROM FIRST FLOOR UPTO ROOF TO EXHAUST FAN. TRANSITION TO UNIT INLET.
- RETURN AIR GRILLE @ 22' 11" A.F.F.
- CHW RIS AND HW S/R PIPING TO LOWER ELEVATION. REFER TO M-101B FOR CONTINUATION.
- RETURN DUCT SHALL BE 2" INTERNALLY LINED DUCT.
- DUCT TO ROUTE BETWEEN THE STRUCTURE JOISTS. REFER TO STRUCTURE DRAWINGS.
- DUCT TO ROUTE THROUGH STRUCTURE WEBBING. REFER TO STRUCTURE DRAWINGS.
- PROVIDE ALUMINUM MESH WIRE AT OPEN END.
- PROVIDE FLAT OVAL DUCT TO DIFFUSER CONNECTION.

ARCHITECT

PKB Architects, Inc.

HOUSTON

11 Greenway Plaza, 22nd Floor

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm BR 1608

CIVIL

DIG ENGINEERS

11 Greenway Plaza, 18th Fl

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm E 13673

MEPT

LEAF ENGINEERS

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm E 13673

STRUCTURAL

KUBALA ENGINEERS

11 Greenway Plaza, 18th Fl

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm E 13673

BEAM

IBRAM ENGINEERS

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm E 13673

LANDSCAPE

EDGE LAND

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm E 13673

FOOD SERVICE

Foodservice Design Professionals

4725 Bayview Blvd

Houston, TX 77056

281-355-2332 P

281-813-8138 F

ACOUSTICS

BAI

4725 Bayview Blvd

Houston, TX 77056

281-355-2332 P

281-813-8138 F

LEAF ENGINEERS

11 Greenway Plaza, 22nd Floor

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm E 13673

ANGLETON

Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS

MITAL J. PATEL

111622

09/15/2023

LEAF ENGINEERS

F-16872

CLIENT

ANGLETON ISD

DATE

09/15/2023

PROJECT NUMBER

220348

DRAWING HISTORY

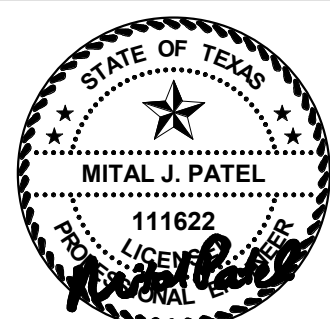
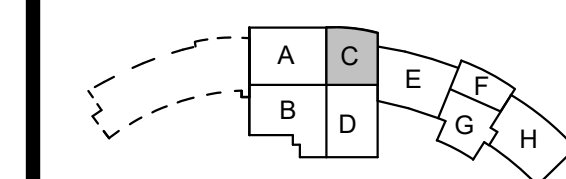
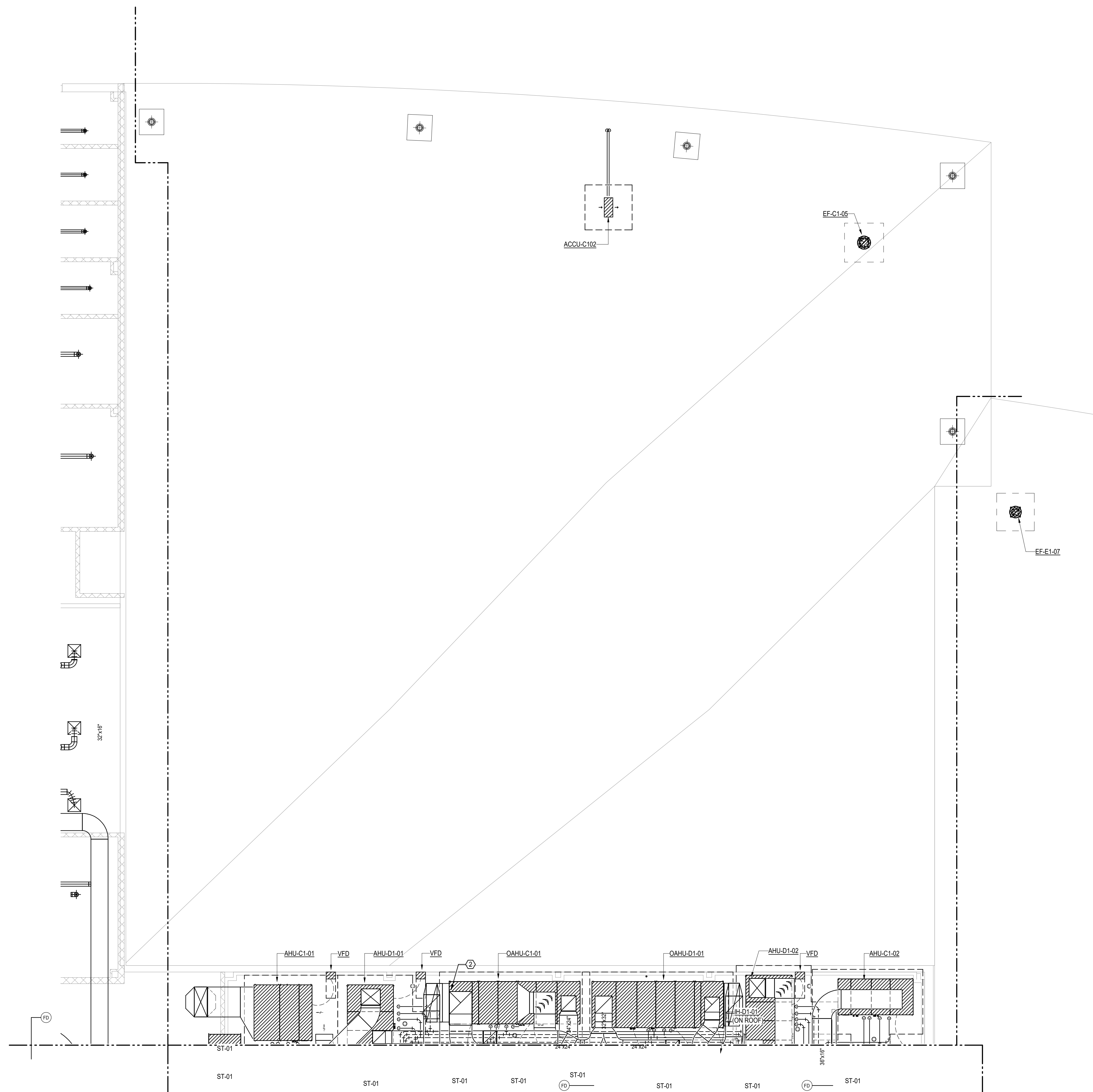
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ADD-5	ADDENDUM 5 - PACKAGE 1	10/13/2023
PKG-1		

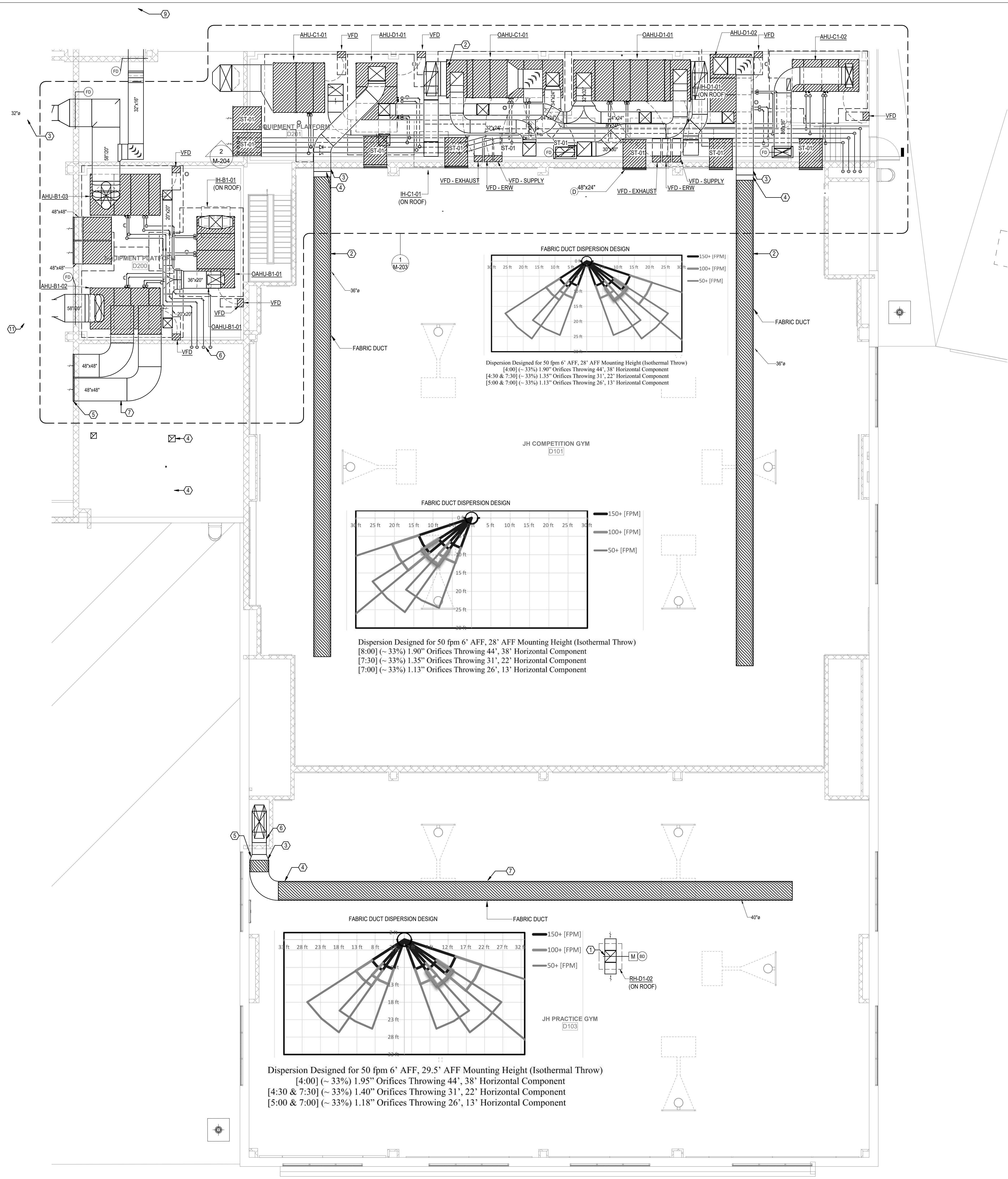
ISSUE FOR PROPOSAL

BUILDING NUMBER

2ND FLOOR MECHANICAL PLAN - AREA B

M-102B

[illegible]



KEYED NOTES:

- 1 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-D1-01,TRANSITION TO UNIT INLET.
- 2 ROUTE DUCTWORK INBETWEEN STRUCTURE JOISTS. REFER TO STRUCTURAL DRAWINGS
- 3 ALL EXPOSED DUCTWORK SHALL BE DOUBLE WALL DUCT. REFER TO METAL DUCT SPECIFICATION.
- 4 TRANSITION TO FABRIC DUCT.
- 5 DUCTWORK FROM FIRST FLOOR. REFER TO M-101D FOR CONTINUATION.
- 6 TRANSITION TO DOUBLE WALL FLAT OVAL DUCT.
- 7 DUCT FROM LOWER ELEVATION. REFER TO M-101D FOR CONTINUATION.
- 8 ROUTE DUCTWORK THROUGH STRUCTURAL WEBBING. REFER TO STRUCTURAL DRAWINGS.

ARCHITECT

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

PKB.com

CIVIL

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

IBeam ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

EDGELAND

FOOD SERVICE

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

FOODSERVICE DESIGN PROFESSIONALS

ACOUSTICS

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

BAI

LEAF ENGINEERS

4755 RAMBLING RUN
HOUSTON, TX 77056
281-813-8138 F

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
INDEPENDENT SCHOOL DISTRICT

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-18672

CLIENT: ANGLETON ISD
DATE: 09/15/2023
PROJECT NUMBER: 220346

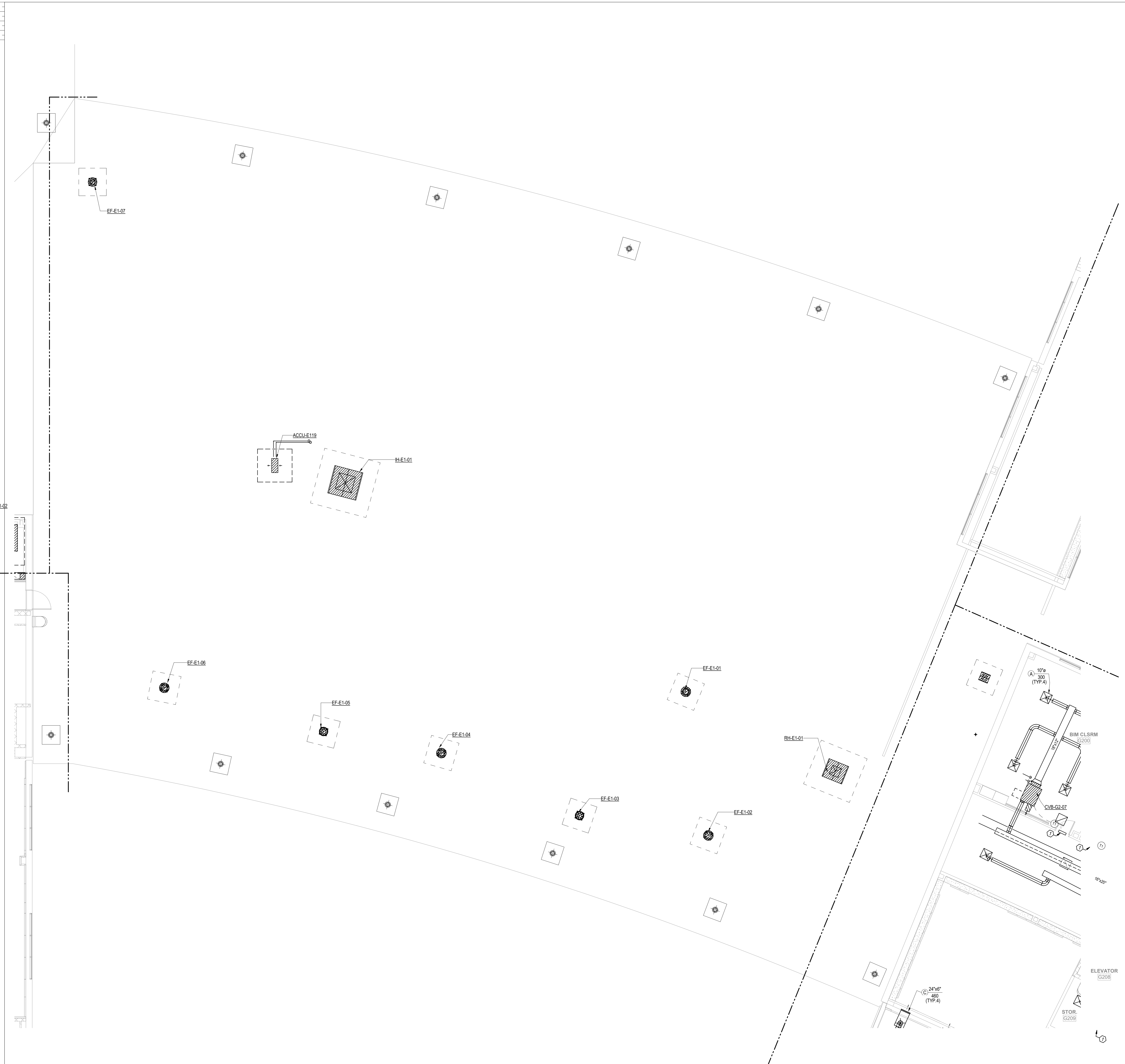
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ADD-5 PWS-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

ISSUE FOR PROPOSAL
BUILDING NUMBER

2ND FLOOR MECHANICAL PLAN - AREA D

M-102D

ISSUE FOR PROPOSAL



1 2ND FLOOR MECHANICAL PLAN - AREA E
SCALE: 1/8" = 1'-0"

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

CIVIL

11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0688 P
713-961-4571 F
TX Firm BR 1608

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0688 P

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0688 P

LANDSCAPE

EDGELAND
11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0688 P

FOOD SERVICE

Foodservice Design Professionals
20202 LAMAR BLVD
HOUSTON, TX 77058
281-355-2332 F

ACOUSTICS

BAI
4725 BARROW BLVD
HOUSTON, TX 77059
281-813-8018 F

PK Architects, Inc.

PK.com

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
INDEPENDENT SCHOOL DISTRICT

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-18872

CLIENT
ANGLETON ISD

DATE
09/15/2023

PROJECT NUMBER
220348

DRAWING HISTORY

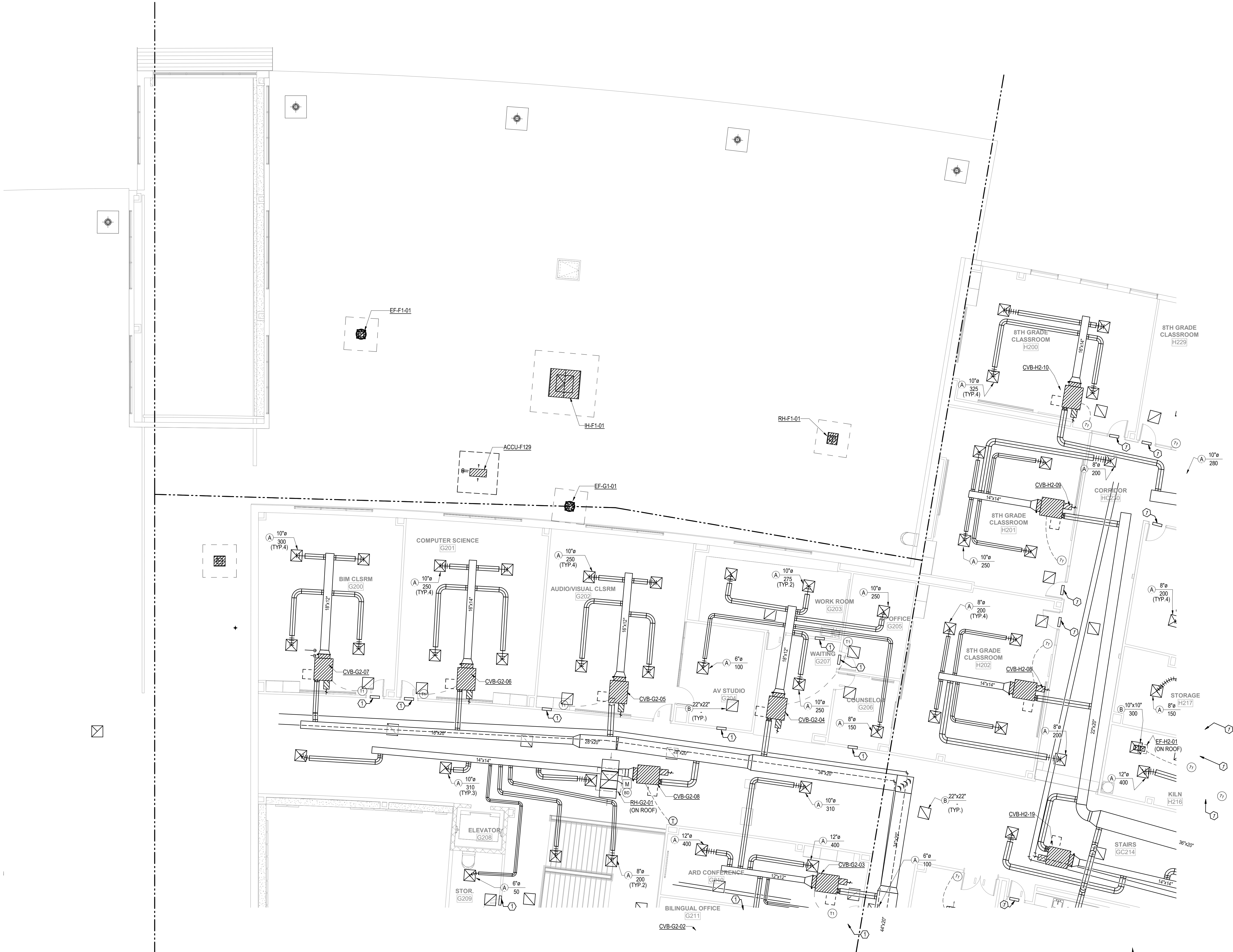
No.	Description	Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

2ND FLOOR
MECHANICAL PLAN -
AREA E

M-102E



KEYED NOTES:

- ① 20" x 16" RETURN AIR OPENING ABOVE CEILING.

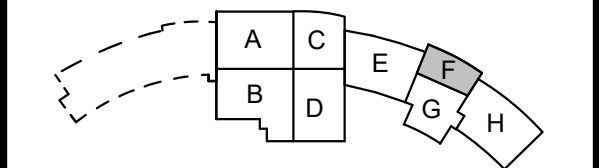


ARCHITECT	PBK Architects, Inc. HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm BR 1606	PBK.com
CIVIL	DIG ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm C 18673	DIG ENGINEERS
MEPT	LEAF ENGINEERS 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0608 P 713-961-4571 F TX Firm E 18673	LEAF ENGINEERS
STRUCTURAL	KUBALA ENGINEERS 11 Greenway Plaza, 18th Fl Houston, TX 77046 713-965-0608 P	Kubala ENGINEERS
BEAM	IBeam 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0608 P	IBeam
LANDSCAPE	EDGE LAND 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0608 P	EDGE LAND
FOOD SERVICE	Foodservice Design Professionals 40021 LAMAR BLVD HOUSTON, TX 77056 281-355-2332 P	Foodservice Design Professionals
ACOUSTICS	BAI 4725 BARBON BLVD HOUSTON, TX 77056 281-813-8118 P	BAI

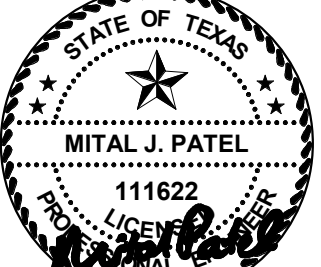


NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

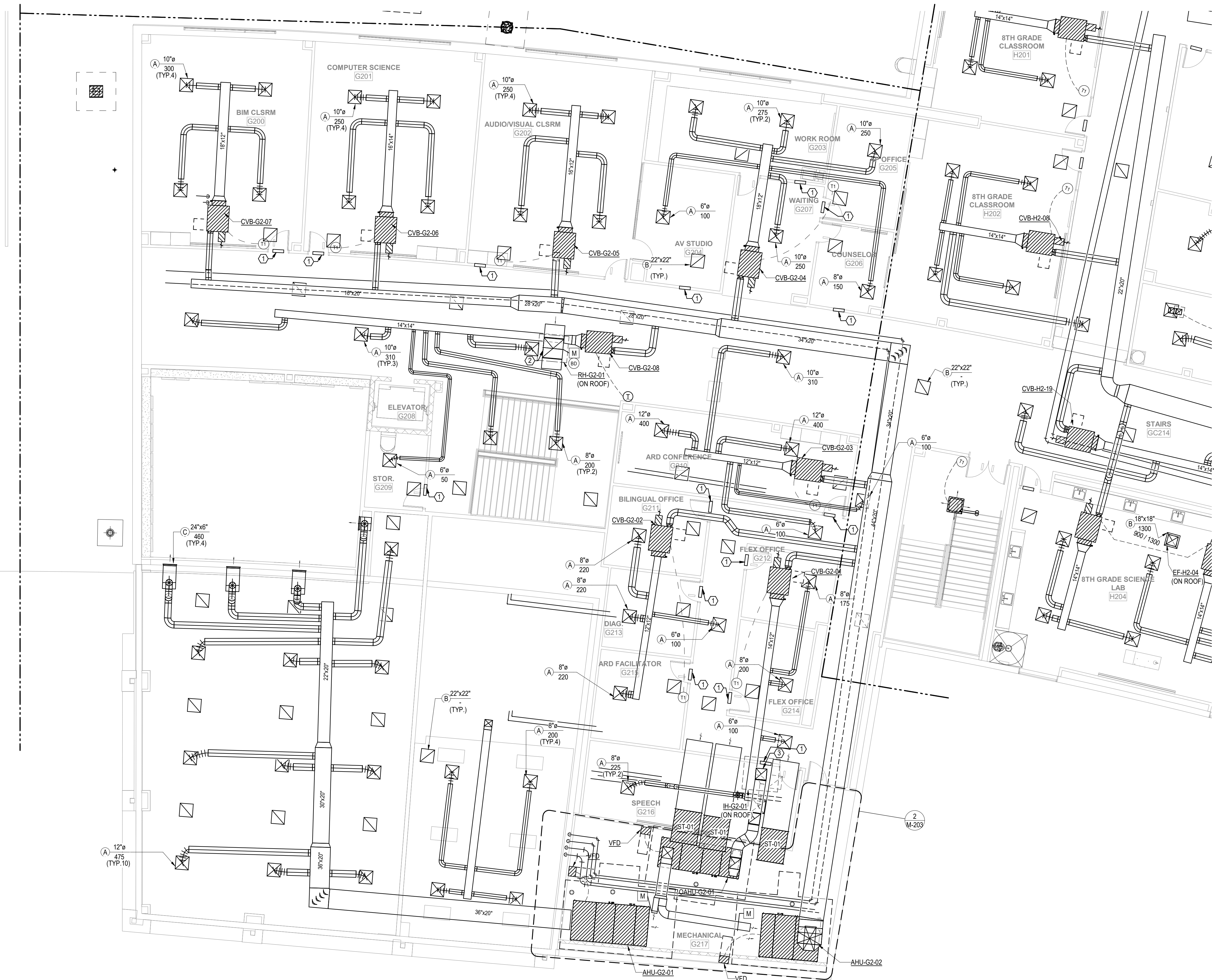


KEY PLAN
NORTH: PLAN TRUE



CLIENT		
ANGLETON ISD		
DATE		PROJECT NUMBER
09/15/2023		220348
DRAWING HISTORY		
No.	Description	Date

ISSUE FOR PROPOSAL
BUILDING NUMBER
2ND FLOOR
MECHANICAL PLAN -
AREA F



KEYED NOTES:

- ① 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- ② 36"x36" RELIEF AIR DUCT UP TO RELIEF HOOD RH-G2-01 ON ROOF. TRANSITION TO UNIT INLET.
- ③ OUTSIDE AIR DUCT FROM OUTSIDE AIR UNIT AAHU-G2-01 TO INTAKE HOOD IH-G2-01 ON ROOF. TRANSITION TO UNIT INLET.

ARCHITECT

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm BR 1608

PKB.com

CIVIL

11 Greenway Plaza, 18th Fl.
Houston, TX 77046
360-398-6939 F
TX Firm C-13673

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm C-13673

LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 F

BEAM ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-485-0881 F

EDGELAND

FOOD SERVICE

Foodservice Design Professionals
20222 Lakewood Drive
Wichita Falls, TX 76798
817-355-2332 F

ACOUSTICS

BAI
4728 Rainbow Blvd.
Houston, TX 77059
281-813-8138 F

BAI

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-16672

CLIENT
ANGLETON ISD

DATE
09/15/2023

PROJECT NUMBER
220346

DRAWING HISTORY

No.	Description	Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

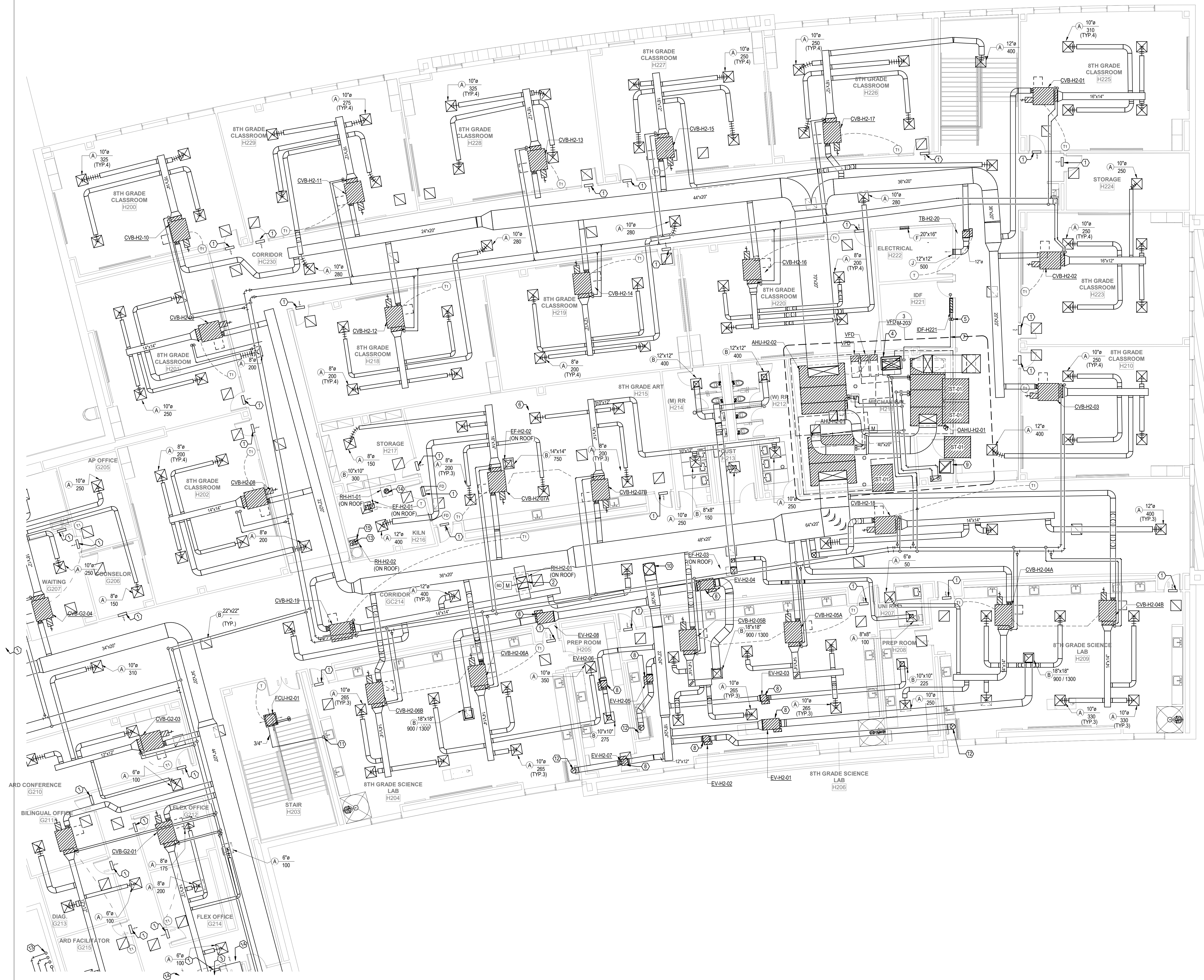
2ND FLOOR
MECHANICAL PLAN -
AREA G

M-102G

ISSUE FOR PROPOSAL

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DRAWN BY: FS
Plot Stamp: 10/13/2023 11:24:37 AM



1 2ND FLOOR MECHANICAL PLAN - AREA H
SCALE: 1/8" = 1'-0"

KEYED NOTES:

- 1. 20" x 16" RETURN AIR OPENING ABOVE CEILING.
- 2. 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-H2-01 ON ROOF. TRANSITION TO UNIT INLET.
- 3. REFRIGERANT PIPING FROM CEILING CASSETTE FOU-H2-01 UP TO ACCU ACCU-H2-01 ON ROOF.
- 4. DUCTWORK FROM OUTSIDE AIR UNIT OAHU-H2-01 UP FROM FIRST FLOOR MECHANICAL ROOM AND UPTO INTAKE HOOD BLH-H2-01 ON ROOF. REFER TO SHEET M-102H FOR CONTINUATION.
- 5. REFRIGERANT PIPING FROM WALL MOUNTED UNIT IDF-H221 UPTO ACCU ACCU-H221 ON ROOF.
- 6. 14" x 14" EXHAUST DUCT UPTO EXHAUST FAN EF-H2-02 ON ROOF. TRANSITION TO UNIT INLET.
- 7. 3/4" CONDENSATE PIPING TO THE NEAREST FLOOR DRAIN IN MECHANICAL ROOM.
- 8. REFER TO EXHAUST RISER DIAGRAM FOR DUCT SIZES.
- 9. 26" x 26" EXHAUST DUCT UP TO FAN LEF-H2-01 ON ROOF.
- 10. 26" x 26" EXHAUST DUCT UP TO FAN LEF-H2-01 ON ROOF.
- 11. 3/4" CONDENSATE PIPING TO SINK TAIL PIECE. REFER TO PLUMBING DRAWINGS FOR CONNECTION DETAIL.
- 12. CONNECT TO FUME HOOD EXHAUST OUTLET.
- 13. 8" KLN EXHAUST DUCTWORK UP TO RELIEF HOOD RH-H2-02 ON ROOF. TRANSITION TO UNIT INLET.
- 14. 8" KLN EXHAUST DUCTWORK FROM FIRST FLOOR UPTO RELIEF HOOD RH-H2-01 ON ROOF. TRANSITION TO UNIT INLET.
- 15. BLOWER WITH MOTOR PROVIDED BY KLN MANUFACTURER. REFER TO DETAIL DRAWING.

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

CIVIL

11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

MEPT

11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0808 P

BEAM

11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0808 P

FOOD SERVICE

Foodservice Design Professionals
2020 LAMAR BLVD
HOUSTON, TX 77002
281-355-2332 F

ACOUSTICS

BAI
4755 BARNEY RD
HOUSTON, TX 77056
281-813-8138 F

LEAF ENGINEERS

11622
09/15/2023
LEAF ENGINEERS
F-16872

ANGLETON ISD

DATE
09/15/2023
PROJECT NUMBER
220348

DRAWING HISTORY

No.	Description	Date
ADD-5	ADDENDUM 5 - PACKAGE 1	10/13/2023
PKG-1		

ISSUE FOR PROPOSAL

BUILDING NUMBER

2ND FLOOR MECHANICAL PLAN - AREA H

M-102H

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
11622
09/15/2023
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD
DATE
09/15/2023
PROJECT NUMBER
220348

DRAWING HISTORY

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PKG-1		

ISSUE FOR PROPOSAL

BUILDING NUMBER

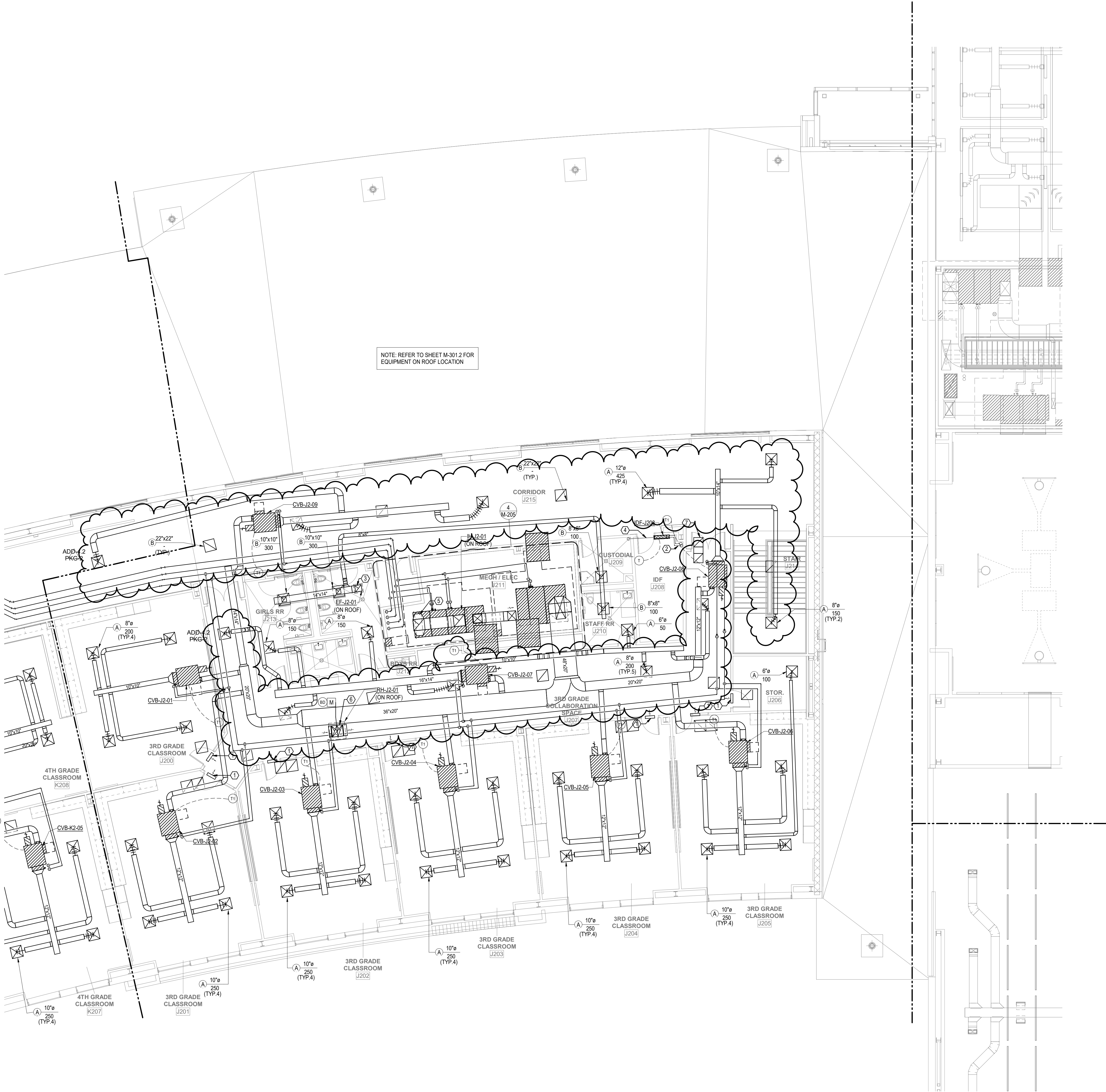
2ND FLOOR MECHANICAL PLAN - AREA H

M-102H

1

2ND FLOOR MECHANICAL PLAN - AREA J

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



KEYED NOTES:

- 20" x 16" RETURN OPENING IN WALL ABOVE CEILING.
- LIQUID AND SUCTION REFRIGERANT PIPES TO CONDENSING UNIT ON ROOF. SIZE PER MANUFACTURERS RECOMMENDATION. PROVIDE SNAP-N-SHIELD REFRIGERANT PIPING SUPPORT. REFER TO DETAIL DRAWING.
- 14" x 14" EXHAUST DUCT UPTO EXHAUST FAN EF-J2-01 ON ROOF, TRANSITION TO UNIT INLET.
- 3/4"Ø CONDENSATE DRAIN TO SINK TAIL PIECE. REFER TO PLUMBING DRAWINGS FOR DETAIL. PROVIDE ALUMINUM JACKET ON ALL EXPOSED PIPING.
- 60" x 14" OUTSIDE AIR DUCT UPTO INTAKE HOOD RH-J2-01 ON ROOF, TRANSITION TO UNIT INLET.
- 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-J2-01 ON ROOF, TRANSITION TO UNIT INLET.
- 20" x 20" LINED RETURN AIR DUCT.

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

PKB Architects, Inc.

PKB.com

CIVIL

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

DIG ENGINEERS

DIGENGINEERS.COM

MEPT

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

LEAF ENGINEERS

LEAFENGINEERS.COM

STRUCTURAL

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

Kubala ENGINEERS

KUBALAENGINEERS.COM

BEAM

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

IBeam

IBeam.com

LANDSCAPE

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

EDGELAND

EDGELAND.COM

FOOD SERVICE

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

Foodservice Design Professionals

FOODSERVICEDESIGNPROFESSIONALS.COM

ACOUSTICS

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

BAI

BAI.com

LEAF ENGINEERS

LEAFENGINEERS.COM

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 2

25455 FM 321
ANGLETON, TX 77515
ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16672

CLIENT
ANGLETON ISD

DATE
01/12/2024

PROJECT NUMBER
220348

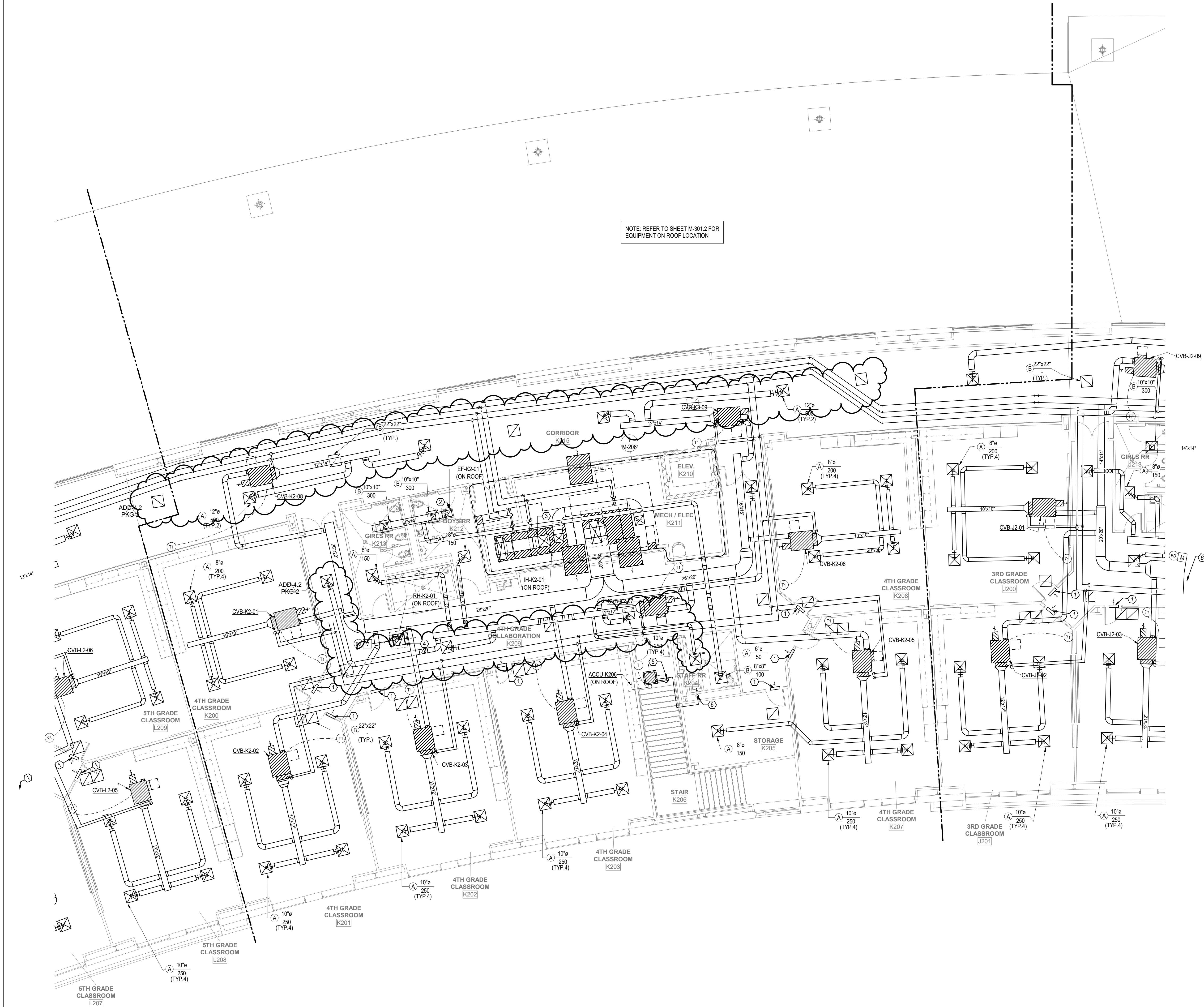
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ADD-4.2 PKG-2	ADDENDUM 4 - PACKAGE 2	02/16/2024

ISSUE FOR PROPOSAL

BUILDING NUMBER

2ND FLOOR
MECHANICAL PLAN -
AREA J

M-102J



KEYED NOTES:

- 20" x 16" RETURN OPENING IN WALL ABOVE CEILING.
- 14" x 14" EXHAUST DUCT UPTO EXHAUST FAN EF-K2-01 ON ROOF, TRANSITION TO UNIT INLET.
- 24" x 24" OUTSIDE AIR DUCT UPTO INTAKE HOOD IH-K2-01 ON ROOF, TRANSITION TO UNIT INLET.
- 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-K2-01 ON ROOF, TRANSITION TO UNIT INLET.
- REFRIGERANT PIPING FROM FCU FCU-K2-06 UPTO ACCU ACCU-K2-06 ON ROOF.
- 3/4" CONDENSATE PIPING TO SINK TAIL PIECE. REFER TO PLUMBING DRAWINGS FOR CONNECTION DETAIL.

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

PKB Architects, Inc.
PKB.com

CIVIL

11 Greenway Plaza, 19th Fl
Houston, TX 77046
713-965-0808 P
TX Firm BR 1607

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P
TX Firm BR 1607

LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 19th Fl
Houston, TX 77046
713-965-0808 P

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

BEAM ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
20201 LAMAR BLVD
HOUSTON, TX 77058
281-355-2332 P

BAI

ACOUSTICS

BAI
4728 BARBERRY BLVD
HOUSTON, TX 77059
281-813-8138 P

BAI

LEAF ENGINEERS

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD
DATE
01/12/2024
PROJECT NUMBER
220346

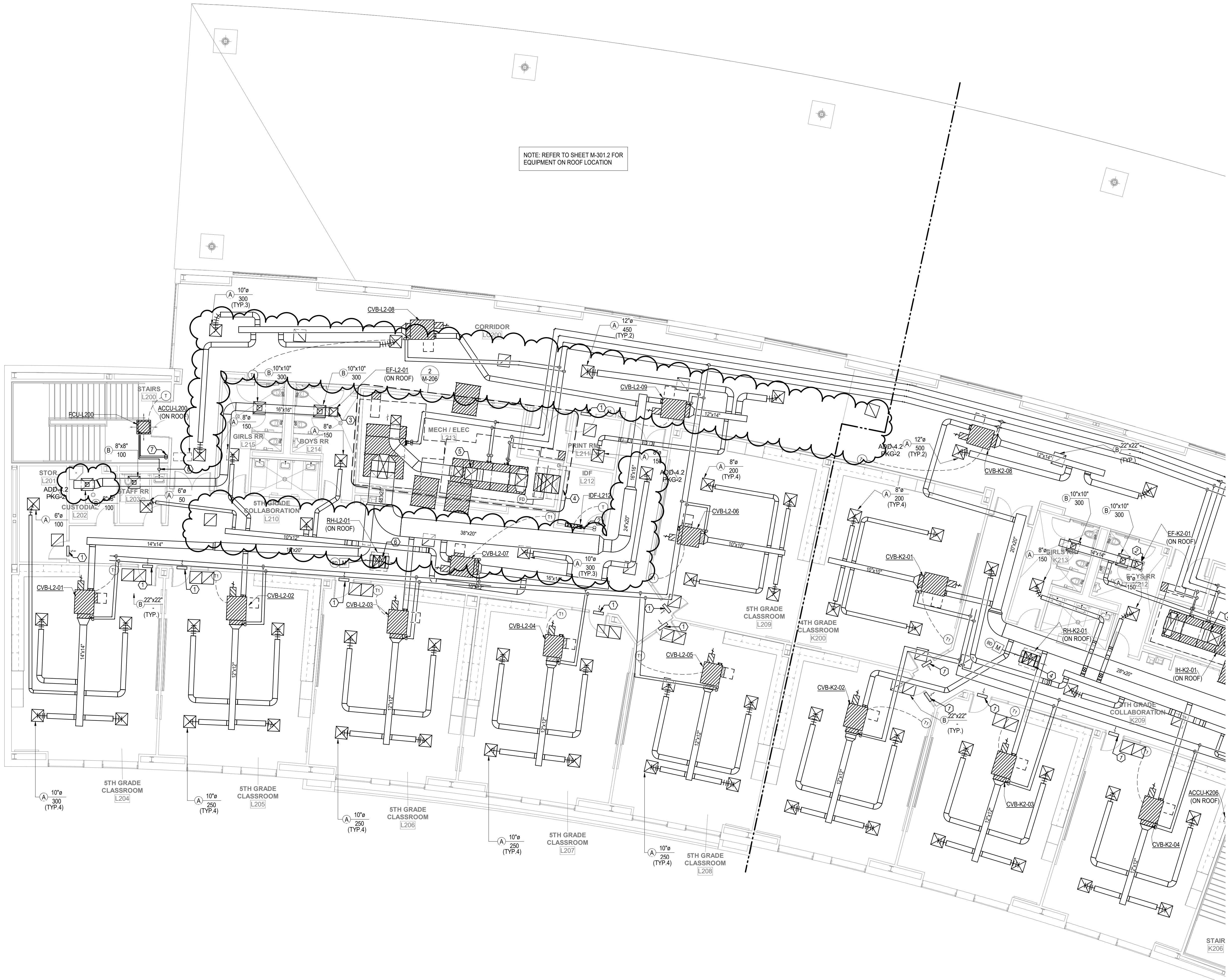
No.	Description	Date
ADD-4.2 PKG-2	ADDENDUM 4 - PACKAGE 2	02/16/2024

ISSUE FOR PROPOSAL

BUILDING NUMBER

2ND FLOOR
MECHANICAL PLAN -
AREA K

M-102K



KEYED NOTES:

- 20" x 16" RETURN OPENING IN WALL ABOVE CEILING.
- LIQUID AND SUCTION REFRIGERANT PIPES TO CONDENSING UNIT ON ROOF. SIZE PER MANUFACTURERS RECOMMENDATION. PROVIDE SNAP-N-SHIELD REFRIGERANT PIPING SUPPORT. REFER TO DETAIL DRAWING. ALL EXPOSED AND OUTDOOR PIPING SHALL BE WRAPPED WITH ALUMINUM JACKET.
- 16" x 16" EXHAUST DUCT UPTO EXHAUST FAN EF-L2-01 ON ROOF. TRANSITION TO UNIT INLET.
- 3/4"Ø CONDENSATE DRAIN TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR DETAIL. PROVIDE ALUMINUM JACKET ON ALL EXPOSED PIPING.
- 48" x 14" OUTSIDE AIR DUCT UPTO INTAKE HOOD RH-L2-01 ON ROOF. TRANSITION TO UNIT INLET.
- 24" x 24" RELIEF AIR DUCT UPTO RELIEF HOOD RH-L2-01 ON ROOF. TRANSITION TO UNIT INLET.
- REFRIGERANT PIPING FROM FCU ECU-L2-000 UPTO ACCU ACQU-L2000 ON ROOF.
- 3/4" CONDENSATE PIPING TO SINK TAIL PIECE. REFER TO PLUMBING DRAWINGS FOR CONNECTION DETAIL.

ARCHITECT

PKB Architects, Inc.

HOUSTON

11 Greenway Plaza, 22nd Floor

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm BR 1608

CIVIL

11 Greenway Plaza, 10th Fl

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm C 1867

MEPT

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0608 P

713-961-4571 F

TX Firm C 1867

STRUCTURAL

KUBALA ENGINEERS

11 Greenway Plaza, 10th Fl

Houston, TX 77046

713-965-0608 P

BEAM

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0608 P

LANDSCAPE

EDGE LAND

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0608 P

FOOD SERVICE

Foodservice Design Professionals

30255 Lakewood Drive

WILLIAMS, TX 77380

281-355-2332 F

ACOUSTICS

BAI

4755 RANNEY BLVD

HOUSTON, TX 77059

281-813-8138 F

LEAF ENGINEERS

01/12/2024

111622

ANGELTON ISD

PROJECT NUMBER 220348

DATE 01/12/2024

DRAWING HISTORY

No.	Description	Date
ADD-4.2 PKG-2	ADDENDUM 4 - PACKAGE 2	02/16/2024

ISSUE FOR PROPOSAL

BUILDING NUMBER

2ND FLOOR MECHANICAL PLAN - AREA L

M-102L

ANGELTON ISD

Independent School District

25445 FM 321

ANGLETON, TX 77515

ISSUE FOR PROPOSAL

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS

MITAL J. PATEL

111622

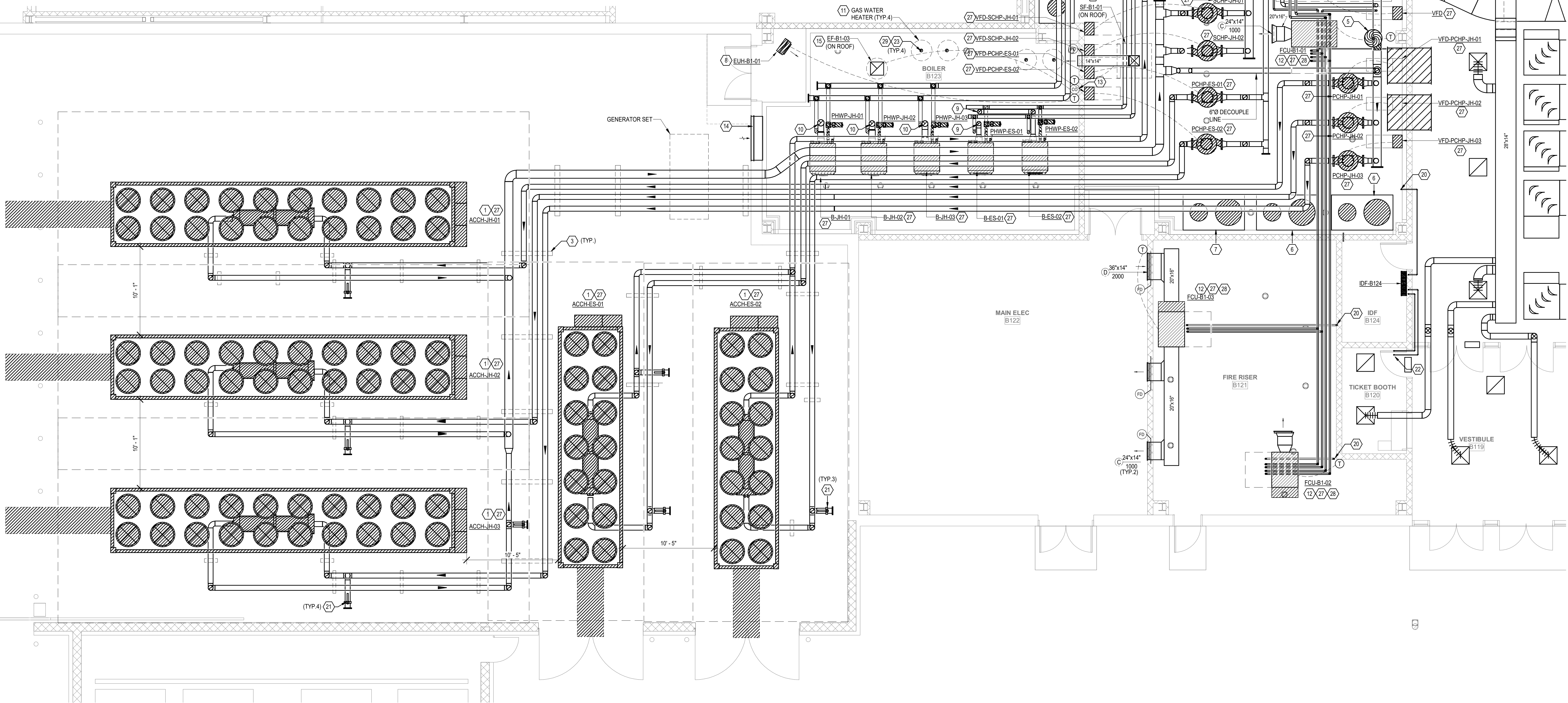
01/12/2024

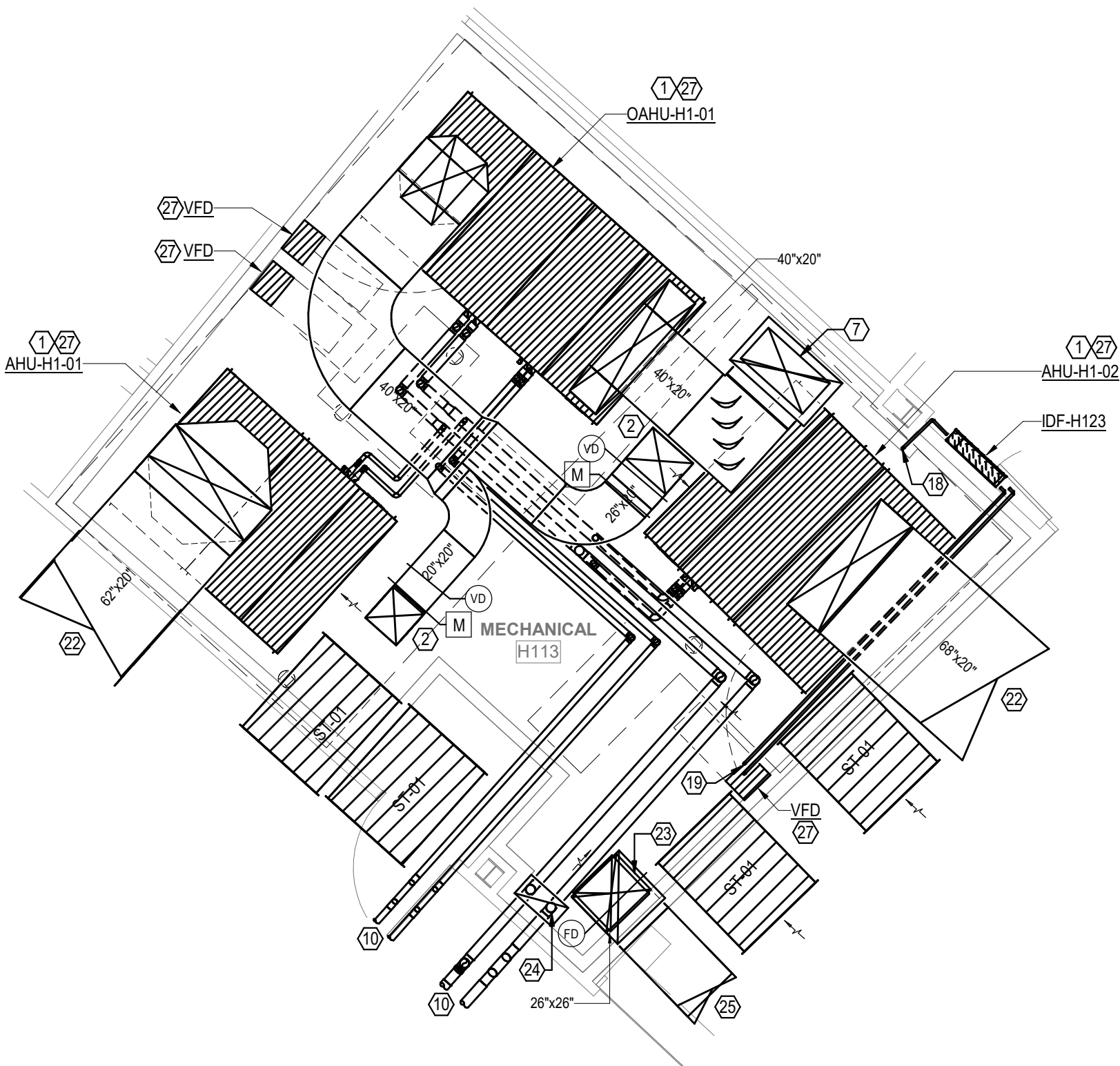
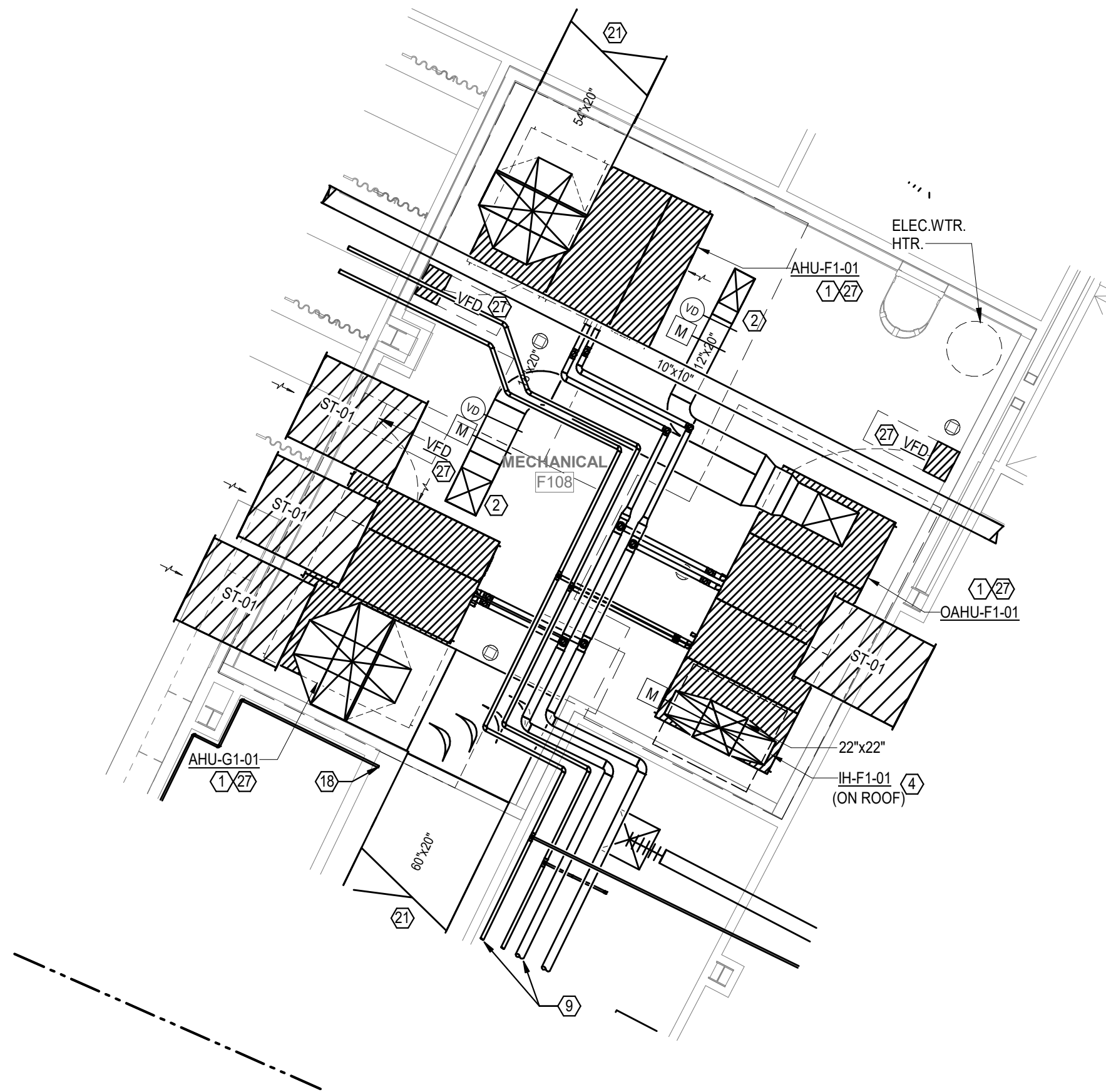
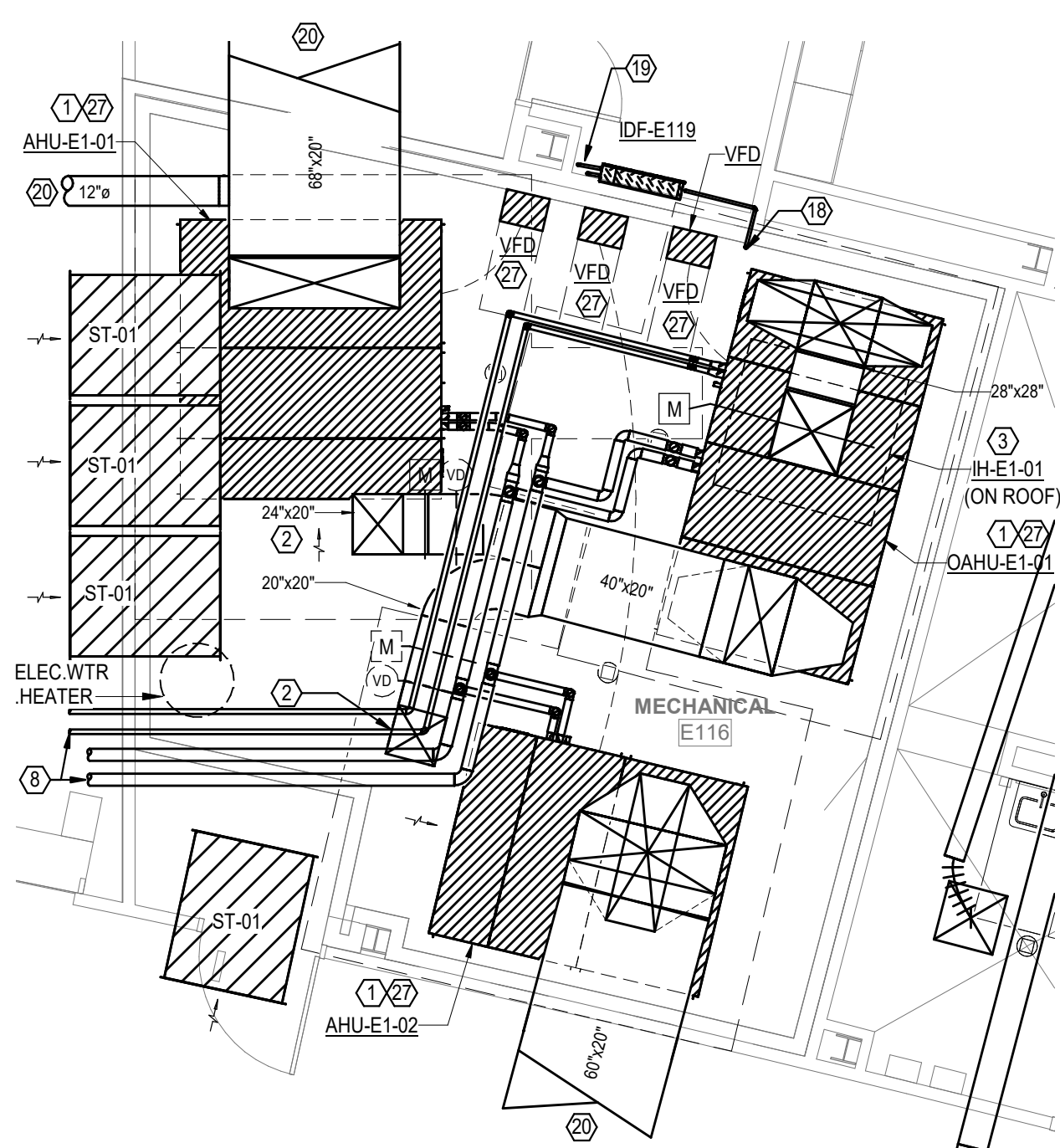
LEAF ENGINEERS

F-16872

	AIR COOLED CHILLER SET ON CONCRETE PAD WITH 6" WIDER IN ALL DIRECTIONS. REFER TO DETAIL DRAWINGS.
2	PROVIDE 4" THICK EQUIPMENT CONCRETE PAD. PAD SHALL BE 6" WIDER IN ALL DIRECTIONS. ROUTE 1"-1/4" CONDENSATE DRAIN LINE TO FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR EXACT DRAIN LOCATION.
3	PIPE STANCHIONS AT APPROX. 8'-0" APART. REFER TO DETAILS.
4	BLIND FLANGE AND SERVICE VALVES FOR CONNECTIONS TO TEMPORARY CHILLER. ANGLE CONNECTIONS TO AVOID CONFLICT WITH ADJACENT PIPES AS NEEDED.
5	COMBINATION DIRT/AIR SEPARATOR SUSPENDED FROM STRUCTURE.
6	CHILLED WATER EXPANSION AND CHEMICAL TREATMENT TANK. SET ON 12" HIGH HOUSEKEEPING PAD.
7	HOT WATER EXPANSION AND CHEMICAL TREATMENT TANK. SET ON 12" HIGH HOUSEKEEPING PAD.
8	ELECTRIC UNIT HEATER SUSPENDED FROM STRUCTURE. INSTALL HEATER AT APPROX. 9'-0" A.F.F.
9	6"Ø BOILER FLUE UP THRU ROOF. REFER TO DETAIL.
10	8"Ø BOILER FLUE UP THRU ROOF. REFER TO DETAIL.
11	REFER TO PLUMBING DRAWINGS FOR WATER HEATERS FLUE LOCATION AND SIZE.
12	FAN COIL UNIT SUSPENDED FROM STRUCTURE. PROVIDE 18" DEEP SHEET METAL RETURN AIR PLenum WITH RETURN AIR DUCT CONNECTION AS SHOWN. CONTRACTOR SHALL RETURN GALVANIZED STEEL INSULATED AUXILIARY DRAIN PAN WITH CONDUCTIVITY SENSOR BELOW FAN. UNIT CONDUCTIVITY SENSOR SHALL DEENERGIZE UNIT ON SENSING MOISTURE IN PAN. PAN TO EXTEND UNDER VALVING OF UNIT AND 8" BEYOND UNIT ELSEWHERE. REFER TO SPECIFICATIONS AND DETAILS. ROUTE 1"Ø CONDENSATE DRAIN LINES FROM CONDENSATE DRAIN PAN TO FLOOR DRAIN AS SHOWN. REFER TO PLUMBING DRAWINGS FOR EXACT DRAIN LOCATIONS.
13	CARBON MONOXIDE SENSOR (CO); VERIFY FINAL LOCATION WITH OWNER. REFER TO SEQUENCE OF OPERATIONS. THE SENSOR SHALL BE CALIBRATED EVERY EIGHTEEN MONTHS & A RECORD OF CALIBRATION SHALL BE POSTED IN A CONSPICUOUS PLACE.
14	60"x16" x 126"H COMBUSTION AIR LOUVER AT 12" BELOW STRUCTURE. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FINAL FINISH AND LOCATION.
15	18"x18" EXHAUST AIR DUCT UP TO EXHAUST FAN ON ROOF. TRANSITION TO UNIT INLET. PROVIDE WITH GALVANIZED BRD SCREEN AT DUCT ENDS.
16	14"x18" SUPPLY AIR DUCT UP TO ROOF. SUPPLY FAN ON ROOF. TRANSITION TO UNIT INLET. PROVIDE WITH GALVANIZED BRD SCREEN AT DUCT ENDS.
17	AIR FLOW MEASURING STATION. INSTALL PER MANUFACTURER INSTRUCTIONS.
18	OUTSIDE AIR DUCT TO DROP DOWN. PROVIDE ALUMINUM WIRE MESH AT OPEN END.
19	32"x32" OUTSIDE AIR DUCT UP TO INTAKE HOIST-BI-02 ON ROOF. TRANSITION TO UNIT INLET.
20	3/4"Ø CONDENSATE DRAIN DOWN TO FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR EXACT DRAIN LOCATIONS AND DETAILS.
21	PROVIDE 6" BUTTERFLY VALVE WITH BLIND FLANGE FOR TEMPORARY CHILLER CONNECTION.
22	LIQUID AND SUCTION REFRIGERANT PIPES TO CONDENSING UNIT ON ROOF. SIZE PER MANUFACTURERS RECOMMENDATION.
23	4"Ø GAS WATER HEATER FLUE PIPE UP TO THE ROOF. REFER TO WATER HEATER FLUE DETAIL DRAWING.
24	CHILLED AND HEATING WATER PIPES, JH # 2, REFER TO M-101C FOR CONTINUATION.
25	CHILLED AND HEATING WATER PIPES # 7, REFER TO M-101A FOR CONTINUATION.
26	SUPPLY AIR DUCT, REFER TO M-101B FOR CONTINUATION.

- 2) HVAC EQUIPMENT SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED. AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DELIVERY OF ALL OWNER PRE-PURCHASED HVAC EQUIPMENT. INSTALLING CONTRACTOR SHALL MANAGE THE DELIVERY AND REQUIRED LOADING / OFFLOADING OF THE EQUIPMENT TO THE JOBSITE. ALL REQUIRED EQUIPMENT AND MACHINERY NEEDED FOR FACILITATING THE OFFLOADING SHALL BE PROVIDED BY THE INSTALLING CONTRACTOR.
- 3) INSULATED AUXILIARY DRAIN PAN AND FLOAT SWITCH SHALL BE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- 4) BOILER FLUE SHALL BE PROVIDED BY DELTA-T EQUIPMENT COMPANY AND CONTRACTOR TO INSTALL.

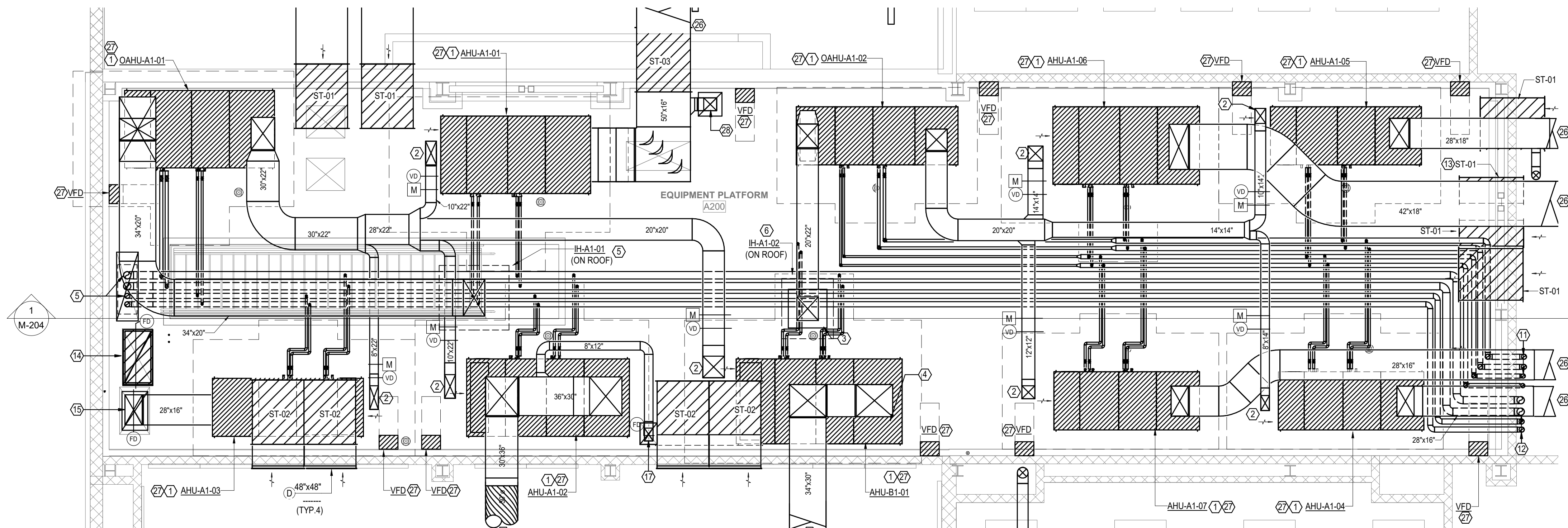




1 1ST FLOOR MECHANICAL PLAN - PKG1 - MECH ROOM E116
3/16" = 1'-0"

2 1ST FLOOR MECHANICAL PLAN - PKG1 - MECH ROOM F108
3/16" = 1'-0"

3 1ST FLOOR MECHANICAL PLAN - PKG1 - MECH ROOM H113
3/16" = 1'-0"



4 2ND FLOOR MECHANICAL PLAN - PKG1 - EQUIPMENT PLATFORM A200
3/16" = 1'-0"

KEYED NOTES:

- PROVIDE 4" THICK CONCRETE PAD WITH MINIMUM 6" WIDER IN ALL DIRECTIONS AND 1-1/4"Ø CONDENSATE PIPE TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR LOCATION.
- OUTSIDE AIR DUCT TO DROP DOWN. PROVIDE ALUMINUM WIRE MESH AT OPEN END.
- 28"x28" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-E-01 ON ROOF. TRANSITION TO UNIT INLET.
- 22"x22" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-F-01 ON ROOF. TRANSITION TO UNIT INLET.
- 34"x20" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-A1-01 ON ROOF. TRANSITION TO UNIT INLET.
- 20"x22" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-A1-02 ON ROOF. TRANSITION TO UNIT INLET.
- 40"x20" OUTSIDE AIR DUCT UP TO SECOND FLOOR. REFER TO 3M-203 FOR CONTINUATION.
- CHILLED AND HEATING WATER PIPES. REFER TO M-101E FOR CONTINUATION.
- CHILLED AND HEATING WATER PIPES. REFER TO M-101F FOR CONTINUATION.
- CHILLED AND HEATING WATER PIPES. REFER TO M-101H FOR CONTINUATION.
- CHILLED AND HEATING WATER PIPES. JH #2. REFER TO M-101A FOR CONTINUATION.
- CHILLED AND HEATING WATER PIPES ES #7. REFER TO M-101A FOR CONTINUATION.
- LINED RETURN AIR DUCT WITH SOUND TRAP IN VERTICAL POSITION.
- 48"x24" LINED RETURN AIR DUCT WITH SOUND TRAP DOWN TO FIRST FLOOR. PROVIDE FIRE DAMPER AT FLOOR PENETRATION.
- 28"x18" SUPPLY AIR DUCT DOWN TO FIRST FLOOR THRU THE SLAB. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. REFER TO M-101A FOR CONTINUATION.
- 86"x16" SUPPLY AIR DUCT DOWN TO FIRST FLOOR THRU THE SLAB. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. REFER TO M-101A FOR CONTINUATION.
- 81"x12" SUPPLY AIR DUCT DOWN TO FIRST FLOOR THRU THE SLAB. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. REFER TO M-101A FOR CONTINUATION.
- 3/4"Ø CONDENSATE DRAIN DOWN TO FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR EXACT DRAIN LOCATIONS AND DETAILS.
- LIQUID AND SUCTION REFRIGERANT PIPES TO CONDENSING UNIT ON ROOF. SIZE PER MANUFACTURERS RECOMMENDATION.
- SUPPLY AIR DUCT. REFER TO M-101E FOR CONTINUATION.
- SUPPLY AIR DUCT. REFER TO M-101F FOR CONTINUATION.
- SUPPLY AIR DUCT. REFER TO M-101H FOR CONTINUATION.
- EXHAUST AIR DUCT UP TO SECOND FLOOR. REFER TO 3M-203 FOR CONTINUATION.
- CHILLED AND HEATING WATER PIPES UP TO SECOND FLOOR. REFER TO 3M-203 FOR CONTINUATION.
- EXHAUST AIR DUCT. REFER TO M-101H FOR CONTINUATION.
- SUPPLY AIR DUCT. REFER TO M-102A FOR CONTINUATION.
- HVAC EQUIPMENT SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED. AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DELIVERY OF ALL OWNER PRE-PURCHASED HVAC EQUIPMENT. INSTALLING CONTRACTOR SHALL MANAGE THE DELIVERY AND REQUIRED LOADING / OFFLOADING OF THE EQUIPMENT TO THE JOBSITE. ALL REQUIRED EQUIPMENT AND MACHINERY NEEDED FOR FACILITATING THE OFFLOADING SHALL BE PROVIDED BY THE INSTALLING CONTRACTOR.
- 12"x12" SUPPLY AIR DUCT DOWN TO FIRST FLOOR THRU THE SLAB. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. REFER TO M-101A FOR CONTINUATION.

ARCHITECT
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

CIVIL
11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

MEPT
11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

STRUCTURAL
KUBALA ENGINEERS
11 Greenway Plaza, 10th FL
Houston, TX 77046
713-965-0608 P

BEAM
11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P

LANDSCAPE
EDGE LAND
11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P

FOOD SERVICE
Foodservice Design Professionals
4000 West Loop South, Suite 200
Houston, TX 77046
281-355-2332 P

ACOUSTICS
BAI
4728 RANNEY BLVD
HOUSTON, TX 77046
281-813-8118 P

LEAF
ENGINEERS
111622
09/15/2023
LEAF ENGINEERS
F-16872

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1
Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN
NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD
DATE
09/15/2023
PROJECT NUMBER
220346

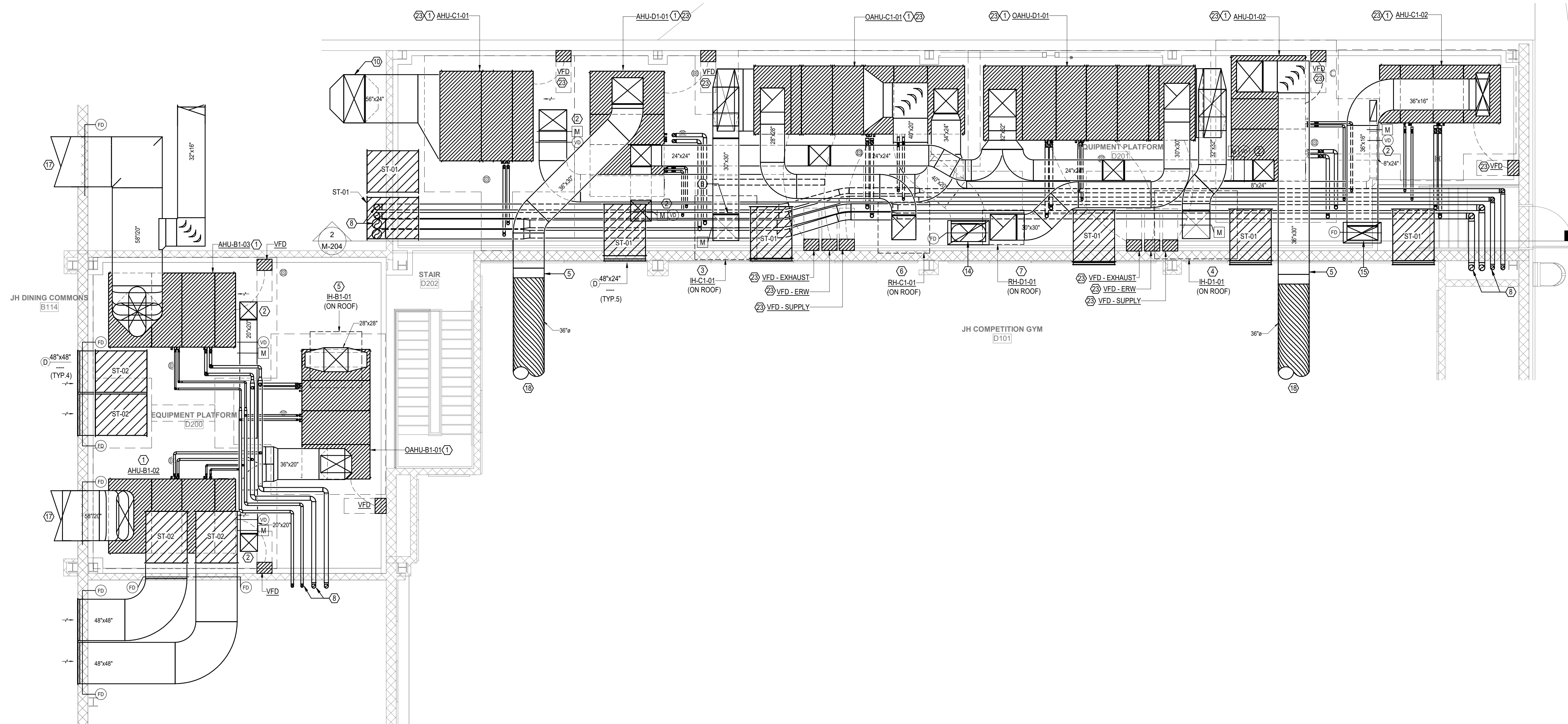
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ADD-5 PACKAGE 1 10/13/2023
PKG-1

ISSUE FOR PROPOSAL
BUILDING NUMBER

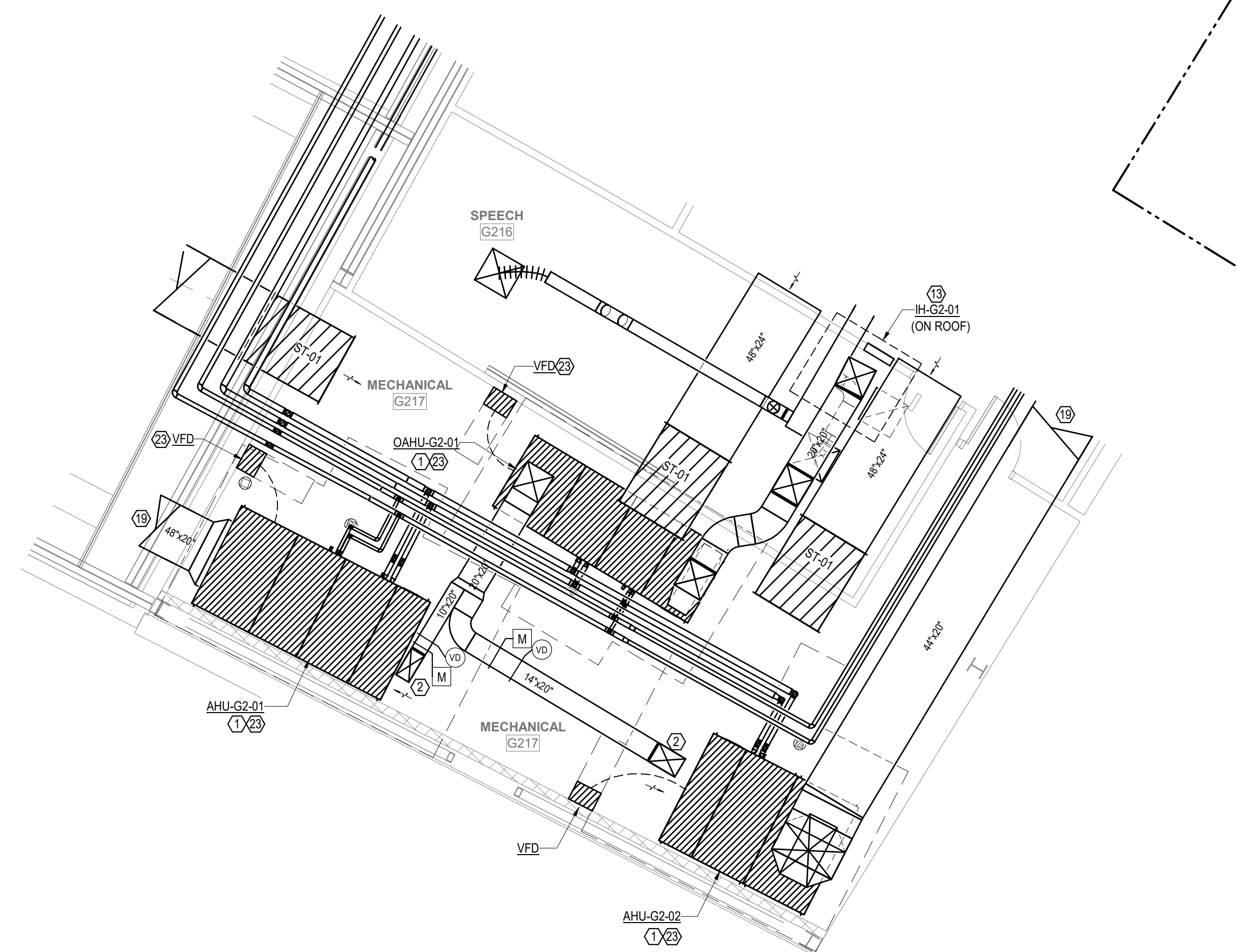
ENLARGED
MECHANICAL ROOM
PLANS

M-202
ADD-5
PKG-1

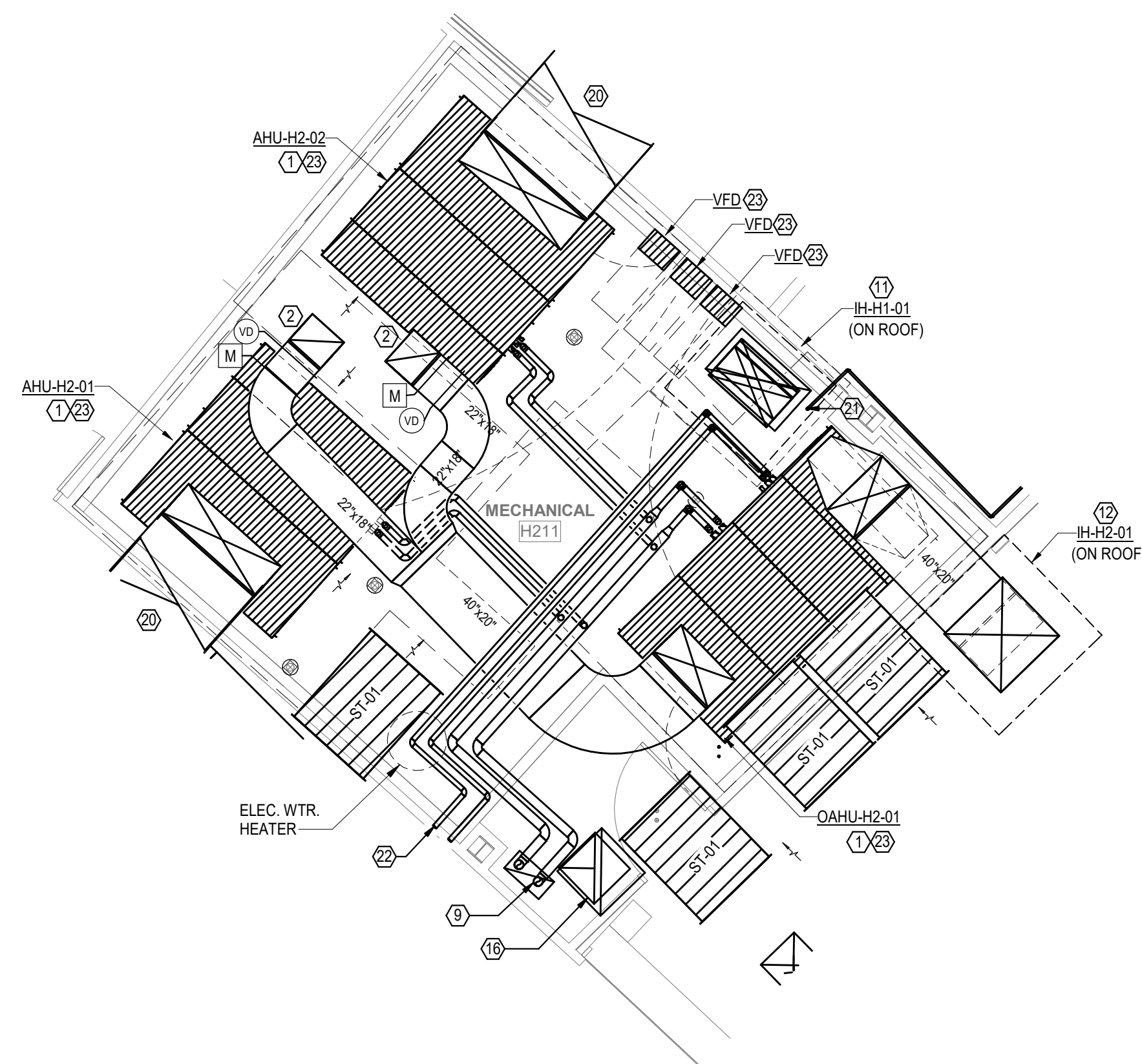
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1 2ND FLOOR MECHANICAL PLAN - PKG1 - EQUIPMENT PLATFORM D200
3/16" = 1'-0"



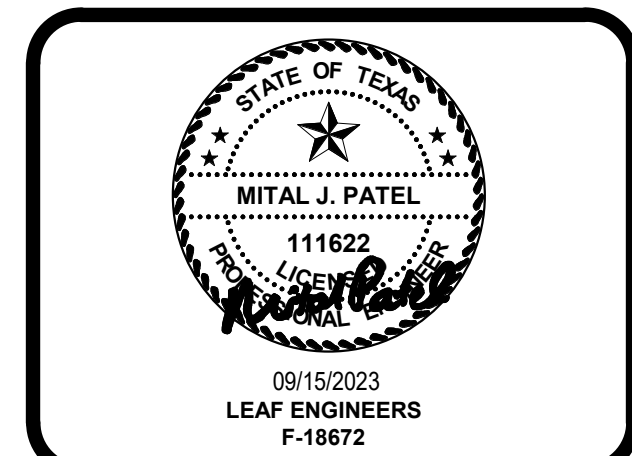
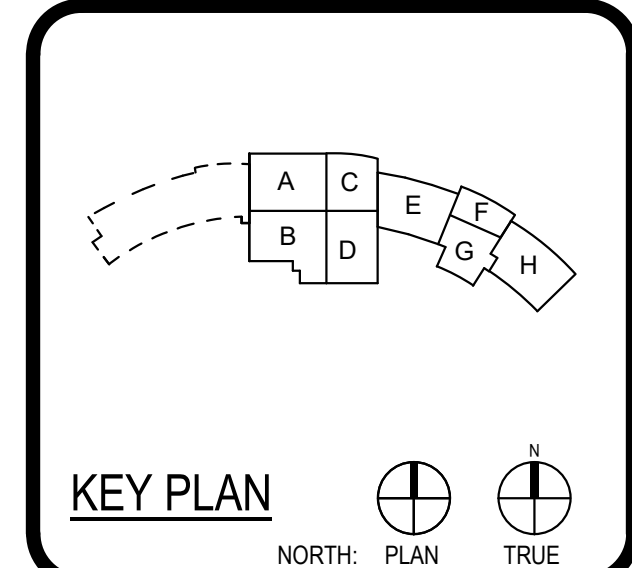
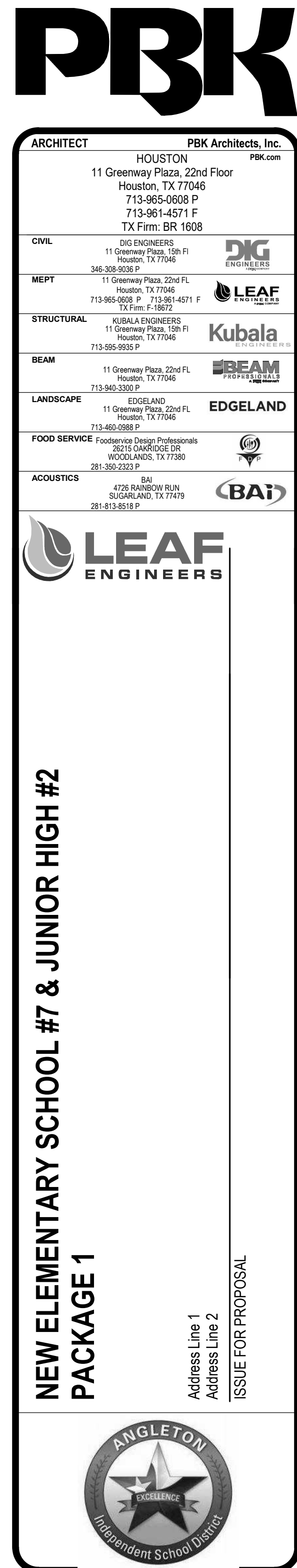
2 2ND FLOOR MECHANICAL PLAN - PKG1 - MECH ROOM G217
SCALE: 3/16" = 1'-0"



3 2ND FLOOR MECHANICAL PLAN - PKG1 - MECH ROOM H211
SCALE: 3/16" = 1'-0"

KEYED NOTES:

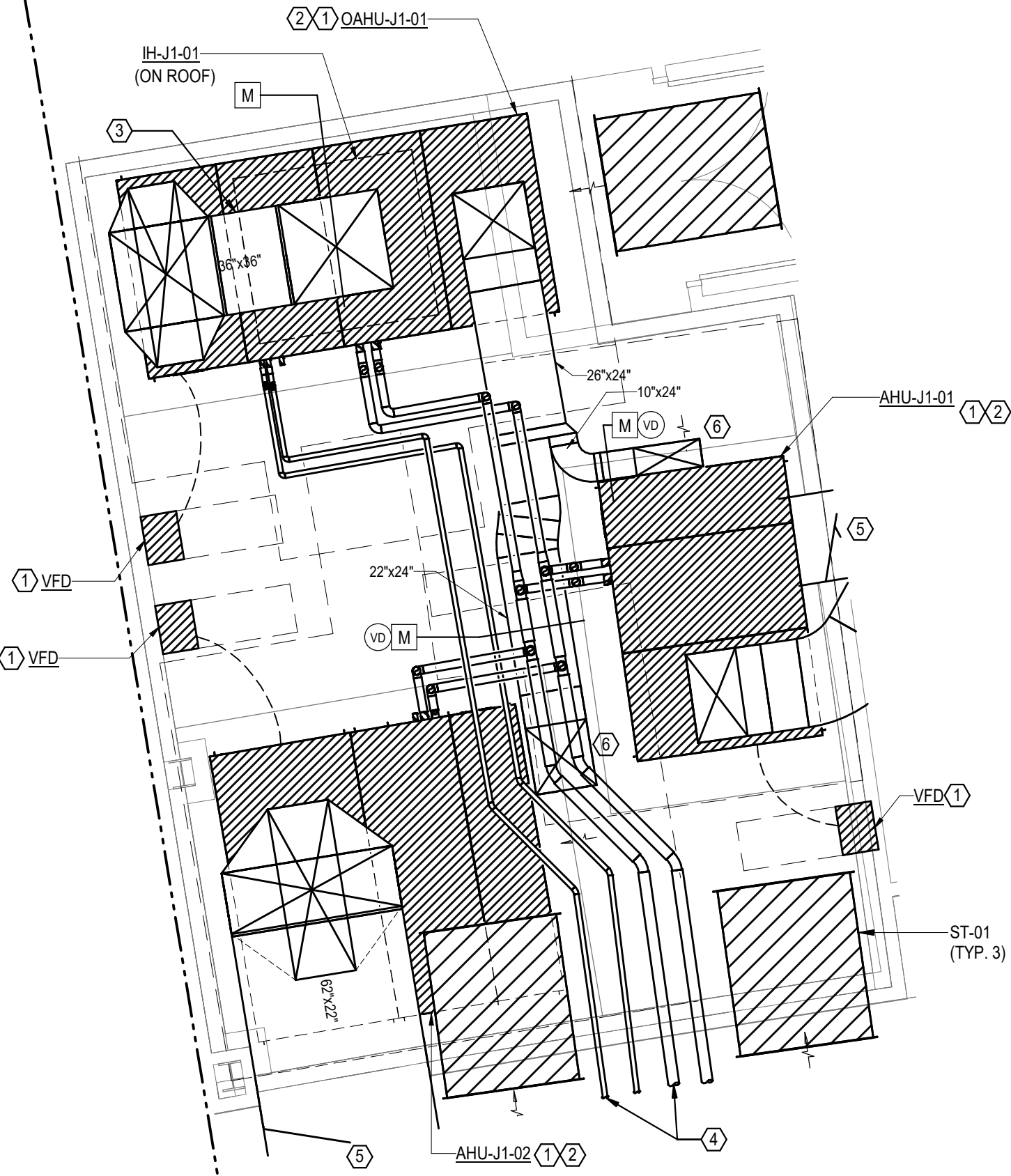
- ① PROVIDE 4" THICK CONCRETE PAD WITH MINIMUM 6" WIDER IN ALL DIRECTIONS AND 1-1/4" CONDENSATE PIPE TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR LOCATION.
- ② OUTSIDE AIR DUCT TO DROP DOWN. PROVIDE ALUMINUM WIRE MESH AT OPEN END.
- ③ 30"x30" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-C1-01 ON ROOF. TRANSITION TO UNIT INLET.
- ④ 32"x32" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-D1-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑤ 28"x28" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-B1-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑥ 28"x82" EXHAUST AIR DUCT UP TO RELIEF HOOD RH-C1-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑦ 30"x30" EXHAUST AIR DUCT UP TO RELIEF HOOD RH-D1-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑧ CHILLED AND HEATING WATER PIPES DOWN TO FIRST FLOOR; REFER TO M-101D FOR CONTINUATION.
- ⑨ CHILLED WATER PIPES DOWN TO FIRST FLOOR. REFER TO M-32222 FOR CONTINUATION.
- ⑩ 56"x24" SUPPLY AIR DUCT DOWN TO FIRST FLOOR. REFER TO M-101D FOR CONTINUATION.
- ⑪ 40"x22" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-H1-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑫ 40"x22" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-H2-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑬ 20"x22" OUTSIDE AIR DUCT UP TO INTAKE HOOD IH-G2-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑭ 40"x22" EXHAUST AIR DUCT DOWN TO FIRST FLOOR THRU THE SLAB. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. REFER TO M-101D FOR CONTINUATION.
- ⑮ 36"x16" SUPPLY AIR DUCT DOWN TO FIRST FLOOR THRU THE SLAB. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. REFER TO M-101D FOR CONTINUATION.
- ⑯ 26"x22" EXHAUST AIR DUCT DOWN TO FIRST FLOOR THRU THE SLAB. PROVIDE FIRE DAMPER AT FLOOR PENETRATION. REFER TO 3M-2022 FOR CONTINUATION.
- ⑰ SUPPLY AIR DUCT. REFER TO M-102B FOR CONTINUATION.
- ⑱ SUPPLY AIR DUCT. REFER TO M-102D FOR CONTINUATION.
- ⑲ SUPPLY AIR DUCT. REFER TO M-102G FOR CONTINUATION.
- ⑳ SUPPLY AIR DUCT. REFER TO M-102H FOR CONTINUATION.
- ㉑ 3/4"x3 CONDENSATE DRAIN DOWN TO FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR EXACT DRAIN LOCATIONS AND DETAILS.
- ㉒ HEATING WATER PIPES. REFER TO M-102H FOR CONTINUATION.
- ㉓ HVAC EQUIPMENT SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED. AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DELIVERY AND INSTALLATION OF THE EQUIPMENT. THE AWARDED CONTRACTOR SHALL MANAGE THE DELIVERY AND REQUIRED LOADING / OFFLOADING OF THE EQUIPMENT TO THE JOBSITE. ALL REQUIRED EQUIPMENT AND MACHINERY NEEDED FOR FACILITATING THE OFFLOADING SHALL BE PROVIDED BY THE AWARDING CONTRACTOR.



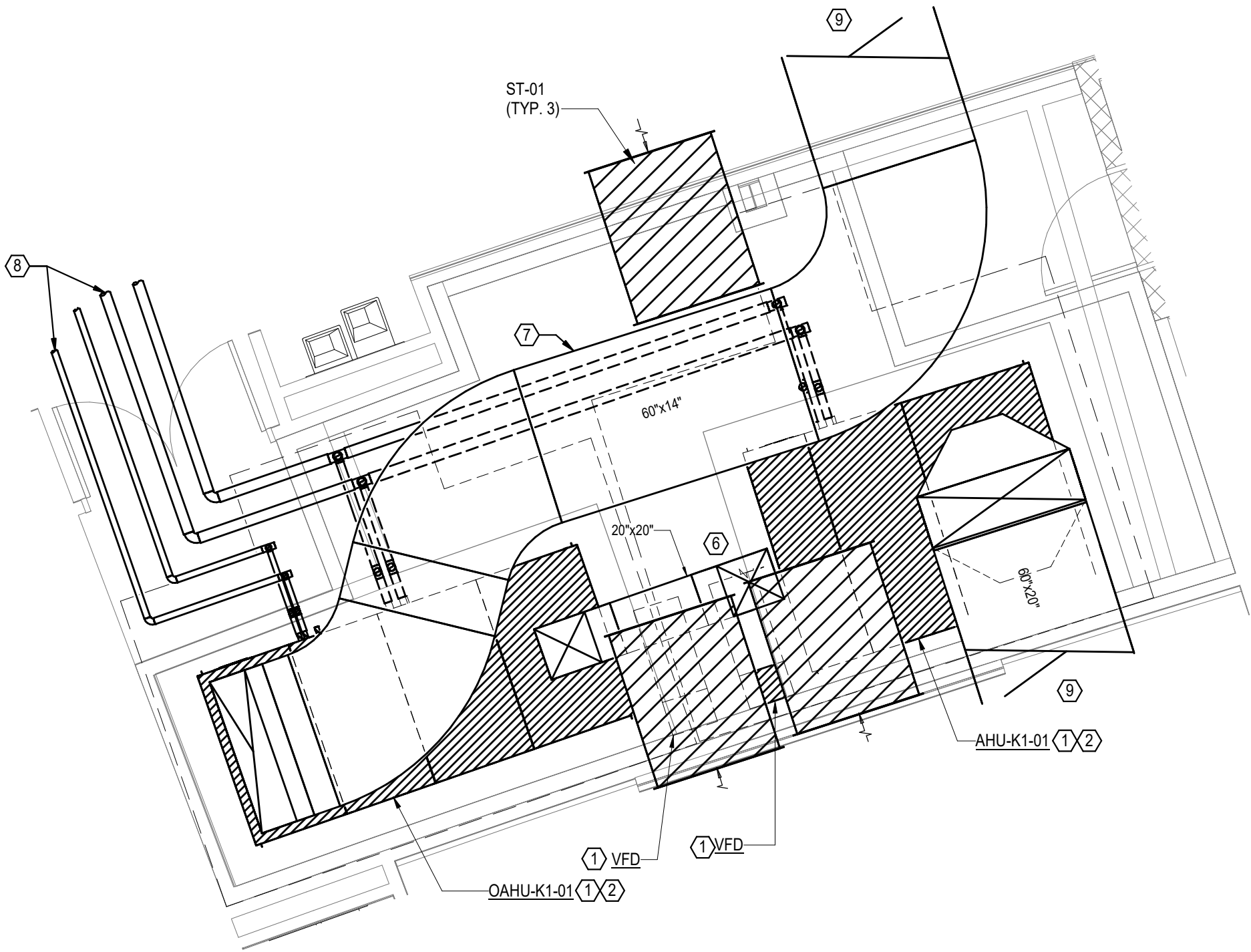
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DATE 09/15/2023	PROJECT NUMBER 220348	
DRAWING HISTORY		
No.	Description	Date
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ISSUE FOR PROPOSAL		
BUILDING NUMBER		

ENLARGED MECHANICAL ROOM PLANS

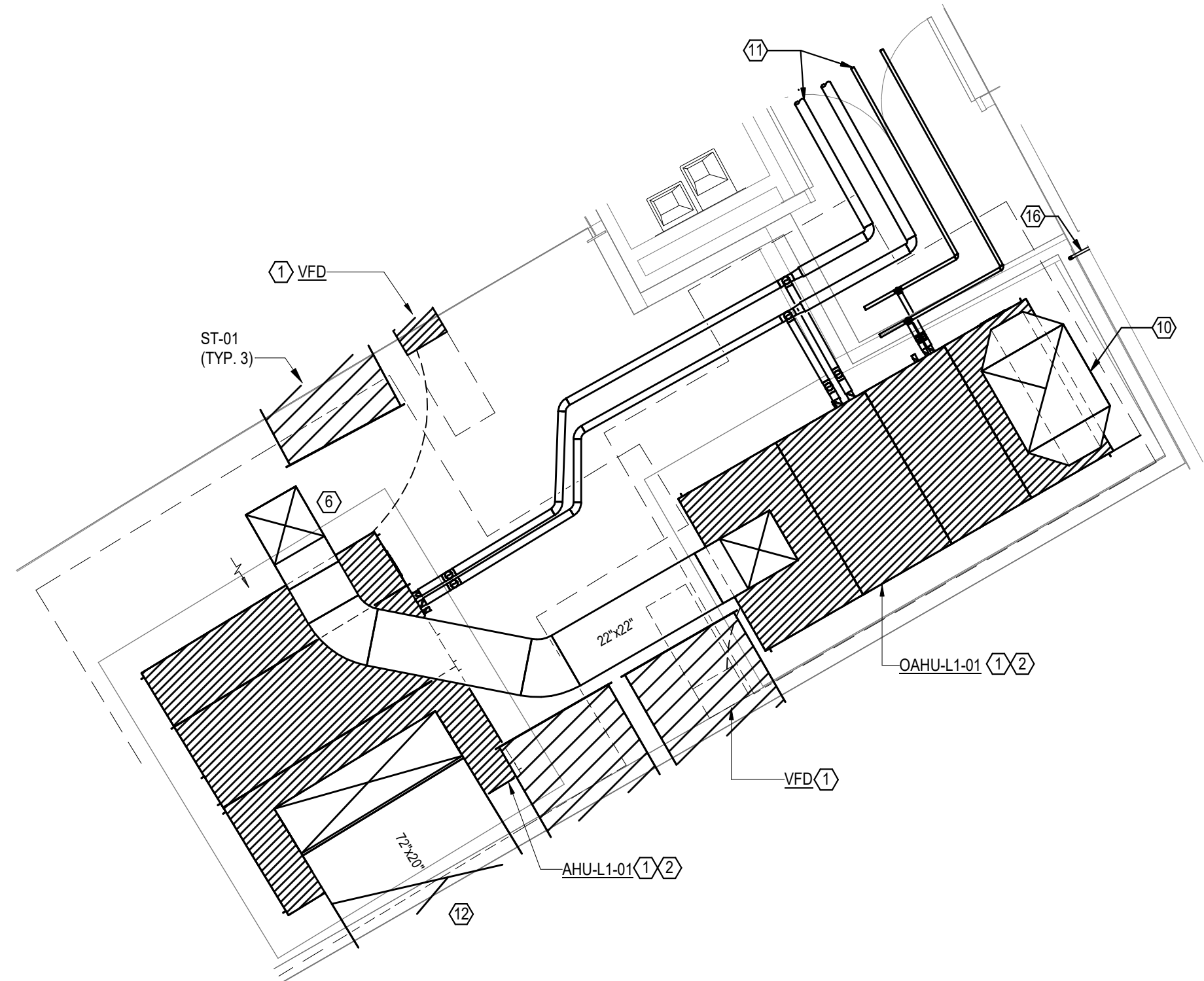




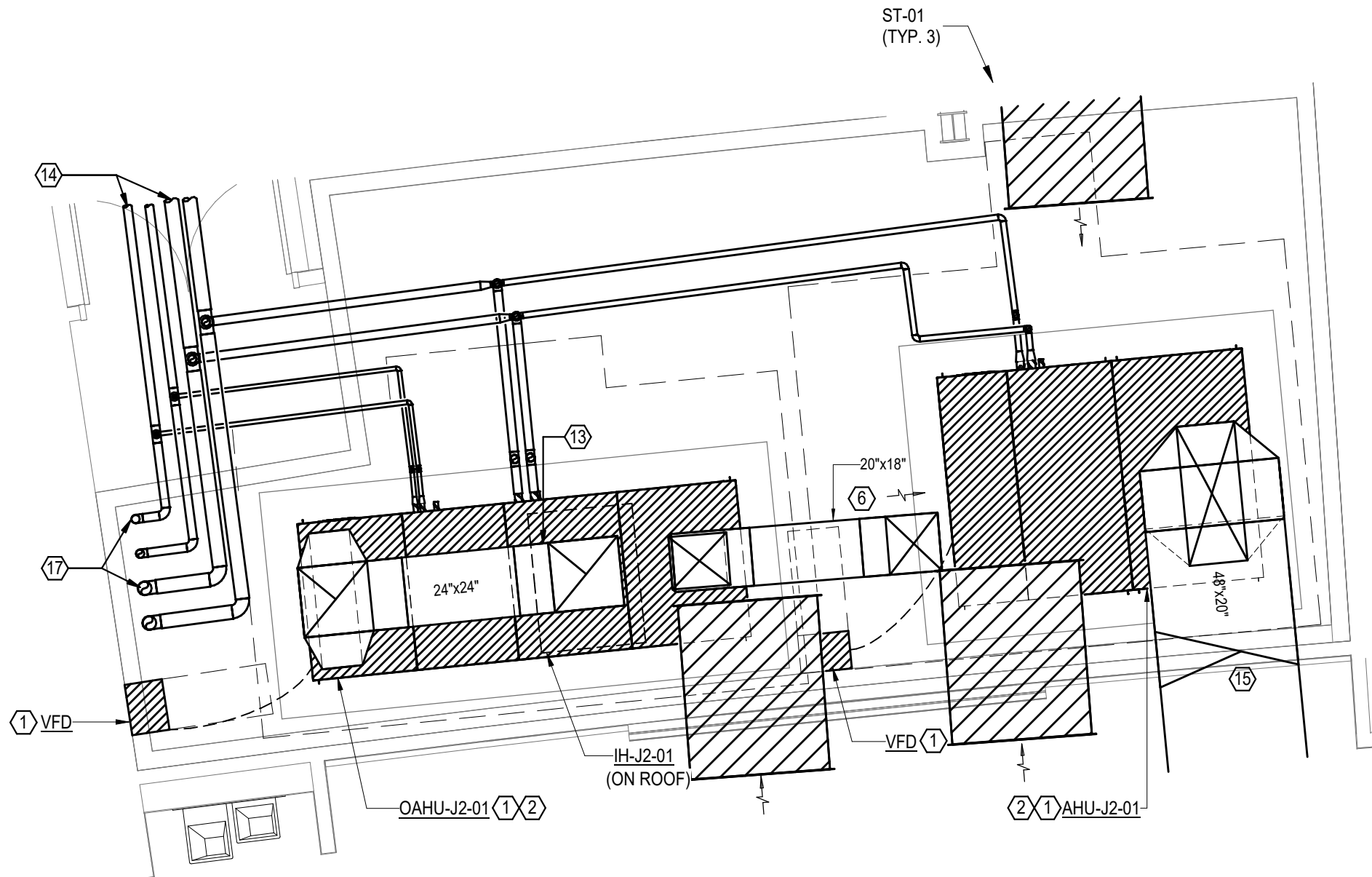
1 1ST FLOOR MECHANICAL PLAN - PKG2 - MECH / ELEC ROOM J102
SCALE: 1/4" = 1'-0"



2 1ST FLOOR MECHANICAL PLAN - PKG2 - MECH / ELEC ROOM K115
SCALE: 1/4" = 1'-0"



3 1ST FLOOR MECHANICAL PLAN - PKG2 - MECH / ELEC ROOM L115
SCALE: 1/4" = 1'-0"



4 2ND FLOOR MECHANICAL PLAN - PKG2 - MECH / ELEC ROOM J211
SCALE: 1/4" = 1'-0"

KEYED NOTES:

- HVAC EQUIPMENT SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED. AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DELIVERY OF ALL OWNER PRE-PURCHASED HVAC EQUIPMENT. INSTALLING CONTRACTOR SHALL MANAGE THE DELIVERY AND REQUIRED LOADING / OFFLOADING OF THE EQUIPMENT TO THE JOBSITE. ALL REQUIRED EQUIPMENT AND MACHINERY NEEDED FOR FACILITATING THE OFFLOADING SHALL BE PROVIDED BY THE INSTALLING CONTRACTOR.
- PROVIDE 4" THICK CONCRETE PAD WITH MINIMUM 6" WIDER IN ALL DIRECTIONS AND 1-1/4" O CONDENSATE PIPE TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR LOCATION.
- 36" x 36" OUTSIDE AIR DUCT UPTO INTAKE HOOD BL-J1-01 ON ROOF. TRANSITION TO UNIT INLET.
- CHILLED AND HEATING WATER PIPES. REFER TO M-101J FOR CONTINUATION.
- SUPPLY AIR DUCT. REFER TO M-101J FOR CONTINUATION.
- OUTSIDE AIR DUCT TO DROP DOWN. PROVIDE ALUMINUM WIRE MESH AT OPEN END.
- 82" x 14" OUTSIDE AIR DUCT UPTO INTAKE HOOD BL-K1-01 ON ROOF. TRANSITION TO UNIT INLET.
- CHILLED AND HEATING WATER PIPES. REFER TO M-102L FOR CONTINUATION.
- SUPPLY AIR DUCT. REFER TO M-102L FOR CONTINUATION.
- 36" x 36" OUTSIDE AIR DUCT UPTO SECOND FLOOR. REFER TO 2M-206 FOR CONTINUATION.
- CHILLED AND HEATING WATER PIPES. REFER TO M-101L FOR CONTINUATION.
- SUPPLY AIR DUCT. REFER TO M-101L FOR CONTINUATION.
- 24" x 24" OUTSIDE AIR DUCT UPTO INTAKE HOOD BL-J2-01 ON ROOF. TRANSITION TO UNIT INLET.
- CHILLED AND HEATING WATER PIPES. REFER TO M-101L FOR CONTINUATION.
- SUPPLY AIR DUCT. REFER TO M-101L FOR CONTINUATION.
- 3/4" O CONDENSATE DRAIN DOWN TO FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR EXACT DRAIN LOCATIONS AND DETAILS.
- CHILLED AND HEATING WATER PIPING FROM FIRST FLOOR. REFER TO M-101J FOR CONTINUATION.

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

PKB Architects, Inc.

PKB.com

CIVIL

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

MEPT

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P
TX Firm BR 1606

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 10th FL
Houston, TX 77046
713-965-0608 P

BEAM

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P

FOOD SERVICE

Foodservice Design Professionals
4000 West Loop South, Suite 200
Houston, TX 77060
281-355-2332 F

ACOUSTICS

BAI
4725 Bayview Blvd.
Houston, TX 77059
281-813-8138 F

LEAF ENGINEERS

25455 FM 521
ANGLETON, TX 77515

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2

PACKAGE 2

25455 FM 521
ANGLETON, TX 77515

ISSUE FOR PROPOSAL

ANGLETON

INDEPENDENT SCHOOL DISTRICT

STATE OF TEXAS

MITAL J. PATEL

111622

01/12/2024

LEAF ENGINEERS

F-16672

CLIENT

ANGLETON ISD

DATE

01/12/2024

PROJECT NUMBER

220346

DRAWING HISTORY

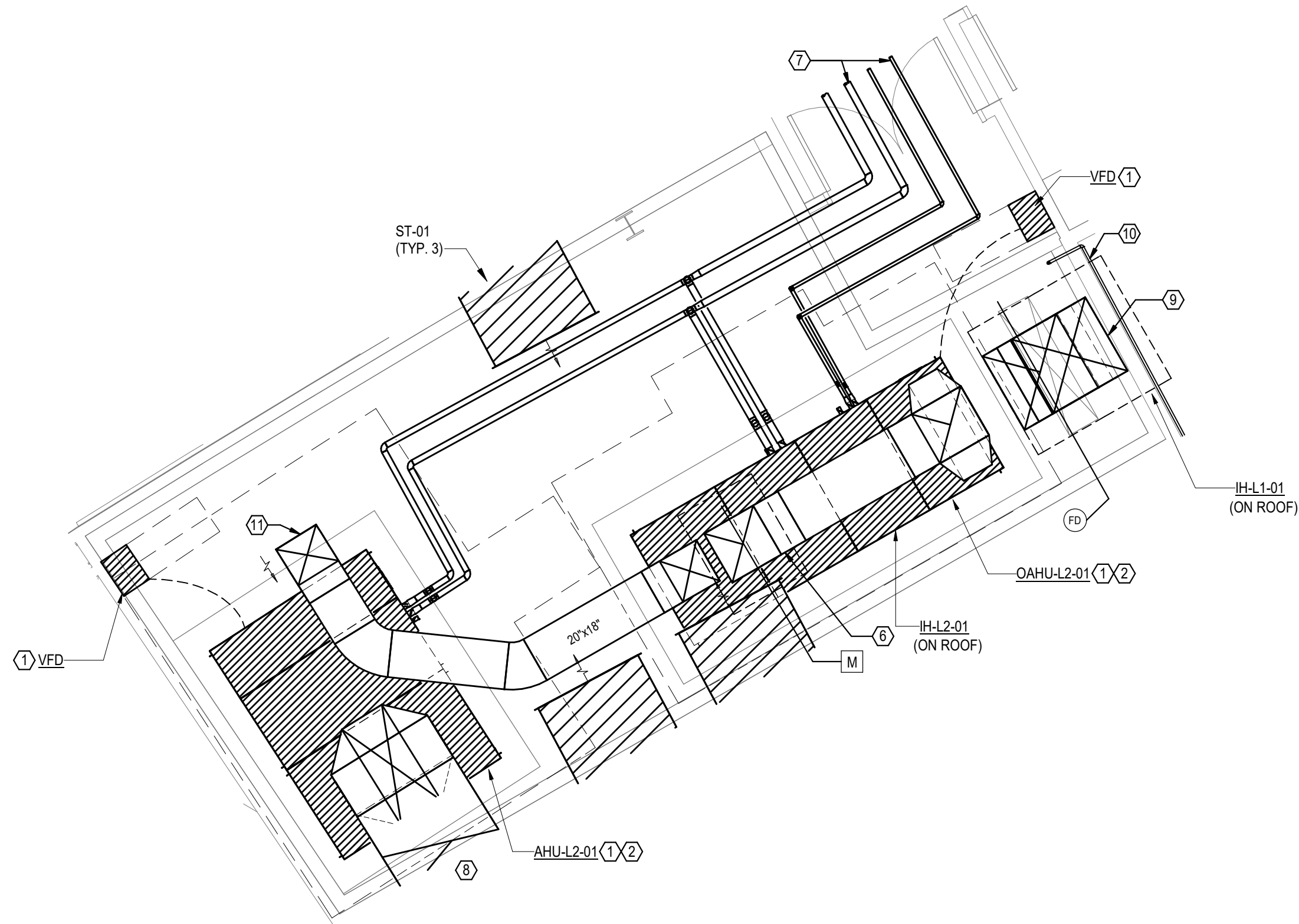
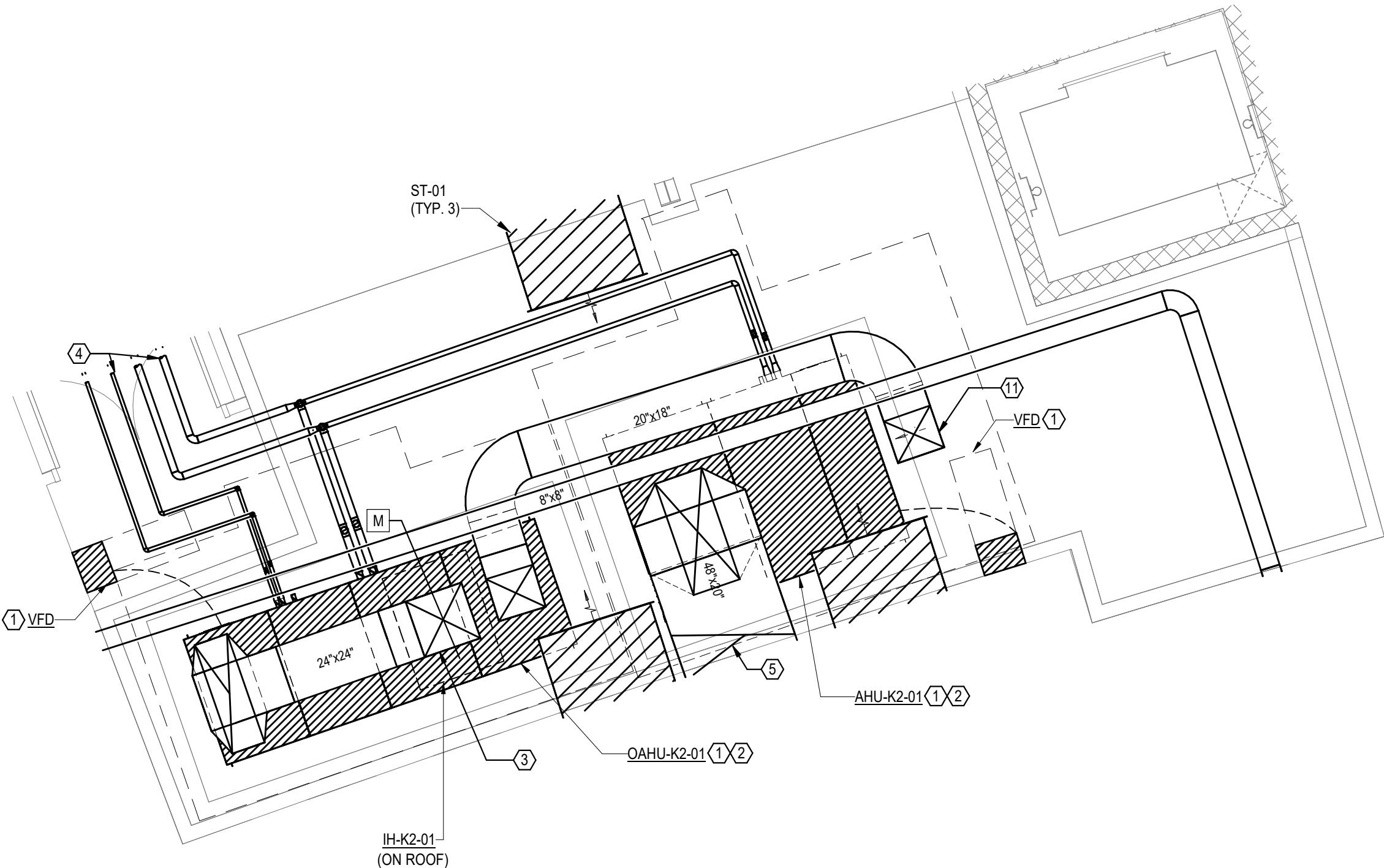
No.	Description	Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

ENLARGED MECHANICAL ROOM PLANS - PACKAGE 2

M-205



KEYED NOTES:

- ① HVAC EQUIPMENT SHALL BE OWNER FURNISHED AND CONTRACTOR INSTALLED. AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE DELIVERY OF ALL OWNER PRE-PURCHASED HVAC EQUIPMENT. INSTALLING CONTRACTOR SHALL MANAGE THE DELIVERY AND REQUIRED LOADING / OFFLOADING OF THE EQUIPMENT TO THE JOBSITE. ALL REQUIRED EQUIPMENT AND MACHINERY NEEDED FOR FACILITATING THE OFFLOADING SHALL BE PROVIDED BY THE INSTALLING CONTRACTOR.
- ② PROVIDE 4" THICK CONCRETE PAD WITH MINIMUM 6" WIDER IN ALL DIRECTIONS AND 1-1/4"3 CONDENSATE PIPE TO NEAREST FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR LOCATION.
- ③ 24" x 24" OUTSIDE AIR DUCT UPTO INTAKE HOOD IHLK2-01 ON ROOF. TRANSITION TO UNIT INLET.
- ④ CHILLED AND HEATING WATER PIPES. REFER TO M-102K FOR CONTINUATION.
- ⑤ SUPPLY AIR DUCT; REFER TO M-102K FOR CONTINUATION.
- ⑥ 24" x 24" OUTSIDE AIR DUCT UPTO INTAKE HOOD IHLJ2-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑦ CHILLED AND HEATING WATER PIPES. REFER TO M-102L FOR CONTINUATION.
- ⑧ SUPPLY AIR DUCT; REFER TO M-102L FOR CONTINUATION.
- ⑨ 36" x 36" OUTSIDE AIR DUCT UPTO INTAKE HOOD IHLJ1-01 ON ROOF. TRANSITION TO UNIT INLET.
- ⑩ 34"x3 CONDENSATE DRAIN DOWN TO FLOOR DRAIN. REFER TO PLUMBING DRAWING FOR EXACT DRAIN LOCATIONS AND DETAILS.
- ⑪ OUTSIDE AIR DUCT TO DROP DOWN. PROVIDE ALUMINUM WIRE MESH AT OPEN END.

ARCHITECT

PKB Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1608

PKB.com

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 18th Fl.
Houston, TX 77046
360-358-6039 F
713-965-0608 P 713-961-4571 F
TX Firm C 1807

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0608 P 713-961-4571 F
TX Firm E 1807

LEAF ENGINEERS

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 18th Fl.
Houston, TX 77046
713-965-0608 P

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-965-0608 P

IBeam ENGINEERS

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd Fl.
Houston, TX 77046
713-485-5981 F

EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
25025 LAWRENCE DR.
HOUSTON, TX 77060
281-355-2332 F

Foodservice Design Professionals

ACOUSTICS

BAI
4725 RAINBOW BLVD.
HOUSTON, TX 77059
281-813-8138 F

BAI

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2

PACKAGE 2

25455 FM 521
ANGLETON, TX 77515

ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD

DATE
01/12/2024

PROJECT NUMBER
220348

DRAWING HISTORY

No. Description Date

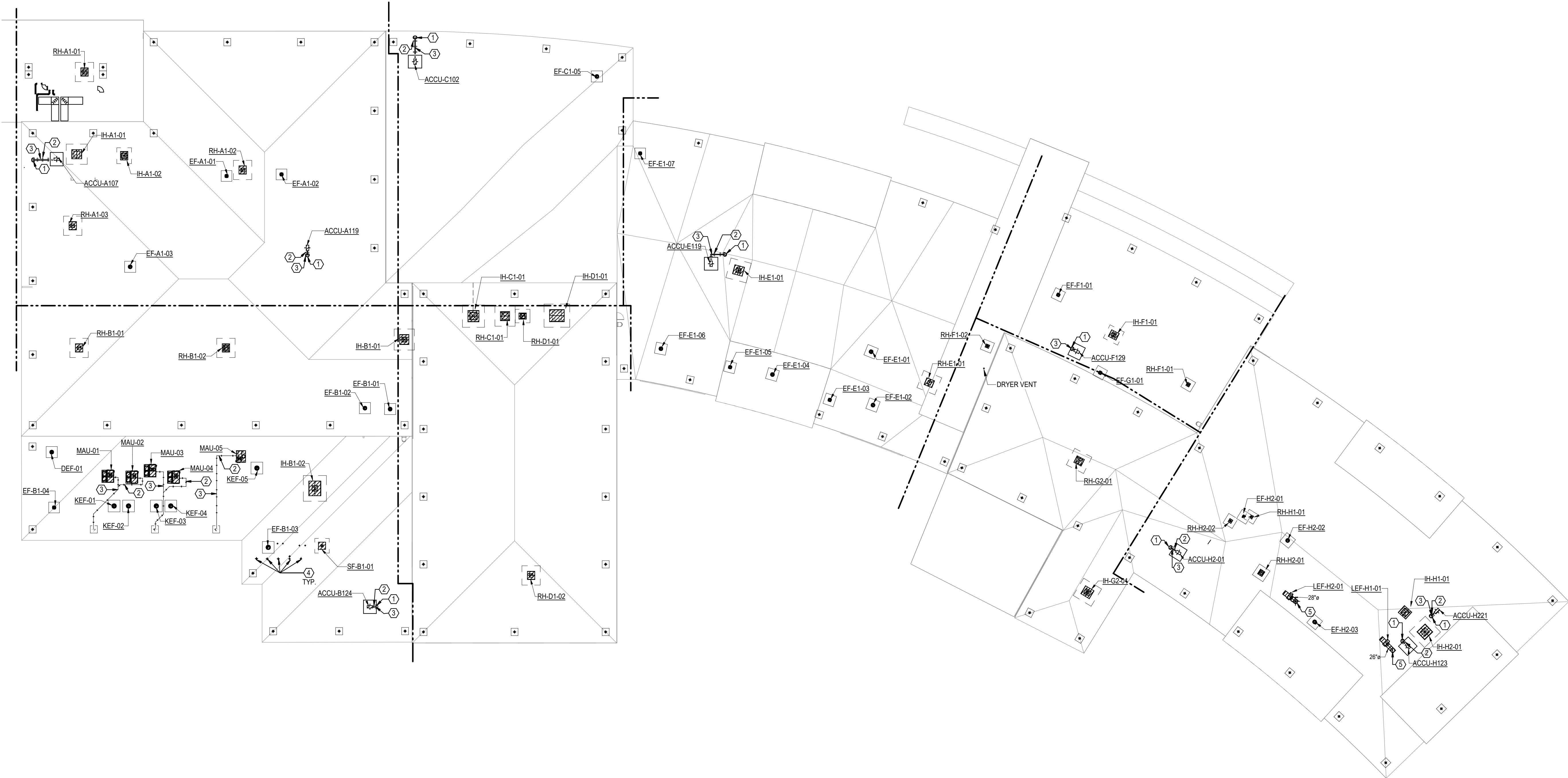
ISSUE FOR PROPOSAL

BUILDING NUMBER

ENLARGED
MECHANICAL ROOM
PLANS - PACKAGE 2

M-206

ISSUE FOR PROPOSAL



KEYED NOTES:

- ① PROVIDE STAINLESS STEEL HOOD, REFRIGERANT PIPE FROM LOWER LEVEL. SIZE PER MANUFACTURER RECOMMENDATION. REFER TO DETAIL.
- ② PROVIDE PORTABLE PIPE SUPPORTS. (TYP.).
- ③ ALL OUTDOOR EXPOSED REFRIGERANT PIPING SHALL BE PROVIDED WITH ALUMINUM JACKETING.
- ④ BOILER FLUE.
- ⑤ EXHAUST DUCT DOWN TO SECOND FLOOR. PROVIDE ROOF HOOD AT DUCT PENETRATION. REFER TO DETAILS.

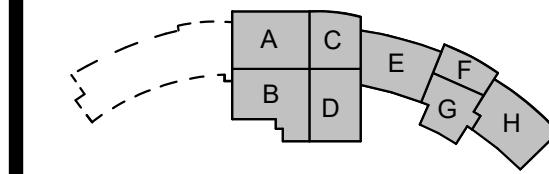


ARCHITECT	PBK Architects, Inc. HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm BR 1608 PBK.com
CIVIL	DIG ENGINEERS 11 Greenway Plaza, 10th Fl Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm C 18675
MEPT	LEAF ENGINEERS 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P 713-961-4571 F TX Firm C 18675
STRUCTURAL	KUBALA ENGINEERS 11 Greenway Plaza, 10th Fl Houston, TX 77046 713-965-0808 P
BEAM	IBeam 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P
LANDSCAPE	EDGE LAND 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P
FOOD SERVICE	Foodservice Design Professionals 20250 LAMAR BLVD HOUSTON, TX 77058 281-355-2332 P
ACOUSTICS	BAI 4725 BARROW BLVD HOUSTON, TX 77059 281-813-8018 P

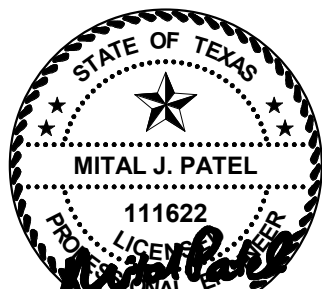


NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL



KEY PLAN
NORTH: PLAN TRUE



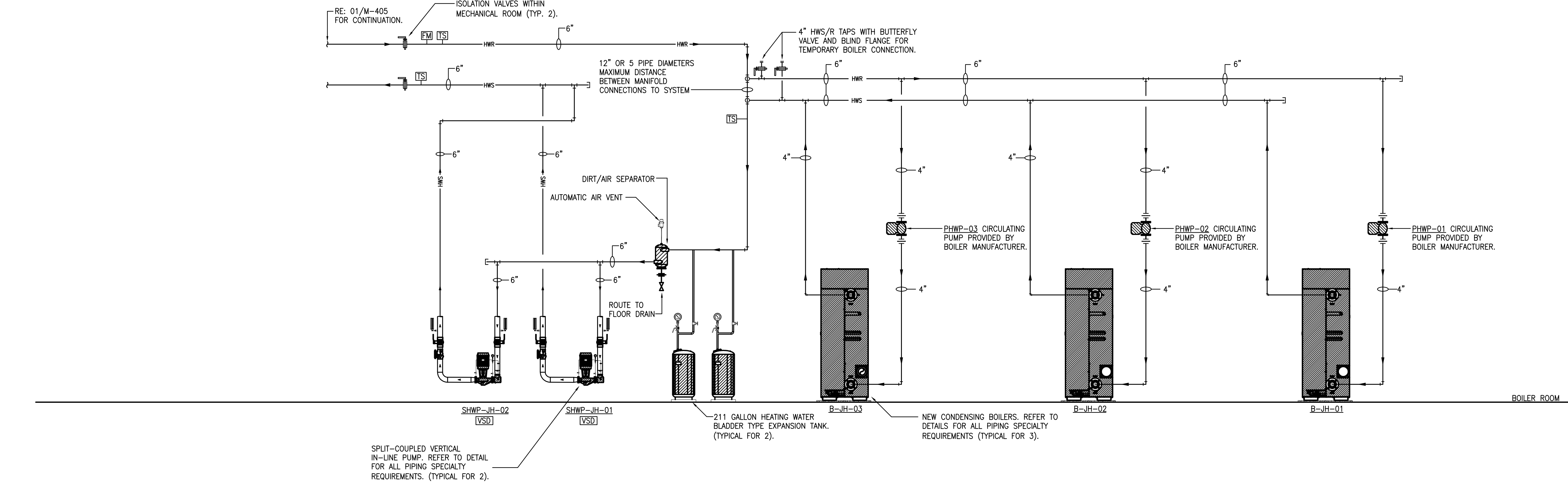
09/15/2023
LEAF ENGINEERS
F-18672

CLIENT ANGLETON ISD		
DATE 09/15/2023		PROJECT NUMBER 220348
DRAWING HISTORY		
No.	Description	Date
ADD-2 PKG-1	ADDENDUM 2 - PACKAGE 1	09/29/2023
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

ISSUE FOR PROPOSAL
BUILDING NUMBER

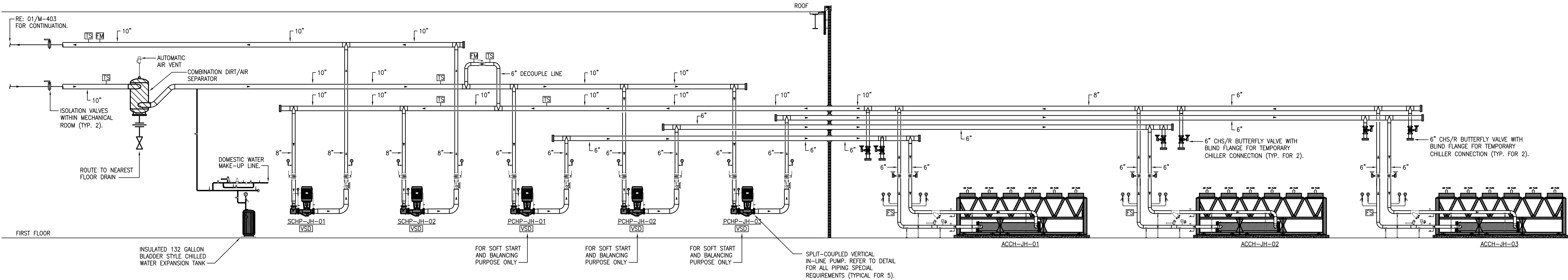
MECHANICAL ROOF
PLAN - PKG 1

M-301.1



02 MECHANICAL HEATING WATER CENTRAL PLANT PIPING DIAGRAM - JUNIOR HIGH SCHOOL

SCALE: NONE



01 MECHANICAL CHILLED WATER CENTRAL PLANT PIPING DIAGRAM - JUNIOR HIGH SCHOOL

SCALE: NONE

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

PKB Architects, Inc.
PKB.com

CIVIL

11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0808 P

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

IBeam

LANDSCAPE

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

EDGELAND

FOOD SERVICE

Foodservice Design Professionals
20201 WOODLAND DR
WOODLAND, TX 77060
281-355-2332 F

BAI

ACOUSTICS

BAI
4725 BAYVIEW BLVD
HOUSTON, TX 77059
281-813-8018 F

BAI

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
INDEPENDENT SCHOOL DISTRICT

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-16672

CLIENT
ANGLETON ISD

DATE
09/15/2023

PROJECT NUMBER
220348

DRAWING HISTORY

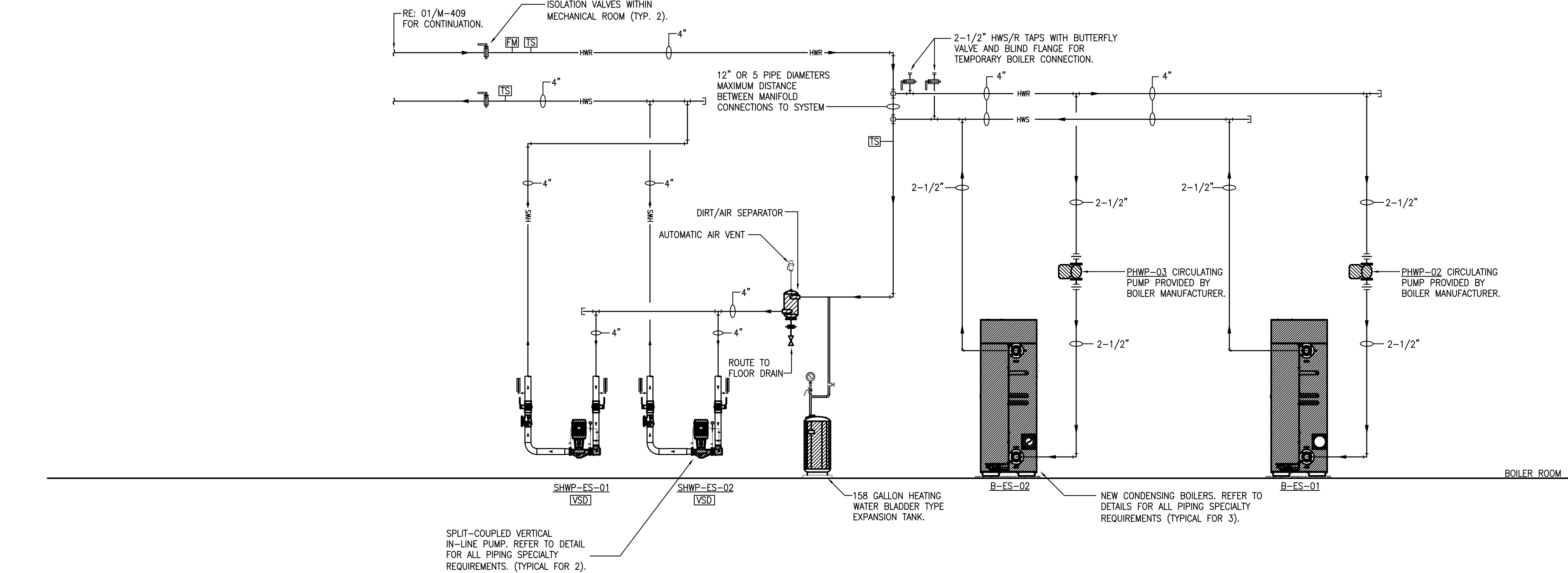
No.	Description	Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

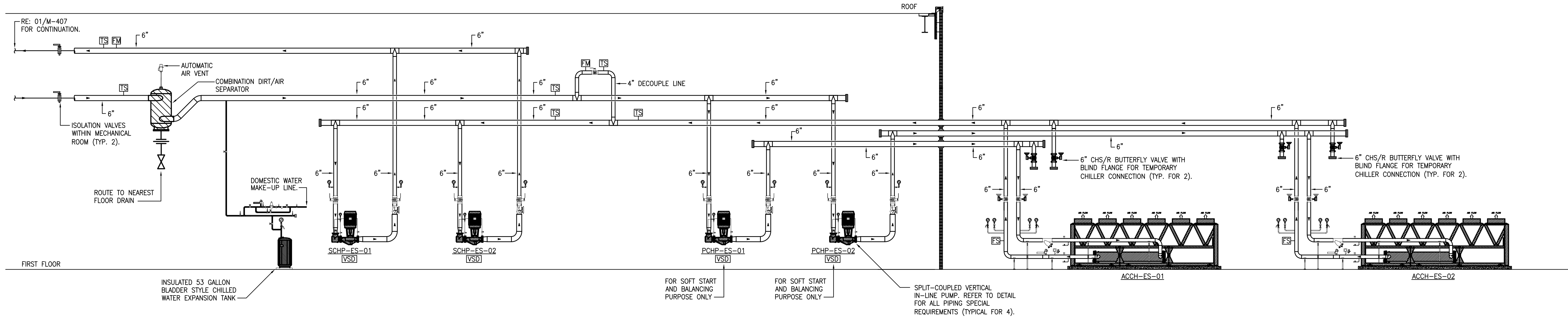
MECHANICAL
CENTRAL PLANT
PIPING DIAGRAM - JH

M-401



02 MECHANICAL HEATING WATER CENTRAL PLANT PIPING DIAGRAM - ELEMENTARY SCHOOL

SCALE: NONE



01 MECHANICAL CHILLED WATER CENTRAL PLANT PIPING DIAGRAM - ELEMENTARY SCHOOL

SCALE: NONE

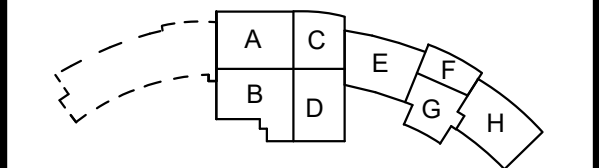


ARCHITECT	PBK Architects, Inc. HOUSTON 11 Greenway Plaza, 22nd Floor Houston, TX 77046 713-965-0808 P TX Firm BR 1608	PBK.com
CIVIL	DIG ENGINEERS 11 Greenway Plaza, 10th Fl Houston, TX 77046 713-965-0808 P TX Firm C 1807	DIG ENGINEERS
MEPT	LEAF ENGINEERS 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P TX Firm E 1807	LEAF ENGINEERS
STRUCTURAL	KUBALA ENGINEERS 11 Greenway Plaza, 10th Fl Houston, TX 77046 713-965-0808 P	Kubala ENGINEERS
BEAM	IBeam 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P	IBeam
LANDSCAPE	EDGELAND 11 Greenway Plaza, 22nd Fl Houston, TX 77046 713-965-0808 P	EDGELAND
FOOD SERVICE	Foodservice Design Professionals 4725 Rainbow Blvd. Houston, TX 77056 281-585-2332 P	Foodservice Design Professionals
ACOUSTICS	BAI 4725 Rainbow Blvd. Houston, TX 77056 281-813-8018 P	BAI

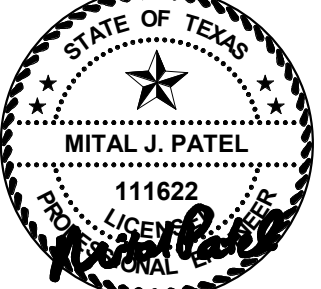


NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL



KEY PLAN
NORTH: PLAN TRUE



09/15/2023
LEAF ENGINEERS
F-18872

CLIENT ANGLETON ISD		
DATE 09/15/2023	PROJECT NUMBER 220348	
DRAWING HISTORY		
No.	Description	Date

ISSUE FOR PROPOSAL
BUILDING NUMBER

MECHANICAL
CENTRAL PLANT
PIPING DIAGRAM - ES

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm BR 1606

PKB Architects, Inc.
PKB.com

CIVIL

11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm C 18675

DIG ENGINEERS
DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm E 18675

LEAF ENGINEERS
LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0608 P

Kubala ENGINEERS
Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

IBeam ENGINEERS
IBeam ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

EDGE LAND ENGINEERS
EDGE LAND ENGINEERS

FOOD SERVICE

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

Food Service Design Professionals
Food Service Design Professionals

ACOUSTICS

4725 Bayview Blvd
Houston, TX 77059
281-813-8118 P

BAI ENGINEERS
BAI ENGINEERS

LEAF ENGINEERS

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1
Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
INDEPENDENT SCHOOL DISTRICT

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-18672

CLIENT
ANGLETON ISD

DATE
09/15/2023

PROJECT NUMBER
220348

DRAWING HISTORY

No.	Description	Date
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

ISSUE FOR PROPOSAL

BUILDING NUMBER

MECHANICAL
CHILLED & HEATING
WATER PIPING
DIAGRAM - ES
PACKAGE 1

M-403

ADD-5
PKG-1

1. CONTRACTOR TO VERIFY STACKED COIL CONNECTIONS AND PROVIDE ADDITIONAL VALVES AS REQUIRED. DRAWING IS DIAGMMATIC AND DOES NOT INDICATE ALL REQUIRED VALVES.
2. CONTRACTOR TO LOCATE VALVES WITHIN 18" OF CEILING FOR SUSPENDED UNITS.
3. PROVIDE ENGRAVED LABEL (1/4" BLACK LETTERING ON WHITE BACKGROUND) ATTACHED TO CEILING GRID LABELED "VL" TO INDICATE CHW/HW PIPING ISOLATION VALVE LOCATIONS ABOVE CEILING. LABEL SHALL BE PLACED DIRECTLY BELOW VALVE LOCATION. IN ADDITION, PROVIDE WALL MOUNTED LAMINATED FLOOR PLAN IN CENTRAL PLANT SHOWING VALVE LOCATIONS FOR ENTIRE FLOOR. PROVIDE ONE FLOOR PER SHEET.

REFER TO PACKAGE 2
DRAWINGS FOR CONTINUATION.

RE: 02/M-402
FOR CONTINUATION.

02

MECHANICAL HEATING WATER PIPING DIAGRAM - ES - PACKAGE 1

SCALE: NONE

1. CONTRACTOR TO VERIFY STACKED COIL CONNECTIONS AND PROVIDE ADDITIONAL VALVES AS REQUIRED. DRAWING IS DIAGMMATIC AND DOES NOT INDICATE ALL REQUIRED VALVES.
2. CONTRACTOR TO LOCATE VALVES WITHIN 18" OF CEILING FOR SUSPENDED UNITS.
3. PROVIDE ENGRAVED LABEL (1/4" BLACK LETTERING ON WHITE BACKGROUND) ATTACHED TO CEILING GRID LABELED "VL" TO INDICATE CHW/HW PIPING ISOLATION VALVE LOCATIONS ABOVE CEILING. LABEL SHALL BE PLACED DIRECTLY BELOW VALVE LOCATION. IN ADDITION, PROVIDE WALL MOUNTED LAMINATED FLOOR PLAN IN CENTRAL PLANT SHOWING VALVE LOCATIONS FOR ENTIRE FLOOR. PROVIDE ONE FLOOR PER SHEET.

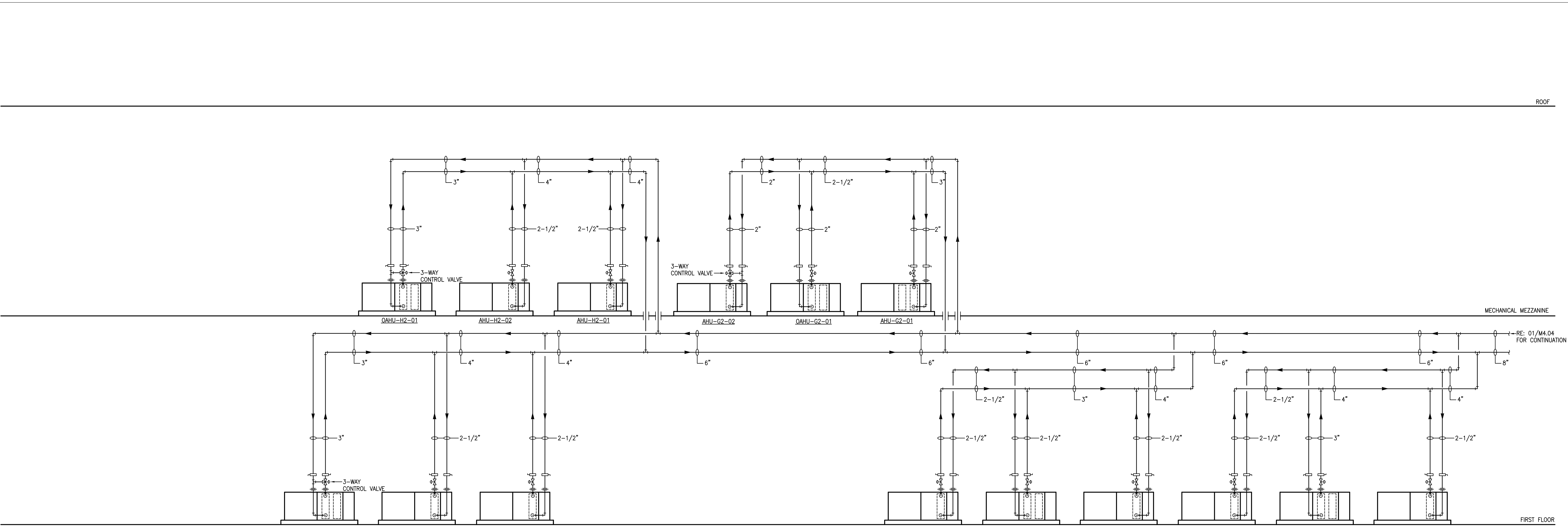
REFER TO PACKAGE 2
DRAWINGS FOR CONTINUATION.

RE: 01/M-402
FOR CONTINUATION.

01

MECHANICAL CHILLED WATER PIPING DIAGRAM - ES - PACKAGE 1

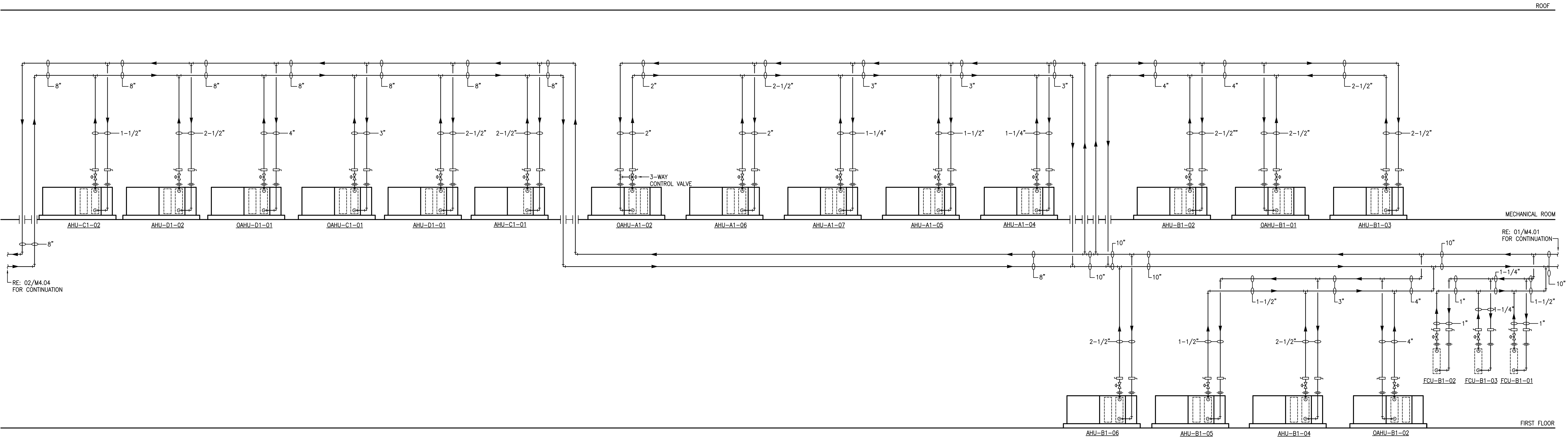
SCALE: NONE



- NOTES:**
- CONTRACTOR TO VERIFY STACKED COIL CONNECTIONS AND PROVIDE ADDITIONAL VALVES AS REQUIRED. DRAWING IS DIAGRAMMATIC AND DOES NOT INDICATE ALL REQUIRED VALVES.
 - CONTRACTOR TO LOCATE VALVES WITHIN 18" OF CEILING FOR SUSPENDED UNITS.
 - PROVIDE ENGRAVED LABEL (1/4" BLACK LETTERING ON WHITE BACKGROUND) ATTACHED TO CEILING GRID LABELED "V" TO INDICATE CHW/HW PIPING ISOLATION VALVE LOCATIONS ABOVE CEILING. LABEL SHALL BE PLACED DIRECTLY BELOW VALVE LOCATION. IN ADDITION, PROVIDE WALL MOUNTED LAMINATED FLOOR PLAN IN CENTRAL PLANT SHOWING VALVE LOCATIONS FOR ENTIRE FLOOR. PROVIDE ONE FLOOR PER SHEET.

02 MECHANICAL CHILLED WATER PIPING DIAGRAM

SCALE: NONE



01 MECHANICAL CHILLED WATER PIPING DIAGRAM

SCALE: NONE

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm BR 1608

PKB Architects, Inc.
PKB.com

CIVIL

11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm C 18675

DIG ENGINEERS
DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P
713-961-4571 F
TX Firm E 18675

LEAF ENGINEERS
LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 18th Fl
Houston, TX 77046
713-965-0808 P

Kubala ENGINEERS
Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

BEAM ENGINEERS
BEAM ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0808 P

EDGELAND
EDGELAND

FOOD SERVICE

Foodservice Design Professionals
20250 LAMAR BLVD
HOUSTON, TX 77058
281-585-2332 P

FOOD SERVICE

ACOUSTICS

BAI
4725 BARBON BLVD
HOUSTON, TX 77059
281-613-8158 P

BAI
BAI

LEAF ENGINEERS

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
INDEPENDENT SCHOOL DISTRICT

KEY PLAN

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-18672

CLIENT
ANGLETON ISD

DATE
09/15/2023

PROJECT NUMBER
220348

DRAWING HISTORY

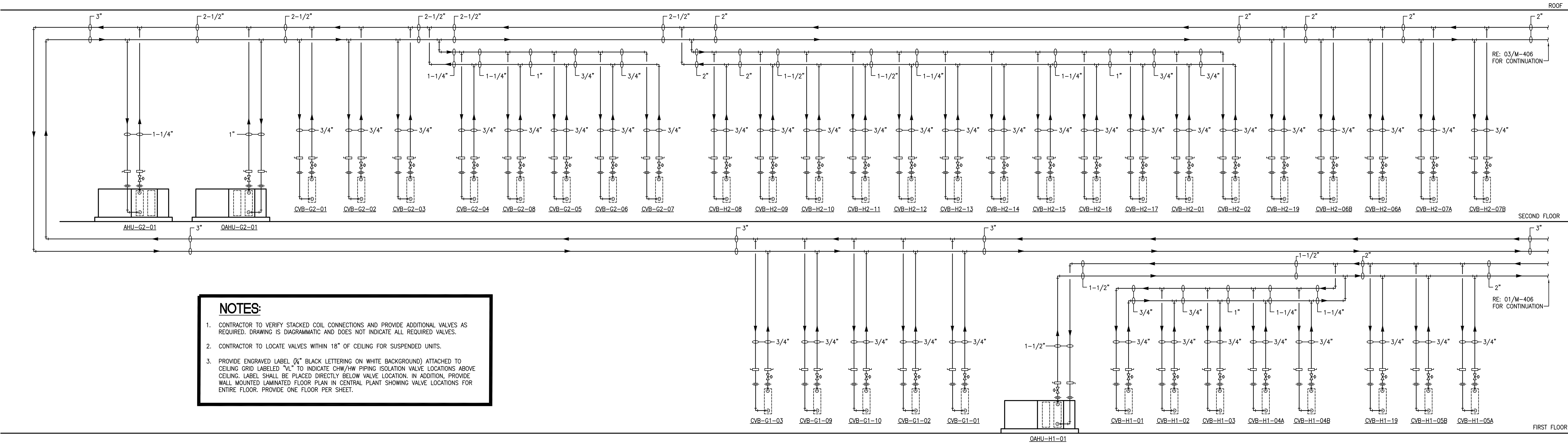
No.	Description	Date
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

ISSUE FOR PROPOSAL

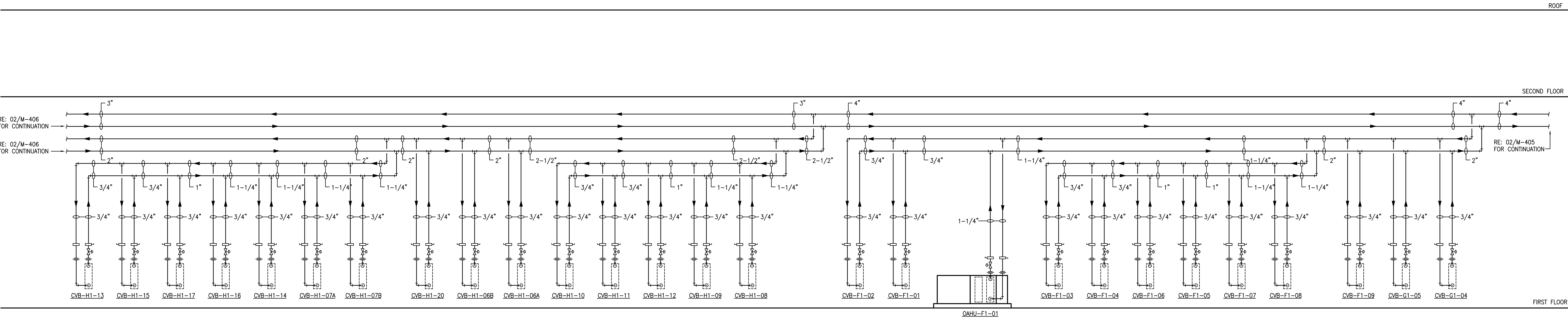
BUILDING NUMBER

MECHANICAL
CHILLED WATER
PIPING DIAGRAM - JH

M-404
ADD-5
PKG-1



- NOTES:**
- CONTRACTOR TO VERIFY STACKED COIL CONNECTIONS AND PROVIDE ADDITIONAL VALVES AS REQUIRED. DRAWING IS DIAGRAMMATIC AND DOES NOT INDICATE ALL REQUIRED VALVES.
 - CONTRACTOR TO LOCATE VALVES WITHIN 18" OF CEILING FOR SUSPENDED UNITS.
 - PROVIDE ENGRAVED LABEL (1/4" BLACK LETTERING ON WHITE BACKGROUND) ATTACHED TO CEILING GRID LABELED "VL" TO INDICATE CHW/HW PIPING ISOLATION VALVE LOCATIONS ABOVE CEILING. LABEL SHALL BE PLACED DIRECTLY BELOW VALVE LOCATION. IN ADDITION, PROVIDE WALL MOUNTED LAMINATED FLOOR PLAN IN CENTRAL PLANT SHOWING VALVE LOCATIONS FOR ENTIRE FLOOR. PROVIDE ONE FLOOR PER SHEET.



ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

PKB Architects, Inc.
PKB.com

CIVIL

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

IBeam ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

EDGE LAND

FOOD SERVICE

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

FOOD SERVICE

ACOUSTICS

11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0808 P
TX Firm BR 1608

BAI

LEAF ENGINEERS

4755 BARROW BLVD
HOUSTON, TX 77056
713-965-0808 P
TX Firm BR 1608

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON

Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS

MITAL J. PATEL

111622

09/15/2023

LEAF ENGINEERS

F-16872

CLIENT

ANGLETON ISD

DATE

09/15/2023

PROJECT NUMBER

220346

DRAWING HISTORY

No.	Description	Date
ADD-5	ADDENDUM 5 - PACKAGE 1	10/13/2023
PNS-1		

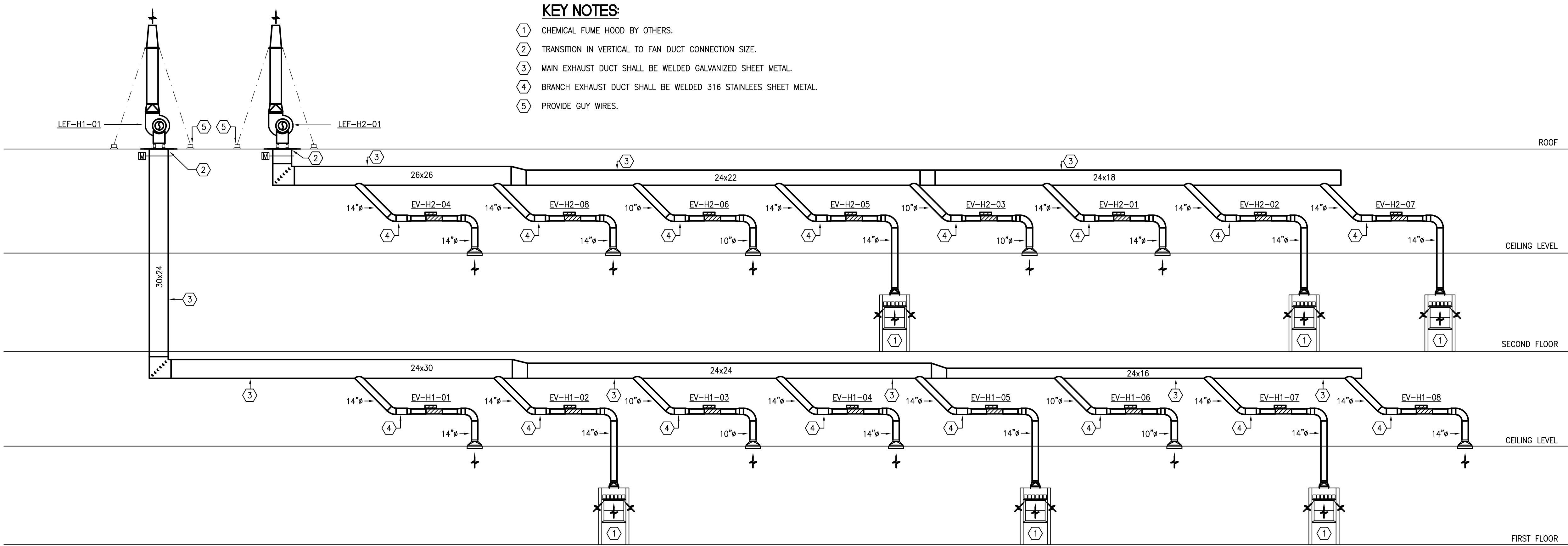
ISSUE FOR PROPOSAL

BUILDING NUMBER

MECHANICAL HEATING WATER PIPING DIAGRAM - JH

M-406

ADD-5 PKG-1



1 SCIENCE LAB MECHANICAL EXHAUST RISER DIAGRAM
SCALE: NONE

ARCHITECT

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm BR 1608

PKB Architects, Inc.
PKB.com

CIVIL

11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm C 1807

DIG ENGINEERS
DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm E 1807

LEAF ENGINEERS
LEAF ENGINEERS

STRUCTURAL

11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0608 P

Kubala ENGINEERS
Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

BEAM ENGINEERS
BEAM ENGINEERS

LANDSCAPE

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-0608 P

EDGE LAND
EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
20250 LAMAR BLVD STE 200
HOUSTON, TX 77058
281-355-2332 F

FOOD SERVICE

ACOUSTICS

BAI
4725 BARBON BLVD
HOUSTON, TX 77059
281-813-8018 F

BAI

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 1

Address Line 1
Address Line 2
ISSUE FOR PROPOSAL

ANGLETON
INDEPENDENT SCHOOL DISTRICT

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
09/15/2023
LEAF ENGINEERS
F-18672

CLIENT
ANGLETON ISD

DATE
09/15/2023

PROJECT NUMBER
220348

DRAWING HISTORY

No.	Description	Date
ADD-5 PKG-1	ADDENDUM 5 - PACKAGE 1	10/13/2023

ISSUE FOR PROPOSAL

BUILDING NUMBER

MECHANICAL
EXHAUST RISER
DIAGRAM

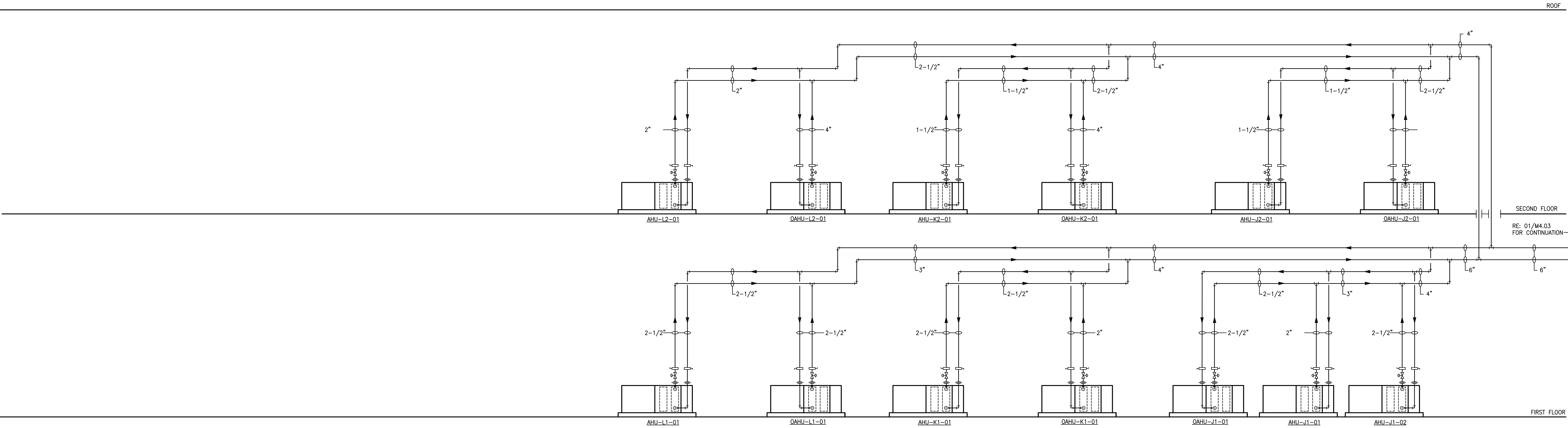
M-407

ADD-5
PKG-1

- NOTES:
1. CONTRACTOR TO VERIFY STACKED COIL CONNECTIONS AND PROVIDE ADDITIONAL VALVES AS REQUIRED. DRAWING IS DIAGMMATIC AND DOES NOT INDICATE ALL REQUIRED VALVES.

2. CONTRACTOR TO LOCATE VALVES WITHIN 18" OF CEILING FOR SUSPENDED UNITS.

3. PROVIDE ENGRAVED LABEL (1/4" BLACK LETTERING ON WHITE BACKGROUND) ATTACHED TO CEILING GRID LABELED "VL" TO INDICATE CHW/HW PIPING ISOLATION VALVE LOCATIONS ABOVE CEILING. LABEL SHALL BE PLACED DIRECTLY BELOW VALVE LOCATION. IN ADDITION, PROVIDE WALL MOUNTED LAMINATED FLOOR PLAN IN CENTRAL PLANT SHOWING VALVE LOCATIONS FOR ENTIRE FLOOR. PROVIDE ONE FLOOR PER SHEET.



01

MECHANICAL CHILLED WATER PIPING DIAGRAM

SCALE: NONE

ARCHITECT

PBK Architects, Inc.
HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
713-961-4571 F
TX Firm BR 1608
PBK.com

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 19th Fl
Houston, TX 77046
565-355-9039 F

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-9208 P 713-961-4571 F
TX Firm L 18673

LEAF ENGINEERS

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 19th Fl
Houston, TX 77046
713-595-8953 F

Kubala

BEAM

11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-965-3303 F

BEAM

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd Fl
Houston, TX 77046
713-485-5381 F

EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
30255 LAMARQUE DR
WILLIAMS, TX 77580
281-355-2332 F

FD

ACOUSTICS

BAI
4725 BARROW BLVD
HOUSTON, TX 77059
281-813-8018 P

BAI

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 2

25455 FM 921
ANGLETON, TX 77515
ISSUE FOR PROPOSAL

ANGLETON
INDEPENDENT SCHOOL DISTRICT

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD

DATE
01/12/2024

PROJECT NUMBER
220348

DRAWING HISTORY

No.	Description	Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

MECHANICAL
CHILLED WATER
PIPING DIAGRAM - ES

M-408

MODULAR INDOOR CENTRAL-STATION AIR-HANDLING UNIT SCHEDULE																																						
DESIGNATION	SERVICE	TYPE	ARRANGEMENT	MANUFACTURER	MODEL	DIMENSIONS (L x W x H) INCHES	OPERATING WEIGHT (LBS.)	SEE NOTE	BLOWER DATA										COOLING COIL DATA										HEATING COIL DATA									
									TOTAL CFM	OUTSIDE AIR CFM		EST. EXT. SP. (IN. WG.)	MAX. ALLOWABLE TOTAL BRAKE H.P.	MOTOR QTY / MAX. MOTOR H.P. (EACH)	VARIABLE FREQUENCY DRIVE H.P.	TYPE	VOLTAGE	CFM OVER COIL	MAX. FACE VELOCITY (FPM)	SENSIBLE BTUH	TOTAL BTUH	EAT (°F DB)	EAT (°F WB)	LAT (°F DB)	GPM	EWT (°F DB)	LWT (°F DB)	CFM OVER COIL	MAX. FACE VELOCITY (FPM)	TOTAL BTUH	EAT (°F DB)	LAT (°F DB)	GPM	EWT (°F DB)	LWT (°F DB)			
										MAX	MIN																											
AHJL-A1-01	ES - LIBRARY	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	139" x 72" x 47"	3,200	1-11-15	7,000	1,000	300	1.0	6.60	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	7,000	500	173,880	226,716	78°F	69°F	59°F	28	42°F	58°F	7,000	750	189,000	60°F	85°F	9	140°F	100°F			
AHJL-A1-02	ES - GYM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	151" x 72" x 47"	3,400	1-11-13,15	6,450	1,400	420	1.2	6.30	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	6,450	500	160,218	208,903	78°F	69°F	59°F	26	42°F	58°F	6,450	750	174,150	60°F	85°F	9	140°F	100°F			
AHJL-A1-03	ES - MAIN CORRIDOR	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	140" x 54" x 40"	2,200	1-11-15	3,500	500	150	1.2	3.40	1 / 5.0	5	DIRECT DRIVE - PF	480 / 3 / 60	3,500	500	86,940	113,358	78°F	69°F	59°F	14	42°F	58°F	3,500	750	94,500	60°F	85°F	5	140°F	100°F			
AHJL-B1-01	ES - DINING COMMONS	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	154" x 79" x 60"	4,400	1-11,13,15	10,750	2,950	885	1.5	10.30	2 / 7.5	15	DIRECT DRIVE - PF	480 / 3 / 60	10,750	500	287,030	348,171	78°F	69°F	59°F	44	42°F	58°F	10,750	750	290,250	60°F	85°F	15	140°F	100°F			
QAHJL-A1-01	AHJL-A1-01, AHJL-A1-02, AHJL-A1-03 & AHJL-B1-01	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	149" x 107" x 47"	3,900	1-10,12-15	5,850	5,850	1,755	0.8	4.80	2 / 3.0	7 / 12	DIRECT DRIVE - PF	480 / 3 / 60	5,850	500	259,038	532,724	90°F	80°F	59°F	67	42°F	58°F	5,850	750	221,130	20°F	59°F	11	140°F	100°F			
AHJL-B1-04	JH - DRAMA CLASSROOM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	135" x 54" x 40"	2,200	1-11-15	3,125	590	177	1.0	2.50	1 / 3.0	3	DIRECT DRIVE - PF	480 / 3 / 60	3,125	500	77,625	101,213	78°F	69°F	59°F	13	42°F	58°F	3,125	750	84,375	60°F	85°F	4	140°F	100°F			
AHJL-B1-05	JH - CHOIR ROOM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	140" x 54" x 40"	2,200	1-11-15	3,900	650	195	1.0	3.90	1 / 5.0	5	DIRECT DRIVE - PF	480 / 3 / 60	3,900	500	96,876	126,313	78°F	69°F	59°F	16	42°F	58°F	3,900	750	105,300	60°F	85°F	5	140°F	100°F			
AHJL-B1-06	JH - BAND HALL	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	130" x 72" x 47"	3,200	1-11-15	6,550	1,150	345	1.0	6.00	2 / 3.0	7 / 12	DIRECT DRIVE - PF	480 / 3 / 60	6,550	500	162,702	212,141	78°F	69°F	59°F	27	42°F	58°F	6,550	750	176,850	60°F	85°F	9	140°F	100°F			
AHJL-B1-07	JH - DANCE / CHEER GYM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	135" x 54" x 40"	2,200	1-11-15	3,300	800	240	1.0	2.80	1 / 3.0	3	DIRECT DRIVE - PF	480 / 3 / 60	3,300	500	81,972	106,860	78°F	69°F	59°F	13	42°F	58°F	3,300	750	89,100	60°F	85°F	4	140°F	100°F			
AHJL-B1-08	JH - DINING COMMONS	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	147" x 86" x 60"	4,800	1-11-15	11,500	3,250	975	1.0	8.50	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	11,500	500	285,960	372,462	78°F	69°F	59°F	47	42°F	58°F	11,500	750	310,500	60°F	85°F	16	140°F	100°F			
AHJL-B1-09	JH - DINING COMMONS	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	147" x 86" x 60"	4,800	1-11-15	11,500	3,250	975	1.0	8.50	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	11,500	500	285,960	372,462	78°F	69°F	59°F	47	42°F	58°F	11,500	750	310,500	60°F	85°F	16	140°F	100°F			
AHJL-B1-10	MAIN KITCHEN	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	155" x 105" x 60"	5,500	1-11,13,15	15,050	8,200	2,460	1.0	11.50	2 / 7.5	15	DIRECT DRIVE - PF	480 / 3 / 60	15,050	500	373,842	487,439	78°F	69°F	59°F	61	42°F	58°F	15,050	750	406,500	60°F	85°F	20	140°F	100°F			
AHJL-B1-16	JH - CORRIDOR	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	142" x 67" x 40"	2,600	1-11-15	4,470	1,200	360	1.0	3.60	1 / 5.0	5	DIRECT DRIVE - PF	480 / 3 / 60	4,470	500	111,035	144,774	78°F	69°F	59°F	18	42°F	58°F	4,470	750	120,690	60°F	85°F	6	140°F	100°F			
AHJL-B1-06	JH - PRACTICE GYM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	150" x 105" x 60"	5,500	1-11-15	14,500	3,400	1,020	1.2	11.20	2 / 7.5	15	DIRECT DRIVE - PF	480 / 3 / 60	14,500	500	360,180	469,626	78°F	69°F	59°F	59	42°F	58°F	14,500	750	391,500	60°F	85°F	20	140°F	100°F			
AHJL-D1-01	JH - LOCKERS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	106" x 105" x 60"	4,200	1-10-15	15,700	7,000	7,000	1.5	12.40	2 / 7.5	15	DIRECT DRIVE - PF	480 / 3 / 60	15,700	500	389,988	508,492	78°F	69°F	59°F	64	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-D1-02	JH - WEIGHT ROOM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	140" x 67" x 40"	2,500	1-11-15	4,100	1,000	300	1.5	4.10	1 / 5.0	5	DIRECT DRIVE - PF	480 / 3 / 60	4,100	500	101,844	132,791	78°F	69°F	59°F	17	42°F	58°F	4,100	750	110,700	60°F	85°F	6	140°F	100°F			
AHJL-D1-03	JH - COMPETITION GYM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	145" x 86" x 60"	4,500	1-11-15	11,000	5,300	1,590	1.0	7.50	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	11,000	500	273,240	356,268	78°F	69°F	59°F	45	42°F	58°F	11,000	750	297,000	60°F	85°F	15	140°F	100°F			
AHJL-D1-02	JH - COMPETITION GYM	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	145" x 86" x 60"	4,500	1-11-15	11,000	5,300	1,590	1.0	7.50	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	11,000	500	273,240	356,268	78°F	69°F	59°F	45	42°F	58°F	11,000	750	297,000	60°F	85°F	15	140°F	100°F			
AHJL-E1-01	JH - AREA 'E' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	111" x 105" x 60"	4,500	1-10-15	14,000	4,100	2,985	1.5	10.20	2 / 7.5	15	DIRECT DRIVE - PF	480 / 3 / 60	14,000	500	347,760	453,432	78°F	69°F	59°F	57	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-E1-02	JH - AREA 'E' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	110" x 87" x 60"	3,800	1-10-15	11,800	3,100	2,015	1.5	8.50	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	11,800	500	293,112	382,178	78°F	69°F	59°F	48	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-F1-01	JH - ADMIN AREA	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	107" x 86" x 60"	3,300	1-10-15	10,470	1,300	790	1.5	6.30	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	10,470	500	260,075	339,102	78°F	69°F	59°F	42	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-G1-01	JH - AREA 'G' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	110" x 87" x 60"	3,600	1-10-15	12,125	2,500	1,500	1.5	8.90	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	12,125	500	301,185	392,705	78°F	69°F	59°F	49	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-H1-01	JH - AREA 'H' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	110" x 87" x 60"	3,600	1-10-15	12,550	3,100	2,635	1.5	9.40	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	12,550	500	311,742	406,469	78°F	69°F	59°F	51	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-H1-02	JH - AREA 'H' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	110" x 105" x 60"	4,300	1-10-15	13,750	4,100	3,485	1.5	9.90	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	13,750	500	341,550	445,335	78°F	69°F	59°F	56	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-G1-01	JH - LIBRARY	SINGLE ZONE VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	139" x 72" x 47"	3,200	1-11-15	6,600	1,000	300	1.0	6.10	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	6,600	500	163,944	213,761	78°F	69°F	59°F	27	42°F	58°F	6,600	750	178,200	60°F	85°F	9	140°F	100°F			
AHJL-G1-02	JH - AREA 'G' CLASSROOMS & OFFICES	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	107" x 86" x 60"	3,200	1-10-15	8,875	2,000	600	1.5	8.40	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	8,875	500	220,455	287,444	78°F	69°F	59°F	36	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-H1-01	JH - AREA 'H' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	111" x 105" x 60"	4,600	1-10-15	14,300	4,140	3,519	1.5	10.50	2 / 7.5	15	DIRECT DRIVE - PF	480 / 3 / 60	14,300	500	355,212	463,148	78°F	69°F	59°F	58	42°F	58°F	-	-	-	-	-	-	-	-			
AHJL-H1-02	JH - AREA 'H' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	110" x 105" x 60"	4,300	1-10-15	12,800	3,200	2,720	1.5	8.90	2 / 5.0	10	DIRECT DRIVE - PF	480 / 3 / 60	12,800	500	317,952	414,566	78°F	69°F	59°F	52	42°F	58°F	-	-	-	-	-	-	-	-			
QAHJL-A1-01	AHJL-A1-01, AHJL-A1-02, AHJL-A1-03 & AHJL-A1-07	SINGLE DUCT VAV	HORIZONTAL DRAIN-THRU	CARRIER	39AN	150" x 54" x 40"	2,500	1-10,12-15	3,190	3,190	957	0.8	2.40	1 / 3.0	3	DIRECT DRIVE - PF	480 /																					

ISSUE FOR PROPOSAL

HVAC FANS SCHEDULE												
DESIGNATION	LOCATION	SERVICE	MANUFACTURER	MODEL NUMBER	NOTES	WEIGHTS (LBS)	FAN DATA					
							TYPE	DRIVE	CFM	STATIC PRESSURE (" W.G.)	MOTOR HP (MIN.)	FRPM (MAX.)
KEF-01	ROOF	KITCHEN HOOD	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	2,770	1.50	2	1,460
KEF-02	ROOF	KITCHEN HOOD	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	2,770	1.50	2	1,460
KEF-03	ROOF	KITCHEN HOOD	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	2,770	1.50	2	1,460
KEF-04	ROOF	KITCHEN HOOD	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	2,770	1.50	2	1,460
KEF-05	ROOF	KITCHEN HOOD	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	1,470	1.50	1	1,577
DEF-01	ROOF	DISHWASHER HOOD	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	1,200	1.50	12	1,515
EF-A1-01	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	200	0.75	14	1,515
EF-A1-02	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	400	0.75	16	1,653
EF-A1-03	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	1,000	0.75	14	1,613
EF-B1-01	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	1,200	0.75	12	1,387
EF-B1-02	ROOF	CONCESSIONS	GREENHECK	CUE	1-5,10	300	CENTRIFUGAL	DIRECT	300	0.50	110	1,362
EF-B1-03	ROOF	BOILER ROOM	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	2,000	0.50	34	1,310
EF-B1-04	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	425	0.50	16	1,406
CF-C1-01	WALL MOUNTED	WEIGHT ROOM	GREENHECK	ICD-30	1,9,10	75	AXIAL	DIRECT	9,000	-	12	1,075
CF-C1-02	WALL MOUNTED	WEIGHT ROOM	GREENHECK	ICD-30	1,9,10	75	AXIAL	DIRECT	9,000	-	12	1,075
CF-C1-03	WALL MOUNTED	WEIGHT ROOM	GREENHECK	ICD-30	1,9,10	75	AXIAL	DIRECT	9,000	-	12	1,075
CF-C1-04	WALL MOUNTED	WEIGHT ROOM	GREENHECK	ICD-30	1,9,10	75	AXIAL	DIRECT	9,000	-	12	1,075
CF-C1-05	ROOF	WEIGHT ROOM	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	1,000	0.75	14	1,613
SF-D1-01	PLENUM	STORAGE ROOM	GREENHECK	SQ	1-3,7	100	CENTRIFUGAL	DIRECT	200	0.50	110	1,551
EF-E1-01	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	1,000	0.75	14	1,262
EF-E1-02	ROOF	SCIENCE LABS	GREENHECK	CUE	1-5,8	300	CENTRIFUGAL	DIRECT	900 / 1,300	0.50	12	1,221
EF-E1-03	ROOF	PREP ROOM	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	300	0.50	110	1,362
EF-E1-04	ROOF	SCIENCE LABS	GREENHECK	CUE	1-5,8	300	CENTRIFUGAL	DIRECT	900 / 1,300	0.50	12	1,221
EF-E1-05	ROOF	PREP ROOM	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	300	0.50	110	1,362
EF-E1-06	ROOF	SCIENCE LABS	GREENHECK	CUE	1-5,8	300	CENTRIFUGAL	DIRECT	900 / 1,300	0.50	12	1,221
EF-E1-07	ROOF	CUSTODIAL	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	200	0.50	110	1,503
EF-F1-01	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	700	0.75	14	1,530
EF-G1-01	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	375	0.75	16	1,640
EF-H1-01	PLENUM	CTE WORKSHOP	GREENHECK	SQ	1-3,7	100	CENTRIFUGAL	DIRECT	200	0.50	110	1,551
EF-H1-01	PLENUM	RESTROOMS	GREENHECK	SQ	1-3	100	CENTRIFUGAL	DIRECT	1,000	0.75	12	1,359
EF-H1-02	PLENUM	KLN ROOM	GREENHECK	SQ	1-3,7	100	CENTRIFUGAL	DIRECT	300	0.75	14	1,522
EF-H1-03	PLENUM	ART CLASSROOM	GREENHECK	SQ	1-3,10	100	CENTRIFUGAL	DIRECT	750	0.75	12	2,061
EF-I1-01	ROOF	ART ROOM	GREENHECK	CUE	1-5,7	300	CENTRIFUGAL	DIRECT	300	0.50	110	1,362
EF-I1-02	ROOF	ART CLASSROOM	GREENHECK	CUE	1-5,10	300	CENTRIFUGAL	DIRECT	750	0.50	14	1,410
EF-J1-03	ROOF	RESTROOMS	GREENHECK	CUE	1-6	300	CENTRIFUGAL	DIRECT	1,000	0.75	14	1,613
SF-B1-01	ROOF	BOILER ROOM - SUPPLY	GREENHECK	RSF	1-5,7	400	CENTRIFUGAL	BELT	1,200	0.50	13	850
EF-S-01	PLENUM	ATHLETICS STORAGE BLDG.	GREENHECK	SQ	1,3,7	100	CENTRIFUGAL	DIRECT	2,000	0.75	34	1,381
EF-S-02	CEILING	ATHLETICS STORAGE BLDG.	GREENHECK	SP	1,11,12	50	CENTRIFUGAL	DIRECT	150	0.50	51 watts	800
EF-S-03	CEILING	ATHLETICS STORAGE BLDG.	GREENHECK	SP	1,11,12	50	CENTRIFUGAL	DIRECT	150	0.50	51 watts	900
1. REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL DATA.												
2. REFERENCE SPECIFICATIONS FOR SEQUENCE OF OPERATIONS.												
3. FAN SHALL BE PROVIDED WITH GREENHECK VARI-GREENS™ CONTROL AND ECM MOTOR. STARTER SHALL BE PROVIDED BY FAN MANUFACTURER. JUNCTION BOX AND VAR-GREEN TRANSFORMER SHALL BE FACTORY MOUNTED AND WIRED.												
4. REFERENCE ARCHITECTURAL DRAWINGS FOR ROOF CURB DETAIL.												
5. PROVIDE UPBLAST FAN AND DESIGNED TO WITHSTAND HIGH WIND SPEEDS UP TO 140 MPH.												
6. KITCHEN EXHAUST FAN TO BE INTERLOCKED WITH ASSOCIATED KITCHEN HOOD.												
7. INTERLOCK FAN WITH THERMOSTAT SET TO 80° (ADJUSTABLE).												
8. FAN SHALL BE PROVIDED WITH 2-SPEED MOTOR. GENERAL EXHAUST CFM AND EMERGENCY PURGE CFM.												
9. PROVIDE WITH 2-SPEED FAN, TOTALLY ENCLOSED AND PERMANENTLY LUBRICATED MOTOR, OSCILLATING FAN, WITH WIRE GUARDS, OSHA COMPLIANT, 30" IMPELLER DIAMETER AND HEAVY DUTY MOUNTING BRACKET.												
10. PROVIDE ON/OFF SWITCH FOR LOCAL CONTROL.												
11. INTERLOCK EXHAUST FAN TO OCCUPANCY SENSOR WITH 15 MINUTE TIME DELAY. REFER TO ELECTRICAL DRAWINGS.												
12. PROVIDE LOW SOUND AND QUIET OPERATION CEILING MOUNTED FAN. PROVIDE WITH ALUMINUM, POWDER COATED GRILLE AND BACKRAFT DAMPERS.												

HIGH PLUME EXHAUST FAN SCHEDULE												
DESIGNATION	LOCATION	SERVICE	MANUFACTURER	MODEL NUMBER	NOTES	WEIGHT (LBS)	FAN DATA					
							TYPE	DRIVE	CFM	MIN. CFM	STATIC PRESSURE (" W.G.)	MAX. MOTOR HP.
HEF-H1-01	ROOF	FIRST FLOOR - SCIENCE LABS	GREENHECK	USF	1-7	650	CENTRIFUGAL	BELT	6,830	5,630	2.00	5
HEF-H1-02	ROOF	SECOND FLOOR - SCIENCE LABS	GREENHECK	USF	1-7	650	CENTRIFUGAL	BELT	6,830	5,630	1.50	5
1. REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL DATA.												
2. REFERENCE SPECIFICATIONS FOR SEQUENCE OF OPERATIONS.												
3. REFERENCE ARCHITECTURAL DRAWINGS FOR ROOF CURB DETAIL.												
4. PROVIDE VARIABLE SPEED DRIVE. REFER TO FLOOR PLAN FOR EXACT LOCATION.												
5. PROVIDE FAN WITH HI-PRO POLYESTER COATING.												
6. PROVIDE FIELD INSTALLED 316 STAINLESS STEEL STACK UP TO 7'-0" ABOVE THE ROOF. PROVIDE GUY WIRES. REFER TO DETAIL.												
7. FAN SHALL BE RATED FOR 155 MPH WIND SPEED.												

DIFFUSER SCHEDULE				
DESIGNATION	MODEL NUMBER	NOISE CRITERIA (NC)	DESCRIPTION	
A	TITUS TODA	25	24x24 MODULE SIZE, LAY-IN BORDER TYPE, 18"x18" NECK SIZE WITH ROUND DUCT CONNECTION SIZED AS INDICATED ON PLANS. NO OPPOSED BLADE DAMPER, ALL STEEL CONSTRUCTION.	
B	TITUS PAR	25	24x24 MODULE SIZE, LAY-IN BORDER TYPE, 22"x22" NECK SIZE UNLESS NOTED OTHERWISE. NO OPPOSED BLADE DAMPER, ALL STEEL CONSTRUCTION.	
C	TITUS 300RS	25	DOUBLE DEFLECTION, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO SHORT DIMENSION, NO OPPOSED BLADE DAMPER, SURFACE MOUNTING BORDER TYPE WITH COUNTERSUNK HOLES. ALL STEEL CONSTRUCTION.	
D	TITUS 33RL	25	HEAVY DUTY BAR GRILLE, 1/2" BLADE SPACING, 38" DEFLECTION, 16 GAUGE BORDER, 14 GAUGE BLADES, BLADES PARALLEL TO LONG DIMENSION, ALL STEEL CONSTRUCTION.	
E	TITUS TMRA	25	FOUR CONE WITH VERTICAL TO HORIZONTAL ADJUSTABLE DISCHARGE, ALL STEEL CONSTRUCTION.	
F	TITUS 350 RL-SS	25	3/4" BLADE SPACING, 45° FIXED DEFLECTION, BLADES PARALLEL TO LONG DIMENSION, NO OPPOSED BLADE DAMPER, SURFACE MOUNTING BORDER TYPE WITH COUNTERSUNK HOLES. ALL 304 STAINLESS STEEL CONSTRUCTION.	
G	TITUS CT-480	25	48" LONG, 6" WIDE SIDEWALL GRILLE, ALUMINUM CONSTRUCTION, 1/8" BARS WITH 0° DEFLECTION, 1/4" BAR SPACING. PROVIDE FRAME AND BORDER TYPE 3 WITH CONCEALED FASTENING.	
H	TITUS DL	25	HIGH CAPACITY LONG THROW DRUM LOUVER	
J	TITUS 300 RS-SS	25	DOUBLE DEFLECTION, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO SHORT DIMENSION, NO OPPOSED BLADE DAMPER, SURFACE MOUNTING BORDER TYPE WITH COUNTERSUNK HOLES. ALL 304 STAINLESS STEEL CONSTRUCTION.	
K	TITUS CT-480	25	36" LONG, 6" WIDE SIDEWALL GRILLE, ALUMINUM CONSTRUCTION, 1/8" BARS WITH 0° DEFLECTION, 1/4" BAR SPACING. PROVIDE FRAME AND BORDER TYPE 3 WITH CONCEALED FASTENING.	
L	TITUS CT-480	25	24" LONG, 6" WIDE SIDEWALL GRILLE, ALUMINUM CONSTRUCTION, 1/8" BARS WITH 0° DEFLECTION, 1/4" BAR SPACING. PROVIDE FRAME AND BORDER TYPE 3 WITH CONCEALED FASTENING.	
M	TITUS TODA-AA	25	24x24 MODULE SIZE, LAY-IN BORDER TYPE, 18"x18" NECK SIZE WITH ROUND DUCT CONNECTION SIZED AS INDICATED ON PLANS. NO OPPOSED BLADE DAMPER, ALL ALUMINUM CONSTRUCTION.	
N	TITUS PAR-AA	25	24x24 MODULE SIZE, LAY-IN BORDER TYPE, 22"x22" NECK SIZE UNLESS NOTED OTHERWISE. NO OPPOSED BLADE DAMPER, ALL ALUMINUM CONSTRUCTION.	
O	TITUS FL-20-JT	25	2" SLOOT WIDTH 1-SLOOT, 4-2" CONTINUOUS LINEAR FLOW BAR WITH FRPP PLENUM AND PATTERN CONTROLLER, BORDER TYPE 22.	
P	TITUS TODA	25	12"x12" MODULE SIZE, LAY-IN BORDER TYPE, 9"x9" NECK SIZE WITH ROUND DUCT CONNECTION SIZED AS INDICATED ON PLANS. NO OPPOSED BLADE DAMPER, ALL STEEL CONSTRUCTION.	
Q	TITUS PAR	25	12"x12" MODULE SIZE, LAY-IN BORDER TYPE, 10"x10" NECK SIZE UNLESS NOTED OTHERWISE. NO OPPOSED BLADE DAMPER, ALL STEEL CONSTRUCTION.	

1. ALL DIFFUSER DESIGNATIONS MAY NOT BE USED ON PROJECT.

2. DIFFUSERS IN NATATORIUMS, SHOWER ROOMS, ADJACENT DRESSING ROOMS, DISHWASH ROOMS, AND THERAPY POOL ROOMS SHALL BE ALL ALUMINUM CONSTRUCTION.

3. PROVIDE WITH THIRST CAP, CONCEALED, ABOVE IN GYP OR CONCRETE SLABS.

4. ALL CEILING MOUNTED SUPPLY, RETURN & EXHAUST AIR DEVICES ABOVE NON-RETURN PLENUM SHALL BE PROVIDED WITH R-6 MOLDED INSULATION BLANKET.

HVAC GRAVITY VENTILATORS SCHEDULE									
DESIGNATION	SERVICE	MANUFACTURER	MODEL	CFM	MAX. THROAT AREA (FT²) / THROAT SIZE (DIA./LxW)	P.D. (INCHES WxG)	NOTES		
HL-A1-01	QAHAJA1-01	GREENHECK	FGI	5,889	12.25' 42" x 42"	0.08			12.4
HL-A1-02	QAHAJA1-02	GREENHECK	FGI	3,190	9.00' 36" x 36"	0.08			12.4
HL-B1-01	QAHAJA1-01	GREENHECK	FGI	6,500	12.25' 42" x 42"	0.08			12.4
HL-B1-02	QAHAJA1-02	GREENHECK	FGI	12,400	17.50' 42" x 60"	0.08			12.4
HL-C1-01	QAHAJA1-01	GREENHECK	FGI	6,500	12.25' 42" x 42"	0.08			12.4
HL-D1-01	QAHAJA1-01	GREENHECK	FGI	16,000	17.50' 42" x 60"	0.08			12.4
HL-E1-01	QAHAJA1-01	GREENHECK	FGI	7,200	12.25' 42" x 42"	0.08			12.4
HL-F1-01	QAHAJA1-01	GREENHECK	FGI	3,800	9.00' 36" x 36"	0.08			12.4
HL-G1-01	QAHAJA1-01	GREENHECK	FGI	7,200	12.25' 42" x 42"	0.08			12.4
HL-H1-01	QAHAJA1-01	GREENHECK	FGI	3,000	9.00' 36" x 36"	0.08			12.4
HL-I1-01	QAHAJA1-01	GREENHECK	FGI	7,340	12.25' 42" x 42"	0.08			12.4
HL-J1-01	QAHAJA1-01	GREENHECK	FGR	8,000	12.25' 42" x 42"	0.08			12.4
RL-B1-01	QAHAJA1-01	GREENHECK	FGR	8,400	12.25' 42" x 42"	0.08			12.4
HL-A1-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
HL-A1-02	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
HL-A1-03	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
HL-B1-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
HL-B1-02	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
HL-B1-03	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
HL-C1-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
HL-D1-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
RL-F1-01	RANGE HOOD	GREENHECK	FGR	310	1.00' / 12" x 12"	0.04			12.5
RL-G1-01	RANGE HOOD	GREENHECK	FGR	310	1.00' / 12" x 12"	0.04			12.5
RL-H1-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3
RL-H1-02	BUILDING RELIEF	GREENHECK	FGR	-	4.00' / 24"x24"	-			1-3

1. UNIT SHALL BE RATED FOR 150 MPH WIND SPEED.

2. PROVIDE BIRD SCREEN AND 12" PREFABRICATED ROOF CURB.

3. GRAVITY WEIGHTED DAMPER SET TO OPEN AT 0.15" W.G.

4. MAXIMUM THROAT VELOCITY SHALL NOT EXCEED 400 FPM.

5. PROVIDE WITH BACKDRAFT DAMPER.

MODULAR INDOOR CENTRAL-STATION AIR-HANDLING UNIT SCHEDULE - PACKAGE 2																																				
DESIGNATION	SERVICE	TYPE	ARRANGEMENT	MANUFACTURER	MODEL	DIMENSIONS (L x W x H) INCHES	OPERATING WEIGHT (LBS.)	SEE NOTE	BLOWER DATA										COOLING COIL DATA										HEATING COIL DATA							
									TOTAL CFM	OUTSIDE AIR CFM		EST. EXT. SP. (IN. WG.)	MAX. ALLOWABLE TOTAL BRAKE H.P.	MOTOR QTY / MAX. MOTOR H.P. (EACH)	VARIABLE FREQUENCY DRIVE H.P.	TYPE	VOLTAGE	CFM OVER COIL	MAX. FACE VELOCITY (FPM)	SENSIBLE BTUH	TOTAL BTUH	EAT (°F DB)	EAT (°F WB)	LAT (°F DB)	GPM	EWT (°F DB)	LWT (°F DB)	CFM OVER COIL	MAX. FACE VELOCITY (FPM)	TOTAL BTUH	EAT (°F DB)	LAT (°F DB)	GPM	EWT (°F DB)	LWT (°F DB)	
										MAX	MIN																									
ASHU-J1-01	ES - ADMIN AREA	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	101" x 67" x 47"	2,500	1-10-15	6,105	1,400	420	1.5	5.70	2 / 3.0		7 / 12	DIRECT DRIVE - FF	480 / 3 / 60	6,105	500	151,848	197,729	78°F	65°F	50°F	25	42°F	58°F	-	-	-	-	-	-	-	
ASHU-J1-02	ES - AREA 'Y' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	111" x 105" x 60"	4,600	1-10-15	14,400	4,100	1,230	1.5	10.70	2 / 7.5		15	DIRECT DRIVE - FF	480 / 3 / 60	14,400	500	357,896	466,387	78°F	65°F	50°F	58	42°F	58°F	-	-	-	-	-	-	-	
ASHU-K1-01	ES - AREA 'X' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	112" x 86" x 60"	3,900	1-10-15	11,855	3,400	1,020	1.5	8.80	2 / 5.0		10	DIRECT DRIVE - FF	480 / 3 / 60	11,855	500	294,478	383,960	78°F	65°F	50°F	48	42°F	58°F	-	-	-	-	-	-	-	
ASHU-L1-01	ES - AREA 'Y' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	105" x 105" x 60"	4,200	1-10-15	14,900	4,000	1,200	1.5	11.30	2 / 7.5		15	DIRECT DRIVE - FF	480 / 3 / 60	14,900	500	370,116	482,581	78°F	65°F	50°F	60	42°F	58°F	-	-	-	-	-	-	-	
ASHU-Z2-01	ES - AREA 'Y' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	105" x 80" x 60"	3,200	1-10-15	9,250	2,500	750	1.5	6.70	2 / 5.0		10	DIRECT DRIVE - FF	480 / 3 / 60	9,250	500	229,770	299,589	78°F	65°F	50°F	37	42°F	58°F	-	-	-	-	-	-	-	
ASHU-K2-01	ES - AREA 'X' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	105" x 80" x 60"	3,200	1-10-15	9,100	2,500	750	1.5	6.50	2 / 5.0		10	DIRECT DRIVE - FF	480 / 3 / 60	9,100	500	228,044	294,731	78°F	65°F	50°F	37	42°F	58°F	-	-	-	-	-	-	-	
ASHU-L2-01	ES - AREA 'Y' CLASSROOMS	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	105" x 80" x 60"	3,200	1-10-15	9,300	2,500	750	1.5	6.80	2 / 5.0		10	DIRECT DRIVE - FF	480 / 3 / 60	9,300	500	231,012	301,208	78°F	65°F	50°F	38	42°F	58°F	-	-	-	-	-	-	-	
DAHU-J1-01	ASHU-J1-01 & ASHU-J1-02	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	149" x 72" x 47"	3,500	1-10-12-15	5,500	5,500	1,650	0.8	4.30	2 / 3.0		7 / 12	DIRECT DRIVE - FF	480 / 3 / 60	5,500	500	243,540	500,852	96°F	80°F	50°F	63	42°F	58°F	5,500	750	207,900	20°F	59°F	10	140°F	100°F
DAHU-K1-01	ASHU-K1-01	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	150" x 67" x 40"	2,800	1-10-12-15	3,400	3,400	1,350	0.8	2.40	1 / 3.0		3	DIRECT DRIVE - FF	480 / 3 / 60	3,400	500	150,552	309,618	96°F	80°F	50°F	39	42°F	58°F	3,400	750	128,520	20°F	59°F	6	140°F	100°F
DAHU-L1-01	ASHU-L1-01	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	153" x 67" x 40"	3,000	1-10-12-15	4,000	4,000	1,600	0.8	3.30	1 / 5.0		5	DIRECT DRIVE - FF	480 / 3 / 60	4,000	500	177,120	364,256	96°F	80°F	50°F	46	42°F	58°F	4,000	750	151,200	20°F	59°F	8	140°F	100°F
DAHU-J2-01	ASHU-J2-01	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	151" x 54" x 40"	2,500	1-10-12-15	2,500	2,500	750	0.8	1.70	1 / 2.0		2	DIRECT DRIVE - FF	480 / 3 / 60	2,500	500	110,700	227,660	96°F	80°F	50°F	28	42°F	58°F	2,500	750	94,500	20°F	59°F	5	140°F	100°F
DAHU-K2-01	ASHU-K2-01	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	151" x 54" x 40"	2,500	1-10-12-15	2,500	2,500	750	0.8	1.70	1 / 2.0		2	DIRECT DRIVE - FF	480 / 3 / 60	2,500	500	110,700	227,660	96°F	80°F	50°F	28	42°F	58°F	2,500	750	94,500	20°F	59°F	5	140°F	100°F
DAHU-L2-01	ASHU-L2-01	SINGLE DUCT VAV	HORIZONTAL DRAW-THRU	CARRIER	39MN	151" x 54" x 40"	2,500	1-10-12-15	2,500	2,500	1,000	0.8	1.70	1 / 2.0		2	DIRECT DRIVE - FF	480 / 3 / 60	2,500	500	110,700	227,660	96°F	80°F	50°F	28	42°F	58°F	2,500	750	94,500	20°F	59°F	5	140°F	100°F
<div>1. REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS.</div> <div>2. ESTIMATED EXTERNAL STATIC PRESSURE INCLUDES LOSSES THROUGH DUCTWORK, AIR DEVICES, SOUND ATTENUATORS, ETC.</div> <div>3. AIR HANDLING UNIT INTERNAL STATIC PRESSURE SHALL INCLUDE LOSSES THROUGH COILS, CASING, INTERNAL DAMPERS, AND 0.75" W.G. FOR DIRTY FILTERS.</div> <div>4. COOLING COIL PRESSURE DROP THROUGH COIL SHALL NOT EXCEED 15 FT. AT SCHEDULED GPM.</div> <div>5. PROVIDE WALL MOUNTED VARIABLE FREQUENCY DRIVE. REFER TO PLANS FOR EXACT LOCATION.</div> <div>6. FAN CONSTRUCTION SHALL BE MINIMUM AMCA CLASS II.</div> <div>7. PROVIDE FACTORY MOUNTED AND WIRED EXTERNAL JUNCTION BOXES ON FAN SECTION. J-BOX SHALL ALLOW ELECTRICAL CONTRACTOR TO LAND POWER TO DEVICE WITHOUT PENETRATING THROUGH CABINET. FIELD INSTALLED JUNCTION BOXES ARE NOT ACCEPTABLE.</div> <div>8. PROVIDE FACTORY MOUNTED SHAFT GROUNDING KIT FOR AIR HANDLING UNIT MOTOR. NO EXCEPTIONS.</div> <div>9. PROVIDE WITH ANGLED FILTERS AND PERMANENT METAL FILTER FRAMES WITH MAXIMUM 2" THICK MERV 13 FILTER MEDIA.</div> <div>10. UNITS WITH MULTIPLE FANS AND MOTORS. PROVIDE FACTORY INSTALLED AND WIRED MOTOR OVERLOAD PANEL FOR CONNECTION TO A SINGLE VFD.</div> <div>11. PROVIDE HOT WATER COIL IN RE-HEAT POSITION.</div> <div>12. ALL COILS SHALL BE FULLY DIPPED AND BAKED (E-COAT) WITH UV TOP COAT.</div> <div>13. PROVIDE FACTORY MIXING BOX / OUTSIDE AIR PLENUM BOX. REFER TO DRAWINGS FOR OUTSIDE AIR AND RETURN AIR DUCT SIZES.</div> <div>14. PROVIDE HOT WATER COIL IN PRE-HEAT POSITION.</div> <div>15. SCHEDULE IS FOR REFERENCE ONLY. EQUIPMENT IS OWNER PURCHASED AND CONTRACTOR INSTALLED.</div>																																				

SERIES FAN-POWERED AIR TERMINAL UNITS WITH HOT WATER HEAT SCHEDULE - PACKAGE 2															
TAG	INLET SIZE	COOLING CFM		MIN	STATIC PRESSURE	INLET P.D.	CFM	HOT WATER HEATING COIL				VOLTAGE	(V / PH / HZ)	MANUFACTURER	MODEL
		MAX	CFM					TOTAL BTUH	EAT	LAT	GPM				
CVB-J1-01	10	715	215	1	0.3	715	750	19,955	60	85	1.0	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-02	10	975	293	1	0.3	975	750	26,325	60	85	1.3	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-03	10	905	272	1	0.3	905	750	24,435	60	85	1.2	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-04	8	550	165	1	0.3	550	750	14,850	60	85	0.7	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-05	8	590	177	1	0.3	590	750	15,000	60	85	0.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-06	12	1400	420	1	0.3	1400	750	37,800	60	85	1.9	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-07	10	900	270	1	0.3	900	750	24,300	60	85	1.2	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-08	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-09	10	800	240	1	0.3	800	750	21,600	60	85	1.1	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-10	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-11	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-12	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-13	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-14	12	1300	390	1	0.3	1300	750	35,100	60	85	1.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-15	12	1200	360	1	0.3	1200	750	32,400	60	85	1.6	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-16	12	1250	375	1	0.3	1250	750	33,750	60	85	1.7	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-17	12	1150	345	1	0.3	1150	750	31,050	60	85	1.6	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-18	12	1400	420	1	0.3	1400	750	37,800	60	85	1.9	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-19	8	600	180	1	0.3	600	750	16,200	60	85	0.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-20	10	950	285	1	0.3	950	750	25,650	60	85	1.3	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-J1-21	8	600	180	1	0.3	600	750	16,200	60	85	0.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-01	10	800	240	1	0.3	800	750	21,600	60	85	1.1	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-02	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-03	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-04	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-05	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-06	10	800	240	1	0.3	800	750	21,600	60	85	1.1	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-07	12	1400	420	1	0.3	1400	750	37,800	60	85	1.9	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-08A	12	1330	399	1	0.3	1330	750	35,910	60	85	1.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-08B	12	1250	375	1	0.3	1250	750	33,750	60	85	1.7	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-09	12	1050	315	1	0.3	1050	750	26,950	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-K1-10	12	1125	338	1	0.3	1125	750	30,375	60	85	1.5	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-01	12	1300	390	1	0.3	1300	750	35,100	60	85	1.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-02	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-03	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-04	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-05	10	1000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-06	12	1025	308	1	0.3	1025	750	27,675	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-07	14	1440	432	1	0.3	1440	750	38,880	60	85	1.9	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-08	12	1240	372	1	0.3	1240	750	33,480	60	85	1.7	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-09	12	1340	402	1	0.3	1340	750	36,180	60	85	1.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CVB-L1-10A	10	770	231	1	0.3	770	751	20,790	60	85	1.0	141 / 100	278 / 1 / 60	TITUS	DTFS-F
CVB-L1-10B	10	970	291	1	0.3	970	752	26,190	60	85	1.3	142 / 100	279 / 1 / 60	TITUS	DTFS-F
CVB-L1-11	12	1320	396	1	0.3	1320	753	35,640	60	85	1.8	143 / 100	280 / 1 / 60	TITUS	DTFS-F
CVB-L1-12	12	1210	363	1	0.3	1210	754	32,670	60	85	1.6	144 / 100	281 / 1 / 60	TITUS	DTFS-F
CVB-L1-13	12	1025	308	1	0.3	1025	755	27,675	60	85	1.4	145 / 100	282 / 1 / 60	TITUS	DTFS-F
<div>1. MAXIMUM NC LEVEL SHALL NOT EXCEED 35 AT 1 IN. STATIC PRESSURE.</div> <div>2. PROVIDE FACTORY MOUNTED INDUCED AIR INLET SOUND SOUND ATTENUATOR. REFER TO SERIES FLOW FAN POWERED VARIABLE VOLUME UNITS WITH HOT WATER HEAT DETAIL.</div> <div>3. PROVIDE FACTORY MOUNTED FUSED DISCONNECT SWITCH IN CONTROL PANEL.</div> <div>4. HOT WATER COILS SHALL BE 1 OR 2 ROWS AND A MAXIMUM OF 10 FINS PER INCH. WATER PRESSURE DROP SHALL NOT EXCEED 5 FT AT SCHEDULED GPM AND AIR PRESSURE DROP THROUGH THE COIL SHALL NOT EXCEED 0.24" W.G.</div> <div>5. COORDINATE WITH DRAWINGS FOR RIGHT OR LEFT-HAND CASING CONFIGURATION PRIOR TO ORDERING.</div>															

SERIES FAN-POWERED AIR TERMINAL UNITS WITH HOT WATER HEAT SCHEDULE - PACKAGE 2															
TAG	INLET SIZE	COOLING CFM		STATIC PRESSURE		CFM	HOT WATER HEATING COIL					VOLTAGE	(V / PH / HZ)	MANUFACTURER	MODEL
		MAX	MIN	INLET	UNIT P.D.		MAX FACE VELOCITY (FPM)	TOTAL BTUH	EAT	LAT	GPM				
CWB-02-01	10	800	240	1	0.3	800	750	21,600	60	85	1.1	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-02	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-03	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-04	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-05	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-06	12	1,100	330	1	0.3	1100	750	29,700	60	85	1.5	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-07	12	1,350	405	1	0.3	1350	750	36,450	60	85	1.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-08	10	725	218	1	0.3	725	750	19,575	60	85	1.0	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-09	12	1,275	383	1	0.3	1275	750	34,425	60	85	1.7	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-01	10	800	240	1	0.3	800	750	21,600	60	85	1.1	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-02	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-03	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-04	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-05	12	1,150	345	1	0.3	1150	750	31,050	60	85	1.6	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-06	10	800	240	1	0.3	800	750	21,600	60	85	1.1	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-07	12	1,350	405	1	0.3	1350	750	36,450	60	85	1.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-08	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-02-09	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-01	12	1,300	390	1	0.3	1300	750	35,100	60	85	1.8	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-02	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-03	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-04	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-05	10	1,000	300	1	0.3	1000	750	27,000	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-06	10	800	240	1	0.3	800	750	21,600	60	85	1.1	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-07	12	1,250	375	1	0.3	1250	750	33,750	60	85	1.7	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-08	10	900	270	1	0.3	900	750	24,300	60	85	1.2	140 / 100	277 / 1 / 60	TITUS	DTFS-F
CWB-12-09	12	1,050	315	1	0.3	1050	750	28,350	60	85	1.4	140 / 100	277 / 1 / 60	TITUS	DTFS-F
1. MAXIMUM NC LEVEL SHALL NOT EXCEED 30 AT 1 IN. STATIC PRESSURE.															
2. PROVIDE FACTORY MOUNTED INDUCED AIR INLET SOUND SOUND ATTENUATOR. REFER TO SERIES FLOW FAN POWERED VARIABLE VOLUME UNITS WITH HOT WATER HEAT DETAIL.															
3. PROVIDE FACTORY MOUNTED FUSED DISCONNECT SWITCH IN CONTROL PANEL.															
4. HOT WATER COILS SHALL BE 1 OR 2 ROWS AND A MAXIMUM OF 10 FINS PER INCH. WATER PRESSURE DROP SHALL NOT EXCEED 5 FT AT SCHEDULED GPM AND AIR PRESSURE DROP THROUGH THE COIL SHALL NOT EXCEED 0.24" W.G.															
5. COORDINATE WITH DRAWINGS FOR RIGHT OR LEFT-HAND CASING CONFIGURATION PRIOR TO ORDERING.															

HVAC FANS SCHEDULE - PACKAGE 2													
DESIGNATION	LOCATION	SERVICE	MANUFACTURER	MODEL NUMBER	NOTES	WEIGHTS (LBS)	FAN DATA						
							TYPE	DRIVE	CFM	STATIC PRESSURE (" W.G.)	MOTOR HP. (MIN.)	FRPM (MAX.)	VOLT. / Ø / HZ
FE-L1-01	ROOF	RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	1,200	0.75	1/2	1,395	120 / 1 / 60
FE-L1-02	ROOF	BOYS RR	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	400	0.75	1/6	1,712	120 / 1 / 60
FE-K1-01	ROOF	RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	600	0.75	1/4	1,453	120 / 1 / 60
FE-K1-02	ROOF	RESTROOM / CUSTODIAL	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	350	0.50	1/10	1,502	120 / 1 / 60
FE-L1-03	ROOF	RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	200	0.50	1/10	1,502	120 / 1 / 60
FE-J1-01	ROOF	ADMIN RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	500	0.75	1/6	1,709	120 / 1 / 60
FE-J1-02	ROOF	2ND GRADE RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	800	0.75	1/4	1,412	120 / 1 / 60
FE-L2-01	ROOF	5TH GRADE RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	800	0.75	1/4	1,412	120 / 1 / 60
FE-K2-01	ROOF	4TH GRADE RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	700	0.75	1/4	1,412	120 / 1 / 60
FE-K3-01	ROOF	3RD GRADE RESTROOMS	GREENHECK	CUE	1-5	300	CENTRIFUGAL	DIRECT	800	0.75	1/4	1,412	120 / 1 / 60
1. REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL DATA.													
2. REFERENCE SPECIFICATIONS FOR SEQUENCE OF OPERATIONS.													
3. FAN SHALL BE PROVIDED WITH GREENHECK VARI-GREENS CONTROL AND ECM MOTOR. STARTER SHALL BE PROVIDED BY FAN MANUFACTURER. JUNCTION BOX AND VARI-GREEN TRANSFORMER SHALL BE FACTORY MOUNTED AND WIRED.													
4. REFERENCE ARCHITECTURAL DRAWINGS FOR ROOF CURB DETAIL.													
5. PROVIDE UPBLAST FAN AND DESIGNED TO WITHSTAND HIGH WIND SPEEDS UP TO 146 MPH.													

HVAC GRAVITY VENTILATORS SCHEDULE - PACKAGE 2							
DESIGNATION	SERVICE	MANUFACTURER	MODEL	CFM	MAX. THROAT AREA (FT ²) / THROAT SIZE (DA-LAW)	P.D. (INCHES WG)	NOTES
GV-L1-01	DAHLU-L1-01	GREENHECK	FGI	5,500	10.00 / 30" x 30"	0.08	1,2,4
GV-K1-01	DAHLU-K1-01	GREENHECK	FGI	3,400	8.00 / 32" x 32"	0.08	1,2,4
GV-L1-02	DAHLU-L1-01	GREENHECK	FGI	4,000	8.00 / 32" x 32"	0.08	1,2,4
GV-K2-01	DAHLU-K2-01	GREENHECK	FGI	2,500	6.00 / 26" x 26"	0.08	1,2,4
GV-K2-02	DAHLU-K2-01	GREENHECK	FGI	2,500	6.00 / 26" x 26"	0.08	1,2,4
GV-L2-01	DAHLU-L2-01	GREENHECK	FGI	2,500	6.00 / 26" x 26"	0.08	1,2,4
GV-J1-01	RANGE HOOD	GREENHECK	FGR	310	1.00 / 12" x 12"	0.04	1,2,3
GV-K2-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00 / 24"x24"	-	1-3
GV-K2-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00 / 24"x24"	-	1-3
GV-L2-01	BUILDING RELIEF	GREENHECK	FGR	-	4.00 / 24"x24"	-	1-3
1. UNIT SHALL BE RATED FOR 150 MPH WIND SPEED. 2. PROVIDE BIRD SCREEN AND 12" PREFABRICATED ROOF CURB. 3. GRAVITY WEIGHTED DAMPER SET TO OPEN AT 0.10" W.G. 4. MAXIMUM THROAT VELOCITY SHALL NOT EXCEED 600 FPM. 5. PROVIDE WITH BACKDRAFT DAMPER.							

DUCTLESS MINI-SPLIT SYSTEM AIR-CONDITIONERS SCHEDULE - PACKAGE 2							
EVAPORATOR SECTION							
INDOOR EVAPORATOR DESIGNATION	IDE-J121	IDE-K101	IDE-L114	IDE-J208	IDE-L212	ESQU-K206	ESQU-L200
SERVISE	IDF ROOM	IDF ROOM	IDF ROOM	IDF ROOM	IDF ROOM	STAIRS - AREA K	STAIRS - AREA L
MANUFACTURER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
MODEL NUMBER	48MAH	48MAH	48MAH	48MAH	48MAH	24K	24K
TYPE	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED	CASSETTE TYPE	CASSETTE TYPE
WEIGHT (LBS.)	100	100	100	100	100	100	100
NOTES	1-9	1-9	1-9	1-9	1-9	1-9	1-9
FAN DATA							
SUPPLY CFM (HIGH / MEDIUM / LOW) SPEED	375	375	375	375	375	450	450
COOLING / HEATING COIL	DX	DX	DX	DX	DX	DX	DX
NOMINAL TONNAGE	1.5 TONS	1.5 TONS	1.5 TONS	1.5 TONS	1.5 TONS	2.0 TONS	2.0 TONS
ENTERING AIR EVAP (DBWB) °F - COOLING MODE	80°F / 67°F	80°F / 67°F	80°F / 67°F	80°F / 67°F	80°F / 67°F	80°F / 67°F	80°F / 67°F
ENTERING AIR EVAP (DBWB) °F - HEATING MODE	70°F / 60°F	70°F / 60°F	70°F / 60°F	70°F / 60°F	70°F / 60°F	70°F / 60°F	70°F / 60°F
TOTAL BTUH COOLING	18,000	18,000	18,000	18,000	18,000	24,000	24,000
TOTAL BTUH HEATING	18,000	18,000	18,000	18,000	18,000	24,000	24,000
AIR-COOLED CONDENSER							
DESIGNATION	ACCU-L121	ACCU-K101	ACCU-L114	ACCU-J208	ACCU-L212	ACCU-K206	ACCU-L200
SERVISES	IDF-J121	IDF-K101	IDE-L114	IDE-J208	IDE-L212	ESQU-K206	ESQU-L200
LOCATION	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF	ROOF
MANUFACTURER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
MODEL NUMBER	38MAR8	38MAR8	38MAR8	38MAR8	38MAR8	38MAR8	38MAR8
EFFICIENCY (SEER)	21.5	21.5	21.5	21.5	21.5	20.0	20.0
VOLTS/PH/Hz	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60
MCA	16.0	16.0	16.0	16.0	16.0	25.0	25.0
MCCP	25	25	25	25	25	35	35
REFRIGERANT	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
AMBIENT TEMPERATURE °F	95°F	95°F	95°F	95°F	95°F	95°F	95°F
WEIGHT (LBS.)	250	250	250	250	250	250	250
NOTES 1. REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL DATA. 2. ESTIMATED EXTERNAL STATIC PRESSURE INCLUDES LOSSES THROUGH PLENUM, AIR DEVICES, ETC. 3. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. 4. PROVIDE REMOTE WALL MOUNTED PROGRAMMABLE THERMOSTAT WITH BACnet INTERFACE. 5. PROVIDE INVERTER DRIVEN COMPRESSOR. 6. INDOOR UNIT IS POWERED BY THE OUTDOOR UNIT. INTERCONNECTING POWER WIRING FROM OUTDOOR TO INDOOR UNIT IS BY ELECTRICAL CONTRACTOR. REFER TO ELECTRICAL DRAWINGS. 7. PROVIDE MATCHING CONDENSING UNIT FROM SAME MANUFACTURER. 8. MANUFACTURER SHALL PROVIDE A CONDENSATE PUMP. PUMP SHALL BE POWERED BY THE UNIT AND SHALL NOT START / STOP UNLESS THE UNIT IS ENERGIZED / DE-ENERGIZED. 9. UNIT SHALL BE RATED FOR 150 MPH WIND SPEED.							

ARCHITECT

PKB Architects, Inc.

HOUSTON
11 Greenway Plaza, 22nd Floor
Houston, TX 77046
713-965-0608 P
TX Firm BR 1608

PKB.com

CIVIL

DIG ENGINEERS
11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0608 P
TX Firm BR 1607

DIG ENGINEERS

MEPT

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P
TX Firm BR 1607

LEAF ENGINEERS

STRUCTURAL

KUBALA ENGINEERS
11 Greenway Plaza, 10th Fl
Houston, TX 77046
713-965-0608 P

Kubala ENGINEERS

BEAM

11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-965-0608 P

IBeam

LANDSCAPE

EDGE LAND
11 Greenway Plaza, 22nd FL
Houston, TX 77046
713-465-0388 F

EDGE LAND

FOOD SERVICE

Foodservice Design Professionals
40250 LAMAR BLVD
MCKINNEY, TX 75069
972-385-2232 F

FDP

ACOUSTICS

B&B
4725 BARBON RILEY
8600 ARLANO, TX 77109
281-613-8018 F

B&B

LEAF ENGINEERS

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2
PACKAGE 2

25455 FM 521
ANGLETON, TX 77515

ISSUE FOR PROPOSAL

ANGLETON
Independent School District

KEY PLAN

NORTH: PLAN TRUE

STATE OF TEXAS
MITAL J. PATEL
111622
01/12/2024
LEAF ENGINEERS
F-16872

CLIENT
ANGLETON ISD

DATE
01/12/2024

PROJECT NUMBER
220348

DRAWING HISTORY

No.	Description	Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

MECHANICAL
SCHEDULES -
PACKAGE 2

M-506

		13
		12
		11
		10
		09
		08
		07
		06
		05
		04
		03
		02
		01

ARCHITECT

HOUSTON

11 Greenway Plaza, 22nd Floor

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

CIVIL

DIG ENGINEERS

11 Greenway Plaza, 10th Fl

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

MEPT

KUBALA ENGINEERS

11 Greenway Plaza, 10th Fl

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

STRUCTURAL

KUBALA ENGINEERS

11 Greenway Plaza, 10th Fl

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

BEAM

EDGE LAND

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

LANDSCAPE

EDGE LAND

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

FOOD SERVICE

EDGE LAND

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

ACOUSTICS

EDGE LAND

11 Greenway Plaza, 22nd Fl

Houston, TX 77046

713-965-0088 P

TX Firm BR 1608

LEAF ENGINEERS

4758 Bayview Blvd

8666 Springwood, TX 77063

281-813-8138 P

NEW ELEMENTARY SCHOOL #7 & JUNIOR HIGH #2

PACKAGE 1

Address Line 1

Address Line 2

ISSUE FOR PROPOSAL

ANGLETON

Independent School District

KEY PLAN

NORTH: PLAN

TRUE

STATE OF TEXAS

MITAL J. PATEL

111622

09/15/2023

LEAF ENGINEERS

F-16872

CLIENT

ANGLETON ISD

DATE

09/15/2023

PROJECT NUMBER

220346

DRAWING HISTORY

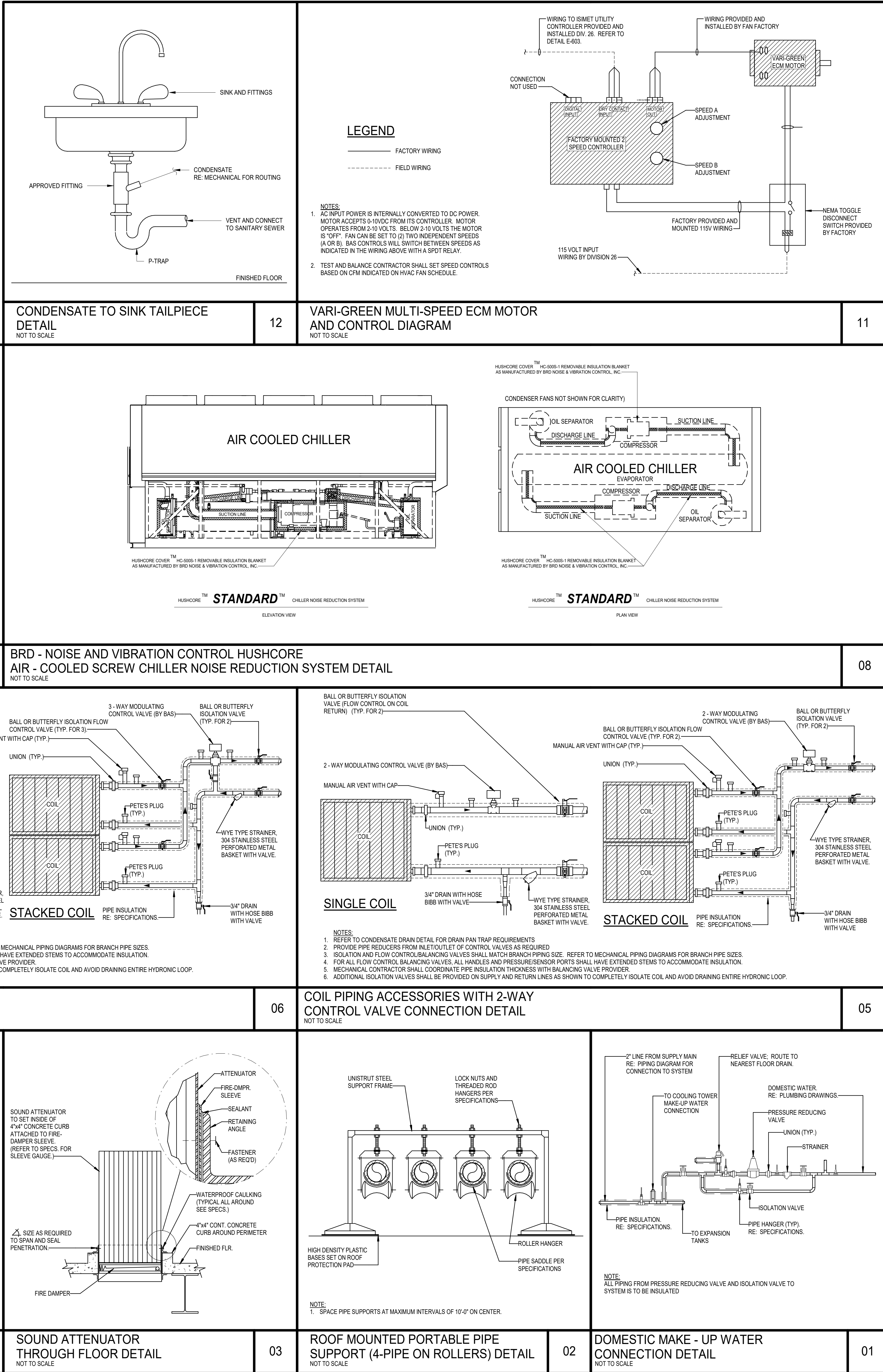
No.	Description	Date

ISSUE FOR PROPOSAL

BUILDING NUMBER

MECHANICAL DETAILS

M-601



RFQ 24-05-BOND TEST & BALANCE

EXHIBIT 2

Testing Adjusting and
Balancing for HVAC

FOR INFORMATIONAL
PURPOSES ONLY

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

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. Testing, adjusting, and balancing of air systems.
 - 2. Testing, adjusting, and balancing of Hydronic piping systems
 - 3. Testing, adjusting, and balancing of refrigerating systems.
 - 4. Measurement of final operating condition of HVAC systems.
 - 5. Sound measurement of equipment operating conditions.
 - 6. Vibration measurement of equipment operating conditions.
- B. Related Sections:
 - 1. Sequences of operation for HVAC equipment as scheduled on Drawings.
- C. Testing, Adjusting and Balancing (TAB) contractor shall bid work specified under this section direct to Owner. TAB contractor shall not be hired by general contractor or any sub-contractor.
- D. Mechanical contractor is responsible for coordinating work with the TAB Contractor. Mechanical contractor requirements are specified herein.
- E. TAB Contractors:
 - 1. Engineered Air Balance
 - 2. Precision Air

1.3 REFERENCES

- A. Associated Air Balance Council:
 - 1. AABC MN-1 - National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems.
- B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
 - 1. ASHRAE 111 - Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
- C. Natural Environmental Balancing Bureau:
 - 1. NEBB - Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.

1.4 SUBMITTALS

- A. Agency Data: Submit proof that the proposed testing, adjusting, and balancing agency meets the qualifications specified below.
- B. Engineer and Technicians Data: Submit proof that the Test and Balance Engineer assigned to supervise the procedures, and the technicians proposed to perform the procedures meet the qualifications specified below.
- C. Procedures and Agenda: Submit a synopsis of the testing, adjusting and balancing procedures and agenda proposed to be used for this project.
- D. Sample Forms: Submit sample forms, if other than those standard forms, if other than those standard forms prepared by the Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB) are proposed.
- E. Certified Reports: Submit testing, adjusting, and balancing reports bearing the seal and signature of the Test and Balance Engineer. The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Follow the procedures and format specified below:
 - 1. Draft Reports: Upon completion of testing, adjusting and balancing procedures, prepare draft reports on the approved forms. Draft reports may be handwritten, but must be complete, factual, accurate, and legible. Organize and format draft reports in the same manner specified for the final reports. Submit two (2) complete sets of draft reports. Only one (1) complete set of draft reports will be returned.
 - 2. Final Report: Upon verification and approval of draft reports, prepare final reports, type written, and organized and formatted as specified below. Submit two (2) complete sets of final reports.
 - 3. Report Format: Report forms shall be those standard forms prepared by the referenced standard for each respective item and system to be tested, adjusted, and balanced. Bind report forms complete with schematic systems diagrams and other data in reinforced, vinyl, three-ring binder. Provide binding edge labels with the project identification and a title descriptive of the contents. Divide the contents of the binder into the below listed divisions, separated by divider tabs.
 - a. General Information and Summary
 - b. Air Systems
 - c. Refrigerant Systems
 - d. Temperature Control Systems
 - e. Special Systems.
 - 4. Report Contents: Provide the following minimum information, forms and data:
 - a. General Information and Summary: Inside cover sheet to identify testing, adjusting, and balancing agency, the Company, Engineer, and Project. Include addresses and contact names and telephone numbers. Also include a certification sheet containing the seal name address, telephone

number, and signature of the Certified Test and Balance Engineer. Include in this division a listing of the instrumentations used for the procedures along with the proof of calibration.

- b. The remainder of the report shall contain the appropriate forms containing as a minimum, the information indicated on the standard report forms prepared by the AABC or NEBB, for each respective item and system. Prepare a schematic diagram for each item of equipment and system to accompany each respective report form.
- c. Calibration Reports: Submit proof that all required instrumentation has been calibrated to tolerances specified in the referenced standards, within a period of six (6) months prior to starting the project.

1.5 QUALITY ASSURANCE

- A. Test and Balance Engineer's Qualifications: A Professional Engineers registered in the State in which the services are to be performed and having at least three (3) years of successful testing, adjusting, and balancing experience on projects with testing and balancing requirements similar to those required for this project.
- B. Agency Qualifications:
 - 1. Employ the services of an independent testing, adjusting, and balancing agency meeting the qualifications specified below, to be the single source of responsibility to the test, adjust, and balance the building mechanical systems identified above, to produce the design objectives. Services shall include checking installations for conformity to design, measurement, and establishment of the fluid quantities of the mechanical systems as required to meet design specifications and recording and reporting the results.
 - 2. The independent testing, adjusting, and balancing agency certified by National Environmental Balancing Bureau (NEBB) or by the Associated Air Balance Council (AABC) in those testing and balancing disciplines required for this project, and having at least one Professional Engineer registered in the State in which the services are to be performed, certified by NEBB or AABC as a Test and Balance Engineer.
- C. Codes and Standards
 - 1. NEBB: "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems."
 - 2. AABC: "National Standards for Total System Balance."
 - 3. American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) ASHRAE Handbook, 1999 HVAC Applications Volume, Chapter 36, Testing, Adjusting, and Balancing.
- D. Pre-Balancing Conference: Prior to beginning of testing, adjusting, and balancing procedures, schedule and conduct a conference with the Engineer and representatives of installers of the mechanical systems. The objective of the conference is final coordination and verification of the system operation and readiness for testing, adjusting, and balancing.

1.6 PROJECT CONDITIONS

- A. Systems Operation: Systems shall be fully operational prior to beginning procedures.

1.7 SEQUENCING AND SCHEDULING

- A. Test, adjust, and balance the air systems before hydronic, steam, and refrigerant systems.
- B. Test, adjust and balance air conditioning systems during summer season and heating systems during winter season, including at least a period of operation at outside conditions within five (5) degrees Fahrenheit wet bulb temperature of maximum summer design condition, and within ten (10) degrees Fahrenheit dry bulb temperature of minimum winter design condition. Take final temperature reading during seasonal operation.
- C. Notice: Provide minimum 7 days advanced notice for each test. Include scheduled test dates and times.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 SERVICES OF THE MECHANICAL CONTRACTOR

- A. Examine the contract documents to become familiar with Project requirements and to discover conditions in systems design that may preclude proper TAB of systems and equipment.
- B. Examine the approved submittals for HVAC systems and equipment.
- C. Verify systems are complete and operable before commencing work. Verify the following:
 - 1. Systems are started and operating in safe and normal condition.
 - 2. Temperature control systems are installed complete and operable.
 - 3. Proper thermal overload protection is in place for electrical equipment.
 - 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
 - 5. Duct systems are clean of debris.
 - 6. Fans are rotating correctly.
 - 7. Fire and volume dampers are in place and open.
 - 8. Air coil fins are cleaned and combed.
 - 9. Access doors are closed, and duct end caps are in place.
 - 10. Air outlets are installed and connected.
 - 11. Duct system leakage is minimized.
 - 12. Hydronic systems are flushed, filled, and vented.
 - 13. Pumps are rotating correctly.
 - 14. Proper strainer baskets are clean and in place or in normal position.
 - 15. Service and balancing valves are open.
 - 16. Re-sheave

- D. Contractor shall provide all volume dampers, balancing dampers, balancing valves, test ports and Pete's plugs as required by the Testing and Balancing Firm. Contractor shall furnish a set of sheet metal shop drawings and HVAC piping drawings to the Testing and Balancing Firm during the submittal phase and incorporate the Testing and Balancing Firm's mark-ups and requests into the project. Contractor shall provide all required equipment to facilitate Testing and Balancing Firm's work. This coordination shall be included in the Contractor's base bid price.
- E. Provide, correct, repair or replace deficient items or conditions found during the testing and balancing.
- F. Provide replacement sheaves as directed by TAB Contractor to achieve scheduled air volumes.
- G. For motors with a variable frequency drive, contractor shall provide belt and sheave adjustment such that units deliver their design cfm when speed drive is at 60 hertz.

3.2 SERVICES OF THE TESTING AND BALANCING CONTRACTOR

- A. Furnish instruments required for testing, adjusting, and balancing operations.
- B. Make instruments available to Architect/Engineer to facilitate spot checks during testing.
- C. Complete system-readiness checks and prepare reports. Verify the following:
 - 1. Permanent electrical-power wiring is complete.
 - 2. Hydronic systems are filled, clean, and free of air.
 - 3. Automatic temperature-control systems are operational.
 - 4. Equipment and duct access doors are securely closed.
 - 5. Balance, smoke, and fire dampers are open.
 - 6. Isolating and balancing valves are open and control valves are operational.
 - 7. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
 - 8. Windows and doors can be closed so indicated conditions for system operations can be met.

3.3 INSTALLATION TOLERANCES

- A. Set HVAC system's air flow rates and water flow rates within the following tolerances:
 - 1. Supply, Return, and Exhaust fans and Equipment with Fans: +/- 5%
 - 2. Air Outlets and Inlets: +/- 5%
 - 3. Heating-Water Flow Rate: +/- 5%
 - 4. Cooling-Water Flow Rate: +/- 5%

3.4 ADJUSTING

- A. Verify recorded data represents actual measured or observed conditions.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

- C. After adjustment, take measurements to verify balance has not been disrupted. If disrupted, verify correcting adjustments have been made.
- D. Report defects and deficiencies noted during performance of services, preventing system balance.
- E. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.5 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Adjust air handling and distribution systems to obtain required or design supply, return, and exhaust air quantities.
- B. Make air quantity measurements in main ducts by Pitot tube traverse of entire cross-sectional area of duct.
- C. Measure air quantities at air inlets and outlets.
- D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts.
- E. Use volume control devices to regulate air quantities only to extent adjustments do not create objectionable air motion or sound levels. Effect volume control by using volume dampers located in ducts.
- F. Vary total system air quantities by adjustment of fan speeds. Provide sheave drive changes to vary fan speed. Vary branch air quantities by damper regulation.
- G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.
- H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across fan. Make allowances for 50 percent loading of filters.
- I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.
- J. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.
- K. Measure building static pressure and adjust supply, return, and exhaust air systems to obtain required relationship between each to maintain approximately 0.05 inches positive static pressure near building entries in clean rooms.

3.6 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
 - 1. Measure total airflow.

- a. Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow.
 2. Measure fan static pressures as follows to determine actual static pressure:
 - a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
 - b. Measure static pressure directly at the fan outlet or through the flexible connection.
 - c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.
 - d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
 3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
 - a. Report the cleanliness status of filters and the time static pressures are measured.
 4. Measure static pressures entering and leaving other devices, such as sound traps, heat-recovery equipment, and air washers, under final balanced conditions.
 5. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
 6. Obtain approval from construction manager for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
 7. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.
- B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.
1. Measure airflow of submain and branch ducts.
 - a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.
 2. Measure static pressure at a point downstream from the balancing damper and adjust volume dampers until the proper static pressure is achieved.

3. Re-measure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.
- C. Measure air outlets and inlets without making adjustments.
 1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.
- D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals.
 1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.
 2. Adjust patterns of adjustable outlets for proper distribution without drafts.

3.7 PROCEDURES FOR DUAL-DUCT SYSTEMS

- A. Verify that the cooling coil is capable of full-system airflow and set mixing boxes at full-cold airflow position for fan volume.
- B. Measure static pressure in both hot and cold ducts at the end of the longest duct run to determine that sufficient static pressure exists to operate controls of mixing boxes and to overcome resistance in the ducts and outlets downstream from mixing boxes.
 1. If insufficient static pressure exists, increase airflow at the fan.
- C. Test and adjust the constant-volume mixing boxes as follows:
 1. Verify both hot and cold operations by adjusting the thermostat and observing changes in air temperature and volume.
 2. Verify sufficient inlet static pressure before making volume adjustments.
 3. Adjust mixing boxes to indicated airflows within specified tolerances. Measure airflow by Pitot-tube traverse readings or by measuring static pressure at mixing-box taps if provided by mixing-box manufacturer.
- D. Do not over pressurize ducts.
- E. Re-measure static pressure in both hot and cold ducts at the end of the longest duct run to determine that sufficient static pressure exists to operate controls of mixing boxes and to overcome resistance in the ducts and outlets downstream from mixing boxes.
- F. Adjust variable-air-volume, dual-duct systems in the same way as constant-volume, dual-duct systems; adjust maximum- and minimum-airflow setting of each mixing box.

3.8 PROCEDURES FOR VARIABLE-AIR-VOLUME SYSTEMS

- A. Compensating for Diversity: When the total airflow of all terminal units is more than the indicated airflow of the fan, place a selected number of terminal units at minimum set-

point airflow with the remainder at maximum-airflow condition until the total airflow of the terminal units equals the indicated airflow of the fan. Select the reduced-airflow terminal units so they are distributed evenly among the branch ducts.

- B. Pressure-Independent, Variable-Air-Volume Systems: After the fan systems have been adjusted, adjust the variable-air-volume systems as follows:
1. Set outdoor-air dampers at minimum, and set return- and exhaust-air dampers at a position that simulates full-cooling load.
 2. Select the terminal unit that is most critical to the supply-fan airflow and static pressure. Measure static pressure. Adjust system static pressure so the entering static pressure for the critical terminal unit is not less than the sum of the terminal-unit manufacturer's recommended minimum inlet static pressure plus the static pressure needed to overcome terminal-unit discharge system losses.
 3. Measure total system airflow. Adjust to within indicated airflow.
 4. Set terminal units at maximum airflow and adjust controller or regulator to deliver the designed maximum airflow. Use terminal-unit manufacturer's written instructions to make this adjustment. When total airflow is correct, balance the air outlets downstream from terminal units the same as described for constant-volume air systems.
 5. Set terminal units at minimum airflow and adjust controller or regulator to deliver the designed minimum airflow. Check air outlets for a proportional reduction in airflow the same as described for constant-volume air systems.
 - a. If air outlets are out of balance at minimum airflow, report the condition but leave outlets balanced for maximum airflow.
 6. Re-measure the return airflow to the fan while operating at maximum return airflow and minimum outdoor airflow.
 - b. Adjust the fan and balance the return-air ducts and inlets the same as described for constant-volume air systems.
 7. Measure static pressure at the most critical terminal unit and adjust the static-pressure controller at the main supply-air sensing station to ensure that adequate static pressure is maintained at the most critical unit.
 8. Record final fan-performance data.
- C. Pressure-Dependent, Variable-Air-Volume Systems without Diversity: After the fan systems have been adjusted, adjust the variable-air-volume systems as follows:
1. Balance variable-air-volume systems the same as described for constant-volume air systems.
 2. Set terminal units and supply fan at full-airflow condition.
 3. Adjust inlet dampers of each terminal unit to indicated airflow and verify operation of the static-pressure controller. When total airflow is correct, balance the air outlets downstream from terminal units the same as described for constant-volume air systems.

4. Readjust fan airflow for final maximum readings.
 5. Measure operating static pressure at the sensor that controls the supply fan if one is installed and verify operation of the static-pressure controller.
 6. Set supply fan at minimum airflow if minimum airflow is indicated. Measure static pressure to verify that it is being maintained by the controller.
 7. Set terminal units at minimum airflow and adjust controller or regulator to deliver the designed minimum airflow. Check air outlets for a proportional reduction in airflow the same as described for constant-volume air systems.
 - a. If air outlets are out of balance at minimum airflow, report the condition but leave the outlets balanced for maximum airflow.
 8. Measure the return airflow to the fan while operating at maximum return airflow and minimum outdoor airflow.
 - a. Adjust the fan and balance the return-air ducts and inlets the same as described for constant-volume air systems.
- D. Pressure-Dependent, Variable-Air-Volume Systems with Diversity: After the fan systems have been adjusted, adjust the variable-air-volume systems as follows:
1. Set system at maximum indicated airflow by setting the required number of terminal units at minimum airflow. Select the reduced-airflow terminal units so they are distributed evenly among the branch ducts.
 2. Adjust supply fan to maximum indicated airflow with the variable-airflow controller set at maximum airflow.
 3. Set terminal units at full-airflow condition.
 4. Adjust terminal units starting at the supply-fan end of the system and continuing progressively to the end of the system. Adjust inlet dampers of each terminal unit to indicated airflow. When total airflow is correct, balance the air outlets downstream from terminal units the same as described for constant-volume air systems.
 5. Adjust terminal units for minimum airflow.
 6. Measure static pressure at the sensor.
 7. Measure the return airflow to the fan while operating at maximum return airflow and minimum outdoor airflow. Adjust the fan and balance the return-air ducts and inlets the same as described for constant-volume air systems.

3.9 PROCEDURES FOR MULTIZONE SYSTEMS

- A. Set unit at maximum airflow through the cooling coil.
- B. Adjust each zone's balancing damper to achieve indicated airflow within the zone.

3.10 GENERAL PROCEDURES FOR HYDRONIC SYSTEMS

- A. Prepare test reports with pertinent design data, and number in sequence starting at pump to end of system. Check the sum of branch-circuit flows against the approved pump flow rate. Correct variations that exceed plus or minus 5 percent.
- B. Prepare schematic diagrams of systems' "as-built" piping layouts.
- C. Prepare hydronic systems for testing and balancing according to the following, in addition to the general preparation procedures specified above:
 - 1. Open all manual valves for maximum flow.
 - 2. Check liquid level in expansion tank.
 - 3. Check makeup water-station pressure gage for adequate pressure for highest vent.
 - 4. Check flow-control valves for specified sequence of operation and set at indicated flow.
 - 5. Set differential-pressure control valves at the specified differential pressure. Do not set at fully closed position when pump is positive-displacement type unless several terminal valves are kept open.
 - 6. Set system controls so automatic valves are wide open to heat exchangers.
 - 7. Check pump-motor load. If motor is overloaded, throttle main flow-balancing device so motor nameplate rating is not exceeded.
 - 8. Check air vents for a forceful liquid flow exiting from vents when manually operated.

3.11 PROCEDURES FOR CONSTANT-FLOW HYDRONIC SYSTEMS

- A. Measure water flow at pumps. Use the following procedures except for positive-displacement pumps:
 - 1. Verify impeller size by operating the pump with the discharge valve closed. Read pressure differential across the pump. Convert pressure to head and correct for differences in gage heights. Note the point on manufacturer's pump curve at zero flow and verify that the pump has the intended impeller size.
 - a. If impeller sizes must be adjusted to achieve pump performance, obtain approval from Owner/Engineer and comply with requirements in "Hydronic Pump Specification."
 - 2. Check system resistance. With all valves open, read pressure differential across the pump and mark pump manufacturer's head-capacity curve. Adjust pump discharge valve until indicated water flow is achieved.
 - a. Monitor motor performance during procedures and do not operate motors in overload conditions.

3. Verify pump-motor brake horsepower. Calculate the intended brake horsepower for the system based on pump manufacturer's performance data. Compare calculated brake horsepower with nameplate data on the pump motor. Report conditions where actual amperage exceeds motor nameplate amperage.
4. Report flow rates that are not within plus or minus 10 percent of design.
- B. Measure flow at all automatic flow control valves to verify that valves are functioning as designed.
- C. Measure flow at all pressure-independent characterized control valves, with valves in fully open position, to verify that valves are functioning as designed.
- D. Set calibrated balancing valves, if installed, at calculated pre-settings.
- E. Measure flow at all stations and adjust, where necessary, to obtain first balance.
 1. System components that have Cv rating or an accurately cataloged flow-pressure-drop relationship may be used as a flow-indicating device.
- F. Measure flow at main balancing station and set main balancing device to achieve flow that is 5 percent greater than indicated flow.
- G. Adjust balancing stations to within specified tolerances of indicated flow rate as follows:
 1. Determine the balancing station with the highest percentage over indicated flow.
 2. Adjust each station in turn, beginning with the station with the highest percentage over indicated flow and proceeding to the station with the lowest percentage over indicated flow.
 3. Record settings and mark balancing devices.
- H. Measure pump flow rate and make final measurements of pump amperage, voltage, rpm, pump heads, and systems' pressures and temperatures including outdoor-air temperature.
- I. Measure the differential-pressure-control-valve settings existing at the conclusion of balancing.
- J. Check settings and operation of each safety valve. Record settings.

3.12 PROCEDURES FOR VARIABLE-FLOW HYDRONIC SYSTEMS

- A. Balance systems with automatic two and three-way control valves by setting systems at maximum flow through heat-exchange terminals and proceed as specified above for hydronic systems.

3.13 PROCEDURES FOR PRIMARY-SECONDARY HYDRONIC SYSTEMS

- A. Balance the primary circuit flow first and then balance the secondary circuits.

3.14 PROCEDURES FOR DOMESTIC HOT WATER SYSTEMS

- A. The test and balance contractor shall provide testing, adjusting and balancing of the hot water system, once the system is fully installed and operational. Preliminary and final reports shall be prepared and issued to the General Contractor, Architect and Engineer.
- B. Preparation of the hot water system for balancing:
 - 1. Confirm outlet temperature of the system at water heaters and/or storage tanks.
 - 2. Verify recirculation pump operation and rotation.
 - 3. Confirm/adjust setpoint of each individual riser balancing valve to flow a minimum of 0.5 gpm or as otherwise noted on the documents.
- C. The test and balance report shall indicate the following:
 - 1. Pressure, temperature and flow in gpm at the discharge side of each balancing valve referencing the valve tag number.
 - 2. Pressure, temperature and flow in gpm at the suction side of each circulating pump.

3.15 PROCEDURES FOR HEAT EXCHANGERS

- A. Measure water flow through all circuits.
- B. Adjust water flow to within specified tolerances.
- C. Measure inlet and outlet water temperatures.
- D. Measure inlet steam pressure.
- E. Check settings and operation of safety and relief valves. Record settings.

3.16 PROCEDURES FOR MOTORS

- A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:
 - 1. Manufacturer's name, model number, and serial number.
 - 2. Motor horsepower rating.
 - 3. Motor rpm.
 - 4. Efficiency rating.
 - 5. Nameplate and measured voltage, each phase.
 - 6. Nameplate and measured amperage, each phase.
 - 7. Starter thermal-protection-element rating.
- B. Motors Driven by Variable-Frequency Controllers: Test for proper operation at speeds varying from minimum to maximum. Test the manual bypass of the controller to prove proper operation. Record observations including name of controller manufacturer, model number, serial number, and nameplate data.

3.17 PROCEDURES FOR CHILLERS

- A. Balance water flow through each evaporator and condenser to within specified tolerances of indicated flow with all pumps operating. With only one chiller operating in a multiple chiller installation, do not exceed the flow for the maximum tube velocity recommended by the chiller manufacturer. Measure and record the following data with each chiller operating at design conditions:
 - 1. Evaporator-water entering and leaving temperatures, pressure drop, and water flow.
 - 2. For water-cooled chillers, condenser-water entering and leaving temperatures, pressure drop, and water flow.
 - 3. Evaporator and condenser refrigerant temperatures and pressures, using instruments furnished by chiller manufacturer.
 - 4. Power factor if factory-installed instrumentation is furnished for measuring kilowatts.
 - 5. Kilowatt input if factory-installed instrumentation is furnished for measuring kilowatts.
 - 6. Capacity: Calculate in tons of cooling.
 - 7. For air-cooled chillers, verify condenser-fan rotation and record fan and motor data including number of fans and entering- and leaving-air temperatures.

3.18 PROCEDURES FOR COOLING TOWERS

- A. A complete Factory CTI certified test of the cooling tower will be performed at the expense of the cooling tower manufacturer. A copy of this test (provided by others) shall be included in the final TAB report. Balance the flow over and through bypass connections of the tower.

3.19 PROCEDURES FOR CONDENSING UNITS

- A. Verify proper rotation of fans.
- B. Measure entering- and leaving-air temperatures.
- C. Record compressor data.

3.20 PROCEDURES FOR BOILERS

- A. Hydronic Boilers: Measure and record entering- and leaving-water temperatures and water flow.

3.21 PROCEDURES FOR TESTING, ADJUSTING, AND BALANCING EXISTING SYSTEMS

- A. Perform a preconstruction inspection of existing equipment that is to remain and be reused.

1. Measure and record the operating speed, airflow, and static pressure of each fan.
 2. Measure motor voltage and amperage. Compare the values to motor nameplate information.
 3. Check the refrigerant charge.
 4. Check the condition of filters.
 5. Check the condition of coils.
 6. Check the operation of the drain pan and condensate-drain trap.
 7. Check bearings and other lubricated parts for proper lubrication.
 8. Report on the operating condition of the equipment and the results of the measurements taken. Report deficiencies.
- B. Before performing testing and balancing of existing systems, inspect existing equipment that is to remain and be reused to verify that existing equipment has been cleaned and refurbished. Verify the following:
1. New filters are installed.
 2. Coils are clean and fins combed.
 3. Drain pans are clean.
 4. Fans are clean.
 5. Bearings and other parts are properly lubricated.
 6. Deficiencies noted in the preconstruction report are corrected.
- C. Perform testing and balancing of existing systems to the extent that existing systems are affected by the renovation work.
1. Compare the indicated airflow of the renovated work to the measured fan airflows and determine the new fan speed and the face velocity of filters and coils.
 2. Verify that the indicated airflows of the renovated work result in filter and coil face velocities and fan speeds that are within the acceptable limits defined by equipment manufacturer.
 3. If calculations increase or decrease the air flow rates and water flow rates by more than 5 percent, make equipment adjustments to achieve the calculated rates. If increase or decrease is 5 percent or less, equipment adjustments are not required.
 4. Balance each air outlet.

3.22 FINAL REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.

2. Include a list of instruments used for procedures, along with proof of calibration.
- B. Final Report Contents: In addition to certified field-report data, include the following:
1. Pump curves.
 2. Fan curves.
 3. Manufacturers' test data.
 4. Field test reports prepared by system and equipment installers.
 5. Other information relative to equipment performance; do not include Shop Drawings and product data.
- C. General Report Data: In addition to form titles and entries, include the following data:
1. Title page.
 2. Name and address of the TAB contractor.
 3. Project name.
 4. Project location.
 5. Architect's name and address.
 6. Engineer's name and address.
 7. Contractor's name and address.
 8. Report date.
 9. Signature of TAB supervisor who certifies the report.
 10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
 11. Summary of contents including the following:
 - a. Indicated versus final performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the Contract Documents.
 12. Nomenclature sheets for each item of equipment.
 13. Data for terminal units, including manufacturer's name, type, size, and fittings.
 14. Notes to explain why certain final data in the body of reports vary from indicated values.
 15. Test conditions for fans and pump performance forms including the following:
 - a. Settings for outdoor-, return-, and exhaust-air dampers.
 - b. Conditions of filters.
 - c. Cooling coil, wet- and dry-bulb conditions.
 - d. Face and bypass damper settings at coils.
 - e. Fan drive settings including settings and percentage of maximum pitch diameter.
 - f. Inlet vane settings for variable-air-volume systems.
 - g. Settings for supply-air, static-pressure controller.
 - h. Other system operating conditions that affect performance.
- D. System Diagrams: Include schematic layouts of air and hydronic distribution systems. Present each system with single-line diagram and include the following:
1. Quantities of outdoor, supply, return, and exhaust airflows.
 2. Water and steam flow rates.
 3. Duct, outlet, and inlet sizes.
 4. Pipe and valve sizes and locations.

5. Terminal units.
 6. Balancing stations.
 7. Position of balancing devices.
- E. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data:
 - a. Unit identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and unit size.
 - e. Manufacturer's serial number.
 - f. Unit arrangement and class.
 - g. Discharge arrangement.
 - h. Sheave make, size in inches, and bore.
 - i. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 - j. Number, make, and size of belts.
 - k. Number, type, and size of filters.
 2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.
 - f. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 3. Test Data (Indicated and Actual Values):
 - a. Total air flow rate in cfm (L/s).
 - b. Total system static pressure in inches wg (Pa).
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg (Pa).
 - e. Filter static-pressure differential in inches wg (Pa).
 - f. Preheat-coil static-pressure differential in inches wg (Pa).
 - g. Cooling-coil static-pressure differential in inches wg (Pa).
 - h. Heating-coil static-pressure differential in inches wg (Pa).
 - i. Outdoor airflow in cfm (L/s).
 - j. Return airflow in cfm (L/s).
 - k. Outdoor-air damper position.
 - l. Return-air damper position.
 - m. Vortex damper position.
- F. Apparatus-Coil Test Reports:
1. Coil Data:
 - a. System identification.
 - b. Location.
 - c. Coil type.
 - d. Number of rows.
 - e. Fin spacing in fins per inch o.c.

- f. Make and model number.
- g. Face area in sq. ft
- h. Tube size in NPS (DN).
- i. Tube and fin materials.
- j. Circuiting arrangement.

2. Test Data (Indicated and Actual Values):

- a. Air flow rate in cfm (L/s).
- b. Average face velocity in fpm (m/s).
- c. Air pressure drop in inches wg (Pa).
- d. Outdoor-air, wet- and dry-bulb temperatures in deg F (deg C).
- e. Return-air, wet- and dry-bulb temperatures in deg F (deg C).
- f. Entering-air, wet- and dry-bulb temperatures in deg F (deg C).
- g. Leaving-air, wet- and dry-bulb temperatures in deg F (deg C).
- h. Water flow rate in gpm (L/s).
- i. Water pressure differential in feet of head or psig (kPa).
- j. Entering-water temperature in deg F (deg C).
- k. Leaving-water temperature in deg F (deg C).
- l. Refrigerant expansion valve and refrigerant types.
- m. Refrigerant suction pressure in psig (kPa).
- n. Refrigerant suction temperature in deg F (deg C).
- o. Inlet steam pressure in psig (kPa).

G. Gas Heat Apparatus Test Reports: In addition to manufacturer's factory startup equipment reports, include the following:

1. Unit Data:

- a. System identification.
- b. Location.
- c. Make and type.
- d. Model number and unit size.
- e. Manufacturer's serial number.
- f. Fuel type in input data.
- g. Output capacity in Btu/h (kW).
- h. Ignition type.
- i. Burner-control types.
- j. Motor horsepower and rpm.
- k. Motor volts, phase, and hertz.
- l. Motor full-load amperage and service factor.
- m. Sheave make, size in inches, and bore.
- n. Center-to-center dimensions of sheave, and amount of adjustments in inches.

2. Test Data (Indicated and Actual Values):

- a. Total air flow rate in cfm (L/s).
- b. Entering-air temperature in deg F.
- c. Leaving-air temperature in deg F.
- d. Air temperature differential in deg F.
- e. Entering-air static pressure in inches wg (Pa).
- f. Leaving-air static pressure in inches wg (Pa).
- g. Air static-pressure differential in inches wg (Pa).
- h. Low-fire fuel input in Btu/h (kW).

- i. High-fire fuel input in Btu/h (kW).
 - j. Manifold pressure in psig (kPa).
 - k. High-temperature-limit setting in deg F.
 - l. Operating set point in Btu/h (kW).
 - m. Motor voltage at each connection.
 - n. Motor amperage for each phase.
 - o. Heating value of fuel in Btu/h (kW).
- H. Electric-Coil Test Reports: For electric furnaces, duct coils, and electric coils installed in central-station air-handling units, include the following:
 - 1. Unit Data:
 - a. System identification.
 - b. Location.
 - c. Coil identification.
 - d. Capacity in Btu/h (kW).
 - e. Number of stages.
 - f. Connected volts, phase, and hertz.
 - g. Rated amperage.
 - h. Air flow rate in cfm.
 - i. Face area in sq. ft.
 - j. Minimum face velocity in fpm.
 - 2. Test Data (Indicated and Actual Values):
 - a. Heat output in Btu/h (kW).
 - b. Air flow rate in cfm.
 - c. Air velocity in fpm.
 - d. Entering-air temperature in deg F.
 - e. Leaving-air temperature in deg F.
 - f. Voltage at each connection.
 - g. Amperage for each phase.
- I. Fan Test Reports: For supply, return, and exhaust fans, include the following:
 - 1. Fan Data:
 - a. System identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and size.
 - e. Manufacturer's serial number.
 - f. Arrangement and class.
 - g. Sheave make, size in inches, and bore.
 - h. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 - 2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.

- f. Center-to-center dimensions of sheave, and amount of adjustments in inches.
 - g. Number, make, and size of belts.
 - 3. Test Data (Indicated and Actual Values):
 - a. Total airflow rate in cfm.
 - b. Total system static pressure in inches wg (Pa).
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg (Pa).
 - e. Suction static pressure in inches wg (Pa).
- J. Round, Flat-Oval, and Rectangular Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:
 - 1. Report Data:
 - a. System and air-handling-unit number.
 - b. Location and zone.
 - c. Traverse air temperature in deg F.
 - d. Duct static pressure in inches wg (Pa).
 - e. Duct size in inches.
 - f. Duct area in sq. ft.
 - g. Indicated air flow rate in cfm.
 - h. Indicated velocity in fpm.
 - i. Actual air flow rate in cfm.
 - j. Actual average velocity in fpm.
 - k. Barometric pressure in psig (Pa).
- K. Air-Terminal-Device Reports:
 - 1. Unit Data:
 - a. System and air-handling unit identification.
 - b. Location and zone.
 - c. Apparatus used for test.
 - d. Area served.
 - e. Make.
 - f. Number from system diagram.
 - g. Type and model number.
 - h. Size.
 - i. Effective area in sq. ft.
 - 2. Test Data (Indicated and Actual Values):
 - a. Air flow rate in cfm.
 - b. Air velocity in fpm.
 - c. Preliminary air flow rate as needed in cfm.
 - d. Preliminary velocity as needed in fpm.
 - e. Final air flow rate in cfm.
 - f. Final velocity in fpm.
 - g. Space temperature in deg F.
- L. System-Coil Reports: For reheat coils and water coils of terminal units, include the following:

1. Unit Data:
 - a. System and air-handling-unit identification.
 - b. Location and zone.
 - c. Room or riser served.
 - d. Coil make and size.
 - e. Flowmeter type.
 2. Test Data (Indicated and Actual Values):
 - a. Air flow rate in cfm (L/s).
 - b. Entering-water temperature in deg F.
 - c. Leaving-water temperature in deg F.
 - d. Water pressure drop in feet of head or psig (kPa).
 - e. Entering-air temperature in deg F.
 - f. Leaving-air temperature in deg F.
- M. Pump Test Reports: Calculate impeller size by plotting the shutoff head on pump curves and include the following:
1. Unit Data:
 - a. Unit identification.
 - b. Location.
 - c. Service.
 - d. Make and size.
 - e. Model number and serial number.
 - f. Water flow rate in gpm.
 - g. Water pressure differential in feet of head or psig (kPa).
 - h. Required net positive suction head in feet of head or psig (kPa).
 - i. Pump rpm.
 - j. Impeller diameter in inches.
 - k. Motor make and frame size.
 - l. Motor horsepower and rpm.
 - m. Voltage at each connection.
 - n. Amperage for each phase.
 - o. Full-load amperage and service factor.
 - p. Seal type.
 2. Test Data (Indicated and Actual Values):
 - a. Static head in feet of head or psig (kPa).
 - b. Pump shutoff pressure in feet of head or psig (kPa).
 - c. Actual impeller size in inches.
 - d. Full-open flow rate in gpm.
 - e. Full-open pressure in feet of head or psig (kPa).
 - f. Final discharge pressure in feet of head or psig (kPa).
 - g. Final suction pressure in feet of head or psig (kPa).
 - h. Final total pressure in feet of head or psig (kPa).
 - i. Final water flow rate in gpm.
 - j. Voltage at each connection.
 - k. Amperage for each phase.
- N. Vibration Test:

1. Location of points:
 - a. Fan bearing, drive end
 - b. Fan bearing, opposite end
 - c. Motor bearing, center (when applicable)
 - d. Motor bearing, drive end
 - e. Motor bearing, opposite end
 - f. Casing (bottom or top)
 - g. Casing (side)
 - h. Duct after flexible connection (discharge)
 - i. Duct after flexible connection (suction)
 2. Test readings:
 - a. Horizontal, velocity and displacement
 - b. Vertical, velocity and displacement
 - c. Axial, velocity and displacement
 - d. Normally acceptable readings, velocity and acceleration
 - e. Unusual conditions at time of test
 - f. Vibration source (when non-complying)
- O. Instrument Calibration Reports:
1. Report Data:
 - a. Instrument type and make.
 - b. Serial number.
 - c. Application.
 - d. Dates of use.
 - e. Dates of calibration.

END OF SECTION 23 05 93