EDINBURG CISD
PURCHASING DEPARTMENT
411 N. 8th Ave., Edinburg, TX 78541
(956) 289-2311, (956) 38-7687

ADDENDUM 2
CSP 22-68
Memorial Middle School Heating & Air Condition (HVAC) Improvements Funded through the Elementary & Secondary Emergency Relief (ESSER) Funds
April 8, 2022

I. INSTRUCTIONS:

A. The following changes, omissions or alterations to the specification and drawings shall be made insofar as the specifications and drawings are inconsistent with following, this addendum shall govern.

B. Acknowledge receipt of this addendum by inserting its number and date of issue in the place provided for same in the proposal. This addendum forms a part of the Contract Documents.

C. It is imperative that this addendum be inserted INTO set of specifications.

II. SEE ADDENDUM BELOW:

SPECIFICATIONS

Item 01 Specification 23 73 13 – Modular Central Station Air Handling Units
A. Replace specification section in its entirety.

DRAWINGS

Item 02 SHEET M0.01 – MECHANICAL LEGEND
A. Added general note 23.

Item 03 SHEET MD2.12F – LEVEL 1 MECHANICAL DEMO PLAN – F.
A. Revised keyed notes 2 and 3.

Item 04 SHEET MD2.13G – LEVEL 1 MECHANICAL DEMO PLAN – G.
A. Replaced keyed note 4 with keyed note 3 for EXRTU-19 and EXRTU-20.

Item 05 SHEET MD3.12 – ENLARGED MECHANICAL DEMO PLAN
A. Revised keyed notes 3 and 10.

Item 06 SHEET MD3.13 – ENLARGED MECHANICAL DEMO PLAN
A. Scheduled cooling tower 3-way valve to be demolished.
B. Clarified that the chillers and cooling towers to remain.
C. Revised keyed note 6.

Item 07 SHEET M1.11 – COMPOSITE LEVEL 1 MECHANICAL HYDRONIC PIPING PLAN
A. Added differential pressure sensor.

Item 08 SHEET M2.11A – LEVEL 1 MECHANICAL PLAN - A
A. Revised keyed note 1.

Item 09 SHEET M2.11B – LEVEL 1 MECHANICAL PLAN - B
A. Revised keyed note 1.

Item 10 SHEET M2.11C – LEVEL 1 MECHANICAL PLAN - C
A. Revised keyed note 1.

Item 11 SHEET M2.11D – LEVEL 1 MECHANICAL PLAN - D
A. Revised keyed note 1.

Item 12 SHEET M3.10 – ENLARGED MECHANICAL ROOM PLANS
A. Revised view of enlarged mechanical room plan #5.

Item 13 SHEET M3.11 – ENLARGED MECHANICAL ROOM PLANS
A. Replaced keyed note 5 with keyed note 10 on LEVEL 2A MECHANICAL AHU-8.
B. Revised view of LEVEL 2B MECHANICAL AHU-9.
C. Revised view of LEVEL 2B MECHANICAL AHU-10.

Item 14 SHEET M3.13 – ENLARGED MECHANICAL ROOM PLANS
A. Corrected title block.
B. Added control valves to condenser water at chillers.
C. Revised keyed note 9.

Item 15 SHEET M4.02 – MECHANICAL CONTROLS
A. Revised Single Zone VAV Air Handling Unit – Control Schematic and Sequence of Operations.
B. Revised Multi Zone VAV Air Handling Unit – Control Schematic and Sequence of Operations.

Item 16 SHEET M4.03 – MECHANICAL CONTROLS
A. Revised Chilled Water System – Variable Primary Flow – Control Schematic Sequence of Operations
B. Revised Condenser Water System – Chiller Plant – Control Schematic and Sequence of Operations

Item 17 SHEET M5.01 – MECHANICAL SCHEDULES
A. Revised fan schedule.
B. Revised packaged dx roof top unit schedule

Item 18 SHEET M5.02 – MECHANICAL SCHEDULES
A. Removed duplicate details #7 and #8.

Item 19 SHEET M6.01 – MECHANICAL SCHEDULES
A. Corrected detail numbering.
Item 20 SHEET EP2.11C – LEVEL 1 ELECTRICAL POWER PLAN - C
A. Added distribution panel DP-C.

Item 21 SHEET EP2.12G – LEVEL 1 ELECTRICAL POWER PLAN - G
A. Showed location of existing panel CK.

Item 22 SHEET E3.01 – ELECTRICAL ENLARGED POWER PLANS
A. Added power for Refrigerant Monitoring Panel and chiller valves.

Item 23 SHEET E4.01 – ELECTRICAL ONE-LINE DIAGRAM
A. Added distribution panel DP-C.
B. Revised the feeding of branch circuit panels MC1, MC2, MD1, MD2, MF1 and MG1.

Item 24 SHEET E5.01 – ELECTRICAL SHCEDULES
A. Revised the parameters of panels MC1 and MD1.

Item 25 SHEET E5.02 – ELECTRICAL SHCEDULES
A. Revised the parameters of panel MG1.

REQUEST FOR INFORMATION

Item No. 26- Project Schedule:
A. There is no pre-established project schedule or phasing plan for the project. The Contractor shall be responsible for submitting a phasing plan and project schedule prior to construction. Such plans are subject to review and approval by Owner.

Item No. 27 - Project Completion:
A. The proposed project term is to be included in the bid form by the Contractor and subject to Owner evaluation.

Item No. 28 - Roof Warranty:
A. There is no current roof warranty for this campus.

Item No. 29 - Asbestos Report:
A. PLM Summary Report – See attached.

Item No. 30 - Facility Occupation & Building Content Protection during Construction:

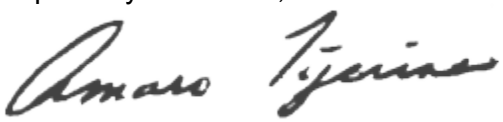
A. The campus may be occupied during construction and the number of students in the facility will be dependent upon time of year the construction occurs. With advanced notification and planning, students may be relocated out of the areas of construction.
B. The Owner, with prior coordination with the Contractor, may move or relocate equipment in occupied rooms where construction is taking place. The Contractor is responsible for covering/protecting any furniture or equipment from activities that will create debris. The Contractor is responsible for use of proper fire blankets to prevent damage of existing furniture and prevent the spread of fire with all indoor welding activities.

SUBMITTALS

Item No. 31 – Submittals:

A. The District is requesting one (1) original, one (1) copy and one (1) digital copy on a USB drive.

Respectfully Submitted,



Amaro Tijerina
Director of Purchasing

_____
(Signature of authorized officer) Date

_____

Company Name


East Rogers Road
© 2007 Europa Technologies
© 2007 Tele Atlas
© 2007 Google™

PLAT SHOWING:
40.00 Ac. (39.97 Ac.)
BEING ALL OF LOT 11, SECTION 248,
TEXAS MEXICAN RAILWAY COMPANY SURVEY,
(VOL. 3, PG. 6, H.C.M.R.)
HIDALGO COUNTY, TEXAS.

MBCI®
Metal Roof and Wall Systems

FEB 1 2 1990

Precoated SIGNATURE® 200 Panel
LIMITED WARRANTY

Metal Building Components, Inc. warrants the panels, effective from the date of shipment, will perform in accordance to the following Signature® 200 Warranty:

PERFORMANCE SUMMARY

FILM INTEGRITY: The paint film WILL NOT crack, check, blister, peel, flake or chip for a period of twenty (20) years for Sidewall and Roof panels. Cracking is defined as breaks in the flat coating as opposed to breaks in the film caused by metal forming, which is not warranted hereunder.

CHALK RATING

YEARS	SIDEWALL Inclined 0°-15°	ROOF Inclined 16°-86°	ASTM
5	8	8	D659
10	8	8	D659
20	8	6	D659

FADE—ΔE (HUNTER) UNITS

YEARS	SIDEWALL Inclined 0°-15°	ROOF Inclined 16°-86°	ASTM
5	5	5	D2244
10	5	5	D2244
20	5	8	D2244

TERMS AND CONDITIONS

FAILED MATERIAL — If the panel finish fails to perform as indicated under the terms of Performance outlined above, MBCI shall have no liability with respect thereto except, at its sole option to repaint, replace, or restore the failed material, which shall be the purchaser's sole and exclusive remedy. Repainting shall not necessarily be Signature® 200. In no event, however, shall MBCI's responsibility extend to any consequential damages and in all cases MBCI reserves the right to approve and negotiate the contract for such repainting, replacing or restoring. The warranty on any repainted, replaced or restored coated material supplied hereunder shall be for the unexpired portion of the warranty period applicable to the original panel.

CLAIMS — Claims must be reported in writing to MBCI within thirty (30) days after discovery of nonconformance, rupturing, perforating or structurally failing sheet or for any special, indirect, or consequential loss of profits or any other incidental, general, special or compensatory damages to anyone by reason of the fact that such panels shall have been nonconforming, rupturing, perforating, or structurally failing. Adequate identification of the material involved in the claim, including date of installation, MBCI order number, invoice number, and date of shipment must be established by Buyer. A copy of this document must be presented to MBCI at time of claim. All notices given under or pursuant to this Agreement shall be in writing and sent by registered mail, postage prepaid, return receipt requested to:

Metal Building Components, Inc.
P. O. Box 38217
Houston, Texas 77238
Attn: A. R. Ginn/President

Precoated SIGNATURE® 200 Panel
LIMITED WARRANTY

ADDITIONAL WARRANTY LIMITATIONS –

A. This warranty covers the material exposed to normal atmospheric conditions (which term excludes corrosive or aggressive atmospheres such as, but not limited to, those contaminated with chemical fumes or direct salt spray) in the continental United States or Canada, unless MBCI agrees otherwise in writing. This warranty shall not apply where material failure is the result of fire, other accident or casualty, vandalism, salt spray, atomic radiation, harmful fumes or foreign substances in the atmosphere, acts of God, or other such occurrences beyond MBCI's control.

B. This warranty will not extend to or cover damages to the material due to improper packaging, shipping or processing as specified in the National Coil Coaters Association Technical Bulletin No. IV-(7), improper handling (whether pre-erection or during erection), improper storage, improper erection, or improper installation (which includes failure to permit drainage of standing water.)

C. Microscopic crazing of the film on outside radii is considered normal and is not to be construed as film cracking.

D. This warranty does not apply in the event of deterioration to the panels caused directly or indirectly by panel contact with inferior fasteners. Selection of suitable long-lasting fasteners to be used with MBCI extended life panels rests solely with the Purchaser.

E. This warranty will not extend to or cover:
   (a) Damage to the coating occasioned by moisture or other contaminations detrimental to the coating.
   (b) Water damage to any materials after they leave the possession of MBCI.
   (c) Damage to the prepainted metal caused by shipping, handling, and/or installation, storing, erecting and/or handling of the panels on the job site and/or any act or acts of negligence of the customer or any third party after the panels leave the possession of MBCI.
   (d) Damage to the prepainted metal caused by cascading water.

F. Customer shall exercise diligence in inspection of materials as received from MBCI prior to use so as to mitigate expense involved to MBCI under this warranty.

G. This warranty does not apply to the interior or reverse side finish nor does it extend to pre-painted materials used in interior (not atmospherically exposed) applications.

H. Panels repainted, replaced or otherwise restored under this warranty shall not extend the original warranty expiration date as applicable hereunder.

I. This warranty applies only to the paint film on the material and does not cover in any way any other aspect of the material.

ASSIGNMENT —This warranty shall extend to the purchaser of the material and is non-assignable and/or non-transferable. Should the Purchaser become insolvent, bankrupt, make an assignment for the benefit of its creditors, or for any reason discontinue its normal or regular business practices, this warranty shall forthwith become null and void and of no legal effect.

EXCEPT AS SET FORTH HEREIN, MBCI MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, LIMITED OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE MATERIAL. In no way shall MBCI be responsible for any loss of profit or any other incidental, general, special, compensatory or consequential damages resulting from the failure of the material covered by this warranty.

The laws of the State of Texas shall govern the rights and duties of the parties under this agreement and jurisdiction and venue is fixed in Harris County, Texas.

This Warranty is the full and complete agreement of the parties and shall not be modified, altered or extended except in writing signed by the President of MBCI.

EDINBURG ISD – EDINBURG MIDDLE SCHOOL
CHILLER RD. EDINBURG, TEXAS
Project Name

S5-4102
MBCI Job #

COLONY GREEN
Color(s)

Sharon Henshaw
Credit Department
Metal Building Components, Inc.

2/7/96
Date

MBCI®
Metal Roof and Wall Systems

MBCI®
Metal Roof and Wall Systems

BARE GALVALUME®
20 YEAR LIMITED WARRANTY

Metal Building Components, Inc. warrants the panels will perform in accordance to the following Bare GALVALUME® Warranty:

MBCI's hot dipped aluminum-zinc alloy coated GALVALUME® sheet steel sold for use as unpainted steel building roofing and siding panels, if erected within the United States WILL NOT rupture, fail structurally, or perforate within a period of 20 years from date of shipment due to exposure to normal atmospheric corrosion.

THIS WARRANTY DOES NOT APPLY to sheets exposed at any time to corrosive or aggressive atmospheric conditions, including but not limited to:

1. Areas subject to salt water marine atmospheres or to constant spraying of either salt or fresh water.
2. Areas subject to fallout or exposure to corrosive chemicals, fumes, ash, cement dust, or animal waste.
3. Areas subject to water run-off from lead or copper flashings or areas in metallic contact with lead or copper.
4. Conditions/circumstances where corrosive fumes or condensates are generated or released inside the building.

This warranty DOES NOT APPLY in the event of:

A. Degree of bending less than 2T for sheet gauges up to 0.030 in. and degree of bending less than 4T for sheet gauges 0.031 in. and thicker.

B. Slopes of roof or sections of the roof flatter than 1/4:12.

C. Mechanical, chemical, or other damage sustained during shipment, storage, forming, fabrication, during or after erection.

D. Forming which incorporates severe reverse bending or which subjects coating to alternate compression and tension.

E. Failure to provide free drainage of water, including internal condensation, from overlaps and all other surfaces of the sheets or panels.

F. Failure to remove debris from overlaps and all other surfaces of the sheets or panels.

G. Damage caused to the metallic coating by improper scouring or cleaning procedures.

H. Deterioration of the panels caused by contact with green or wet lumber or wet storage stain caused by water damage or condensation.

I. Presence of damp insulation or other corrosive materials in contact with or close proximity to the panel.

J. This warranty does not apply in the event of deterioration to the panels caused directly or indirectly by the panel contact with fasteners. Selection of suitable long-lasting fasteners to be used with GALVALUME® roofing and siding panels rests solely with the Buyer.

BARE GALVALUME®
20 YEAR LIMITED WARRANTY

This warranty shall be subject to the stipulations, limitations, and conditions hereinafter set forth:

1. MBCI's liability for breach of this warranty shall be limited exclusively to the cost of either repairing or replacing nonconforming, rupturing, perforating, or structurally failing panels.
2. MBCI shall not in any event be liable for the cost of labor expended by others on any nonconforming, rupturing, perforating or structurally failing sheet or for any special, indirect, or consequential loss of profits or any other incidental, general, special or compensatory damages to anyone by reason of the fact that such panels shall have been nonconforming, rupturing, perforating, or structurally failing.
3. This warranty will not extend to or cover damages to the material due to shipping, improper handling (whether pre-erection or during erection), improper storage, improper erection, or improper installation (which includes failure to permit drainage of standing water.)
4. Claims must be reported in writing to MBCI within thirty (30) days after discovery of nonconformance, rupture, perforation, or structural failing, and MBCI shall be given a reasonable opportunity (which shall not be less than thirty (30) days from the date of receipt of notification) to inspect the panels claimed to be nonconforming, rupturing, perforating, or structurally failing. Adequate identification of the material involved in the claim, including date of installation, MBCI order number, invoice number, and date of shipment must be established by Buyer. A copy of this document must be presented to MBCI at time of claim.
5. Buyer shall exercise diligence in inspection of sheets as received from MBCI so as to mitigate any expenses to MBCI under this warranty.
6. This warranty shall extend to the purchaser of the material and is non-assignable and/or non-transferable. Should the Buyer become insolvent, bankrupt, make an assignment for the benefit of its creditors, or for any reason discontinue its normal or regular business practice, this warranty shall forthwith become null and void and of no legal effect.
7. MBCI reserves the right to terminate this warranty at any time (except as to orders already accepted) upon the giving of written notice thereof.
8. Panel repaired or sheet product furnished under this warranty shall not extend the original warranty time period hereunder.
9. The laws of the State of Texas shall govern the rights and duties of the parties under this agreement and jurisdiction and venue is fixed in Harris County, Texas.
10. This warranty is the full and complete agreement of the parties and shall not be modified, altered or extended except in writing and signed by an authorized agent of MBCI and the Buyer.
11. All notices given under or pursuant to this Agreement shall be in writing and sent by registered mail, postage prepaid, return receipt requested, to: Metal Building Components, Inc.
    P. O. Box 38217
    Houston, Texas 77238
    Attn: A. R. Ginn/President

MBCI MAKES NO GUARANTEES OR WARRANTIES, EITHER EXPRESS OR IMPLIED, LIMITED OR OTHERWISE, EXCEPT AS SET FORTH HEREIN INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND SHALL HAVE NO OTHER LIABILITY WITH RESPECT THERETO.

GALVALUME® is a registered trademark of BIEC International Inc.

EDINBURG MIDDLE SCHOOL - CHILLER BUILDING
DOOLITTLE RD. - EDINBURG, TEXAS
Project Name

S4-12110
MBCI Job #

Sharon Henshaw
Credit Department
Metal Building Components, Inc.

6/14/95
Date

MBCI®
Metal Roof and Wall Systems

5-92/1.5M

METAL BUILDING COMPONENTS, INC.

JUN 15 RECD

UL 90 CERTIFICATE

Name Edinburg Middle School Date 6-14-95

Address Doolittle Rd City Edinburg

File Number _____

THIS CERTIFIES that the roof deck components manufactured by Metal Building Components, Inc. on the building indicated above have been fabricated according to specifications for Construction No. 161 Class 90 as prescribed in the Underwriter's Laboratories Building Material List.

MBCI Job #S4-012110
Edinburg ISD/Edinburg Middle School
Chiller Bldg./Doolittle Rd
Edinburg, TX

MBCI Coil #10880

Name
Vice President/Marketing
Title
Metal Building Components, Inc.
Manufacturer or Authorized Representative
P. O. Box 38217
Address
Houston TX
City State
77238 6/6/95
Zip Code Date

THIS CERTIFIES that the roof deck assembly on the building indicated above has been installed and anchored to the building according to good engineering practices and specifications for Construction No. 161 Class 90 as prescribed in Underwriter's Laboratories Building Material List.

Name
AUTHORIZED AGENT
Title
TRI City Steel
Company Name
P.O. Box 733
Address
Pharr TX
City State
78577 6-14-95
Zip Code Date

14031 West Hardy • Houston, Texas 77060 • P.O. Box 38217 77238-8217 • Telephone: (713) 445-8555

Kynar 500® or Hylar 5000™ Limited Warranty

Berridge Manufacturing Company warrants that *Kynar 500® or Hylar 5000™* 70% full-strength Fluoropolymer finish will perform for Twenty (20) years from date of installation as an effective surfacing material within the scope of the conditions and limitations defined in this warranty document:

EFFECTIVE SURFACING MATERIAL IS DEFINED TO MEAN:

A. Freedom from cracking, chipping or peeling due to the deterioration of the finish for a period of twenty (20) years from date of purchase, exclusive of mechanical damage or other abnormal contingencies. (See Para 2).

B. Freedom from any color changes in excess of 5 NBS Units (Using the NBS unit of color notation as measured on the MEECO Colormaster: ASTM-D-2244) for a period of twenty (20) years from date of purchase.

C. Freedom from chalking in excess of Number 8 Rating (ASTM-D-659-80) for a period of twenty (20) years from date of installation

MATERIAL DESCRIPTION: PATINA GREEN COIL,SEAMS,FLATS

SOLD TO:

BOWMAN DISTRIBUTING CO,INC.
4201 SOUTH EXPRESSWAY 83
P.O. BOX 1134

HARLINGEN,TEXAS 78551

JOB:

EDINBURY MIDDLE SCHOOL
DOOLITTLE & RUSSELL RD.
EDINBURY,TEXAS

INVOICE: #102581,102128,101267, 101318,99606,97894

EFFECTIVE DATE: MAY 7,1995

Jack A. Berridge — OCTOBER 18,1995

JACK A. BERRIDGE, PRESIDENT — **DATE**

NOTE: THIS LIMITED WARRANTY IS SUBJECT TO THE TERMS, CONDITIONS AND LIMITATIONS WHICH ARE STATED ON THE REVERSE SIDE OF THIS WARRANTY.

OCT 2 0 1995

BOWMAN DISTRIBUTING COMPANY, INC.

SINCE 1949
P.O. BOX 1134 - 4201 S. EXPRESSWAY 83 - HARLINGEN, TEXAS 78551
(210) 423-6002 • FAX (210) 425-1792

Re: EDINBURG MIDDLE SCHOOL

10-YEAR WATER TIGHTNESS LIMITED WARRANTY

Bowman Dist. Co., Inc. whose signature appears below ("Bowman,") warranties to the original Building Owner ("owner") that, subject to each and every term(s), condition(s), limitation(s), allocation(s) of warranty and responsibility(ies) stated herein, Bowman's workmanship on the above named building will be adequate to prevent leaks for 10 years commencing with the date of completion of installation of the Roofing System. This warranty will be fully satisfied by repair of the Roofing System, and any such repairs shall carry a warranty against leaks only for the then remaining balance of the original 10-year Warranty period.

- BOWMAN MAKES NO OTHER WARRANTY WHATEVER, EXPRESS OR IMPLIED. ALL EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL EXPRESSED OR IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE WHICH EXCEED OR DIFFER FROM THE WARRANTIES HEREIN EXPRESSED OR IMPLIED ARE DISCLAIMED AND EXCLUDED FROM THIS 10-YEAR WATER TIGHTNESS LIMITED WARRANTY.

The Roofing System is defined as the furnished roof sheeting and related items used to fasten the roof sheeting to the roof structure.

IN NO EVENT SHALL BOWMAN HAVE ANY LIABILITY FOR ANY COMMERCIAL LOSS, CLAIMS FOR LABOR OR CONSEQUENTIAL DAMAGES OF ANY TYPE, WHETHER OWNER'S CLAIM BE BASED ON CONTRACT, TORT, WARRANTY, STRICT LIABILITY, OR OTHERWISE. IT IS EXPRESSLY AGREED THAT OWNER'S REMEDIES AFFORDED HEREUNDER ARE OWNER'S EXCLUSIVE REMEDIES.

TERMS, CONDITIONS, LIMITATIONS

1. Owner shall provide Bowman with written notice within ninety (90) days of the discovery of any leak(s) in the Roofing System. Failure of Owner to do so shall automatically relieve Bowman of any and all responsibility and/or liability under this 10-year Water Tightness Limited Warranty.

2. If, upon Bowman's inspection, Bowman determines that the leaks in the Roofing System are caused by defects in the Roofing System, Bowman's Roofing System repair obligation shall then arise in accordance herewith, but Owner's remedies and Bowman's liability shall in any event be limited to repair of the Roofing System. If Bowman should determine that such leaks are caused in whole or in part by some event or condition other than by defects in the roofing system, Bowman shall so notify Owner in writing within ten (10) days following the completion of such inspection. In such event, Bowman may either (a) proceed to effect the repairs necessary to restore the roofing system to a water tight condition without waiver of its right to recover the customary and usual costs and expenses of performing any necessary repairs, or, (b) select a Registered Professional Engineer with reasonably extensive experience in roofing technology, who along with a similarly qualified person selected by Owner, will jointly select a third party possessing qualifications acceptable to Bowman's and Owner's representatives. Such third party, together with the two representatives, shall then by majority determination establish the cause of the leaks and the extent of Bowman's responsibility for their repair, which determination shall be binding on the parties.

3. Bowman shall have no liability or responsibility under or in connection with this 10 Year Water Tightness Limited Warranty or the Roofing System, if any one or more of the following shall occur:

- a. Deterioration caused by marine (salt water) atmosphere or by regular spray of either salt or fresh water.
- b. Corrosion caused by heavy fallout or exposure to corrosive chemical, ash or fumes from any chemical plant, foundry, plating works, kiln, fertilizer manufacturing, paper plant, aviation fuel or the like.
- c. Deterioration caused by any corrosive substance or any condensate of any harmful substances contained, generated or released inside the building.
- d. Damage caused by worker(s), other than Bowman's workers, to the Roofing System.
- e. Any other cause beyond the control of Bowman.
- g. If, after installation of the Roofing System by Bowman, alterations, including, but not limited to, structures, fixtures, or utilities are placed upon or attached to the roof without prior written authorization from Bowman.
- h. If there is any failure by the Owner or lessee or other occupant or user to use reasonable care in maintaining the Roofing System.
- i. If Owner fails to comply with any term and/or condition stated in this 10-Year Water Tightness Limited Warranty.
- k. If water is allowed to cascade onto any part of the roofing system in a manner other than as originally installed.
- l. If leaks are due to ventilators, skylights, gutter, valleys, flashings, or penetrations of the roof associated with signs, vents, equipment, or other causes.

4. During the term of this Warranty, Bowman, its sales representatives and employees, shall have free access to the roof during regular business hours.

5. In the event that the roofing system is constructed in a manner which differs from the drawings submitted by Bowman, or if additional structures are placed in or around the roofing system by someone other than Bowman, Bowman shall not have any obligation under this 10-Year Water Tightness Limited Warranty until final drawings of the completed roof are submitted to Bowman and accepted in writing by Bowman. Such drawings must show the exact number,

size and location of all roof penetrations and roof-top equipment. Photos of the roof should accompany the drawings.

6. Bowman shall not have any obligation under this 10-Year Water Tightness Limited Warranty until all bills for installation, supplies and services due Bowman have been paid in full.

7. Bowman shall not be responsible for any consequential damages or loss to the building, its contents or other materials, unless Bowman has failed to promptly respond to a request for repairs and such damages could otherwise have been averted. If Bowman responds to a written request within three (3) working days after receipt of notification by Owner that there are leaks which Owner contends Bowman has the obligation to repair, such response shall be deemed to have been prompt.

8. Bowman's failure at any time to enforce any of the terms or conditions stated herein shall not be construed to be a waiver of such provision or of the right to exercise any right in the future.

9. This 10-Year Water Tightness Limited Warranty supersedes and is in lieu of any and all other warranties (whether express or implied) that are either in addition to or in conflict with the term(s) stated herein.

10. If the Roofing System is covered by products of more than one roofing products manufacturer, this 10-Year Water Tightness Limited Warranty applies only to those portions of such roof which are covered solely by Bowman's products.

11. Notwithstanding any other provision of this 10-Year Water Tightness Limited Warranty, Bowman shall not have any liability or responsibility at any time for, or as a consequence of, any condensation or underside corrosion which is nor was caused at any time in part or wholly by any condensation resulting from either or both of the following:

- a. The use of any inadequate vapor barrier where the insulation is installed immediately beneath the roof panels. An adequate vapor barrier is defined as one which has a perm rating of .05 or less with sealed joints and perimeter.
- b. Inadequate ventilation of the space between a roof panel and insulation, when insulation is installed directly on top of an existing roof.

This 10-Year Water Tightness Limited Warranty is tendered for the sole benefit of the original Owner as named below and is not transferable or assignable.

The laws of the State of Texas shall govern the rights and duties of the parties under this agreement, and jurisdiction and venue is fixed in HIDALGO County, Texas.

ISSUED this 21st day of August, 1995.

BOWMAN DISTRIBUTING COMPANY, INC.
a Texas Corporation

BY: _____

ITS: President
(Title)

STATE OF TEXAS §
§
COUNTY OF CAMERON §

This instrument was acknowledged before me on the 18th day of October, 1995 by DENNIS BOWMAN, PRESIDENT of Bowman Distributing Company, Inc., a Texas corporation, on behalf of said corporation.

JACKIE D. MORGAN
NOTARY PUBLIC
State of Texas
Comm. Exp. 09-11-99

Jackie D. Morgan
NOTARY PUBLIC, STATE OF TEXAS

ACCEPTED:

_____
OWNER

BY:_____

ITS:_____
(Title)

STATE OF TEXAS §
§
COUNTY OF _____ §

This instrument was acknowledged before me on the ____ day of _____, 1995 by _____, _____ of _____ _____, a _____, on behalf of ____ _____.

_____
NOTARY PUBLIC, STATE OF TEXAS

TREMCO®

QUALITY ASSURANCE PROGRAM

10 YEAR WARRANTY

Owner: Edinburg Community Independent School District

Address: 921 East Schunior, Edinburg, TX 78539

Warranty Number: 22136

Building Description: Edinburg Middle School, Rogers and Doolittle Road, Edinburg, TX

Roof Area: 84,000 sq. ft.

Date of Completion: 8/01/95

Roofing Contractor: Rio Roofing Inc.

Address: 1114 E Jefferson Road, P O Box 530103, Harlingen, TX 78553-0103

System Type: NEW CONSTRUCTION: 2C60 MB

Installation Contract Price: $220,000.00

Tremco Incorporated hereby warrants to the above named Owner that, subject to the terms, conditions and limitations stated herein, it will repair any leaks in the above described Tremco Roofing System (hereinafter called TRS), as installed by the above named roofing contractor, for a period of ten (10) years from the date of completion (except as stated in Paragraph F). TRS shall be defined as the weatherproofing assembly and its components as specified by Tremco which includes the following: membrane, insulation, flashings, and termination details.

A. This warranty does not cover any damage or failure of the TRS or any part thereof as a result of:

1. Natural or accidental disasters, including but not limited to, damage caused by lightning, hailstorms, floods, hurricane force winds (74 mph) or greater, tornadoes, earthquakes, fire, vandalism, animals, or penetration of the membrane or chemical attack by outside agents.
2. Use of material not specified by Tremco.
3. Any intentional or negligent act on the part of the warranty owner or third party, including but not limited to, misuse, traffic or storage of materials on roof.
4. Distortion, expansion or contraction of any unguaranteed flashing or metal work, or faulty construction or design of building components, including parapet walls, copings, chimneys, skylights, vents or roof deck, or lack of positive, proper or adequate drainage resulting in ponding water on roof.

B. In the event any leaks should occur in the TRS roof within the warranty period, the Owner, as named above, shall notify Tremco Incorporated, 10701 Shaker Boulevard, Cleveland, OH 44104, in writing [illegible] However in no event more than thirty (30) days after leakage is or should have been discovered. Tremco will inspect the TRS roof and if the leak is within coverage of this warranty, will, at its own expense make or cause to be made all necessary repairs to the TRS roof to put it in watertight condition. To the extent any repairs to any part of the building other than the TRS roof are required, or the removal or replacement of any traffic surfaces or other encumbrances built over the roof are required in order to put the TRS roof in watertight condition, the liability or expense for such repair, removal or replacement shall be assumed and paid by the Owner. If the leak is not within warranty coverage, Tremco shall advise the Owner, and the Owner shall have the repairs performed within thirty (30) days, according to Tremco specifications, by a Tremco approved applicator. In the event an emergency condition exists which requires immediate repair to avoid substantial damage to the building or its contents, Tremco may instruct the Owner to make necessary temporary repairs.

C. Tremco, at its option, may upon reasonable notice, void this warranty for any of the following reasons:

1. Building settlement, deterioration, cracking or failure of the roof deck, coping and parapet walls and/or infiltration or condensation of moisture in, through or around walls, copings, underlying structure, hardware or equipment.
2. Change in usage of building without prior written approval of Tremco, repairs or alterations of roof or installation of structures, fixtures or utilities on or through roof without prior approval of Tremco.
3. Failure of Owner to pay all bills for installation, supplies and services sold in connection with this project, failure to notify Tremco within prescribed time of discovery of defect and/or leak, failure to repair non warranty leaks within time specified, according to Tremco specification, by approved applicator.
4. Failure of Owner to comply with roof maintenance as outlined in the Owners Manual.

D. THIS WARRANTY IS GIVEN IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. THE REMEDIES IN PARAGRAPH B, ABOVE, ARE THE SOLE AND EXCLUSIVE REMEDIES OF THE OWNER FOR ANY AND ALL CLAIMS ARISING UNDER, OR IN CONNECTION WITH OR IN ANY WAY RELATING TO THE TRS. NO REPRESENTATIVE HAS AUTHORITY TO VARY OR ALTER THESE TERMS. IN NO EVENT SHALL TREMCO BE LIABLE FOR ANY DAMAGE TO THE BUILDING ITSELF (OTHER THAN THE TRS), THE CONTENTS OF THE BUILDING, OR ANY OTHER SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. TREMCO'S TOTAL LIABILITY DURING THE FIRST YEAR OF THIS WARRANTY SHALL NOT IN ANY EVENT [illegible] TREMCO ROOFING SYSTEM AS APPEARS ABOVE. TREMCO'S MAXIMUM LIABILITY, FOLLOWING YEAR ONE, SHALL DEPRECIATE ON A STRAIGHT LINE DECLINING VALUE BASIS OVER THE LIFE OF THE WARRANTY, AND SHALL NOT IN ANY EVENT EXCEED SUCH PRORATED AMOUNT. TREMCO SHALL NOT BE LIABLE FOR ANY DAMAGES WHICH ARE BASED UPON NEGLIGENCE, BREACH OF WARRANTY, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY OTHER THAN THE EXCLUSIVE LIABILITY SET FORTH IN THIS WARRANTY.

E. Tremco's liability under this warranty shall not become effective until all bills for installation, supplies and services sold in connection with the roof have been paid in full.

F. The warranty period shall commence from the date of completion. Any delay in the effective date of this warranty due to circumstances referenced in Paragraph E shall not extend the original warranty expiration date.

G. Quality Assurance: Tremco will, during the second, and fifth year of this warranty, inspect and provide a written Executive Summary of the roof.

H. During the period of this warranty, Tremco will have free access to the roof and related premises during regular business hours, and will retain the right to make core extractions and properly repair such extractions.

I. The Owner's rights under this warranty are not transferable.

Signed the 7th day of November 19 95

TREMCO INCORPORATED

By [signature]

Title Warranty Administrator

WEATHERPROOFING TECHNOLOGIES, INC.
a service division of Tremco Incorporated

TREMCO

ROOF WARRANTY INFORMATION
EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

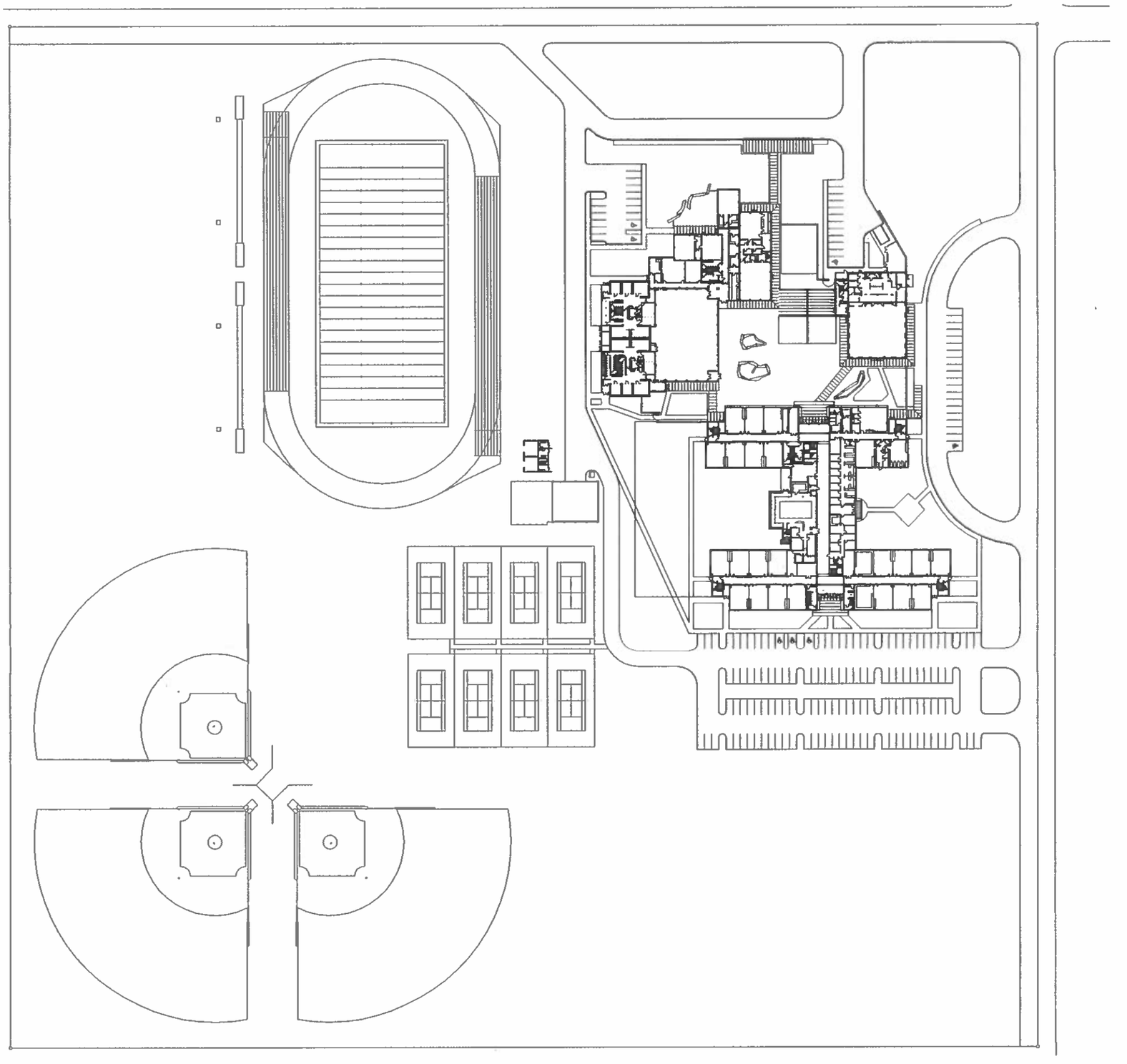
August 20, 2007

Tremco Warranty Number	Project Name	Contractor	Warranty Length (Years)	Warranty Effective Date	Project Size (S. F.)
101709	New High School 2600 E. Wisconsin Edinburg, TX	Rain King, Inc.	20	08/20/2004	303,800
89539	South Middle School 601 W. Freddy Gonzalez Edinburg, TX	American Contracting U. S. A., Inc.	15	04/12/2002	172,700
82741	Lyndon B. Johnson Elem. School 1801 E Sprague Edinburg, TX	American Contracting U. S. A., Inc.	15	10/11/2000	42,500
76447	Villarreal Elementary School 2-1/2 Mi. E. 281 on Monte Cristo Rd. Edinburg, TX	Rio Roofing , Inc.	15	12/15/1999	8,800
78097	Freddy Gonzalez Elementary School 2401 Sugar Road Edinburg, TX	American Contracting U. S. A., Inc.	15	09/03/1999	44,600
27080	Harwell Middle School 1100 E. Ebony Lane Edinburg, TX	American Contracting U. S. A., Inc.	15	08/28/1997	164,000
25514	Edinburg High School 801 E. Canton Rd. Edinburg, TX	American Contracting U. S. A., Inc.	15	12/19/1996	210,000
25509	Lincoln Elementary School 1319 E. Lovett St. Edinburg, TX	American Contracting U. S. A., Inc.	15	12/19/1996	55,000
25513	Travis Elementary School 1200 South 21st Street Edinburg, TX	American Contracting U. S. A., Inc.	15	12/19/1996	60,000
24739	Kennedy Elementary School Raul Longoria Rd. San Carlos, TX	Rio Roofing , Inc.	10	11/05/1996 **Expired**	9,400

WEATHERPROOFING TECHNOLOGIES, INC.
a service division of Tremco Incorporated

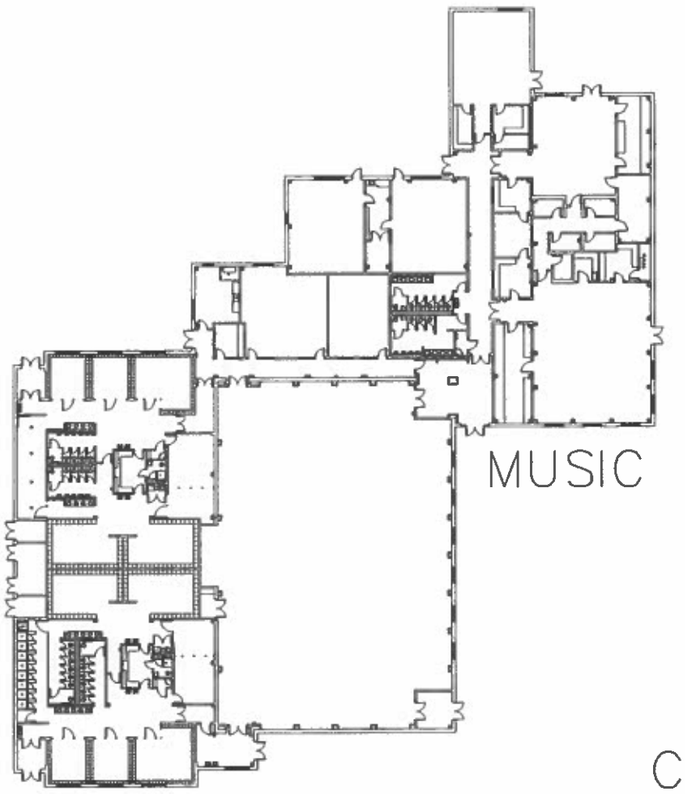
TREMCO

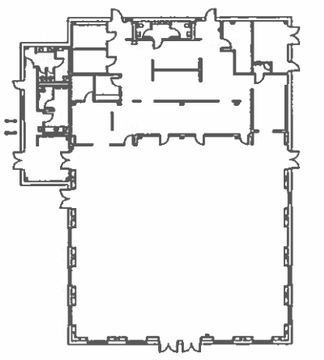
Tremco Warranty Number	Project Name	Contractor	Warranty Length (Years)	Warranty Effective Date	Project Size (S. F.)
24740	Cano-Gonzalez Elementary School Raul Longoria Rd. Edinburg, TX	Rio Roofing , Inc.	10	11/05/1996 **Expired**	9,400
24740	Lamar Elementary School Freddy Gonzalez Rd. Edinburg, TX	Rio Roofing , Inc.	10	11/05/1996 **Expired**	9,400
24657	Eisenhower Elementary School 2901 Russell Rd. Edinburg, TX	Halco Roofing of Texas, Inc.	10	01/13/1996 **Expired**	10,100
[redacted]	Edinburg Memorial Junior High Edinburg, TX		10	08/08/1995 **Expired**	84,000
	Rogers Road Elementary School Edinburg, TX		10	07/27/1994 **Expired**	7,200
	Canterberry Elementary School Phase 2 Edinburg, TX		10	06/19/1994 **Expired**	2,100
	Canterberry Elementary School Edinburg, TX		10	02/16/1993 **Expired**	11,700

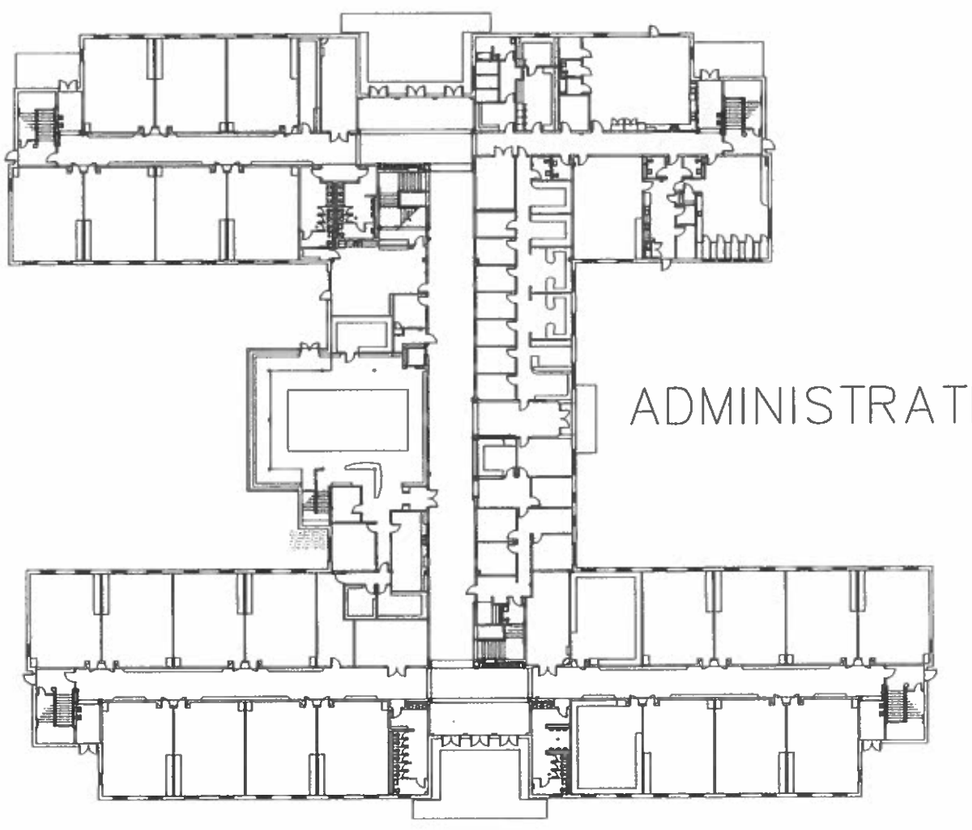


MEMORIAL MIDDLE SCHOOL
SITE PLAN
EDINBURG C.I.S.D.

EDINBURG C.I.S.D.







MEMORIAL MIDDLE SCHOOL
EDINBURG C.I.S.D.
GROUND LEVEL FLOOR PLAN

PLM Summary Report

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 22B-02539
Report Date : 03/09/2022
Sample Date :03/06/2022

On 3/8/2022, thirty nine (39) bulk material samples were submitted by Eloy Palacios of Terracon - Pharr for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
1	Pipe Insulation Mastic (White), Mechanical Room 112, Section B	None Detected - Thermal Insulation None Detected - Foil Wrap None Detected - White Mastic
2	Pipe Insulation Mastic (White), Mechanical Room 4, Section D	None Detected - White Mastic
3	Pipe Insulation Mastic (White), 2nd Floor, Mechanical Room 8, Section A	None Detected - Thermal Insulation None Detected - Foil Wrap None Detected - White Mastic
4	Pipe Insulation Mastic (White), Mechanical Room 112, Section B	None Detected - Thermal Insulation None Detected - White Mastic
5	Pipe Insulation Mastic (White), Mechanical Room 4, Section D	None Detected - Thermal Insulation None Detected - White Mastic
6	Pipe Insulation Mastic (White), 2nd Floor, Mechanical Room 8, Section H	None Detected - Thermal Insulation None Detected - White Mastic
7	HVAC Duct Mastic (Gray), Mechanical Room 112, Section B	None Detected - Paper / Foil Wrap None Detected - Gray Mastic
8	HVAC Duct Mastic (Gray), Mechanical Room 4, Section D	None Detected - Paper / Foil Wrap None Detected - Gray Mastic
9	HVAC Duct Mastic (Gray), 2nd Floor, Mechanical Room 8, Section A	None Detected - Gray Mastic
10	Drywall Construction (White) with Texture (Light), Mechanical Room 112, Section B	None Detected - Drywall Material None Detected - Joint Compound None Detected - Texture
11	Drywall Construction (White) with Texture (Light), Mechanical Room 4, Section D SEC	None Detected - Drywall Material None Detected - Joint Compound None Detected - Texture
12	Drywall Construction (White) with Texture (Light), 2nd Floor, Room 216, SEC	None Detected - Drywall Material None Detected - Texture / Joint Cmpd

PLM Summary Report

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 22B-02539
Report Date : 03/09/2022
Sample Date :03/06/2022

On 3/8/2022, thirty nine (39) bulk material samples were submitted by Eloy Palacios of Terracon - Pharr for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
13	Drywall Construction (White) with Texture (Light), 1st Floor, Mechanical Room 2, SEC	None Detected - Joint Compound None Detected - Texture
14	Drywall Construction (White) with Texture (Light), Storage Room, Floor 1, NEC	None Detected - Drywall Material None Detected - Joint Compound None Detected - Texture
15	Drywall Construction (White) with Texture (Light), Mechanical Room 8, Floor 1, SEC	None Detected - Drywall Material None Detected - Joint Compound None Detected - Texture
16	Drywall Construction (White) with Texture (Light), Room 222, Floor 2, NWC	None Detected - Drywall Material None Detected - Texture / Joint Cmpd
17	CMU Texture, Mechanical Room 112, Section B	None Detected - Paint / Texture
18	CMU Texture, Mechanical Room 4, Section D, SWC	None Detected - Paint / Texture
19	CMU Texture, 2nd Floor, Mechanical Room 8, Section A	None Detected - Paint / Texture
20	CMU Texture, 2nd Floor, Mechanical Room 2, East Wall	None Detected - Paint / Texture
21	CMU Texture, 1st Floor, Storage Room, NEC	None Detected - Paint / Texture
22	CMU Texture, 1st Floor, Mechanical Room 3, NWC	None Detected - Paint / Texture
23	CMU Texture, 2nd Floor, Room 222, NWC	None Detected - Paint / Texture
24	2 x 4 Suspended Acoustic Ceiling Tile (White with Pinholes and Fissures), Academic Building, Room 216, SWC	None Detected - Acoustic Tile
25	2 x 4 Suspended Acoustic Ceiling Tile (White with Pinholes and Fissures), Fine Arts Building, Main Hallway	None Detected - Acoustic Tile
26	2 x 4 Suspended Acoustic Ceiling Tile (White with Pinholes and Fissures), Cafeteria SWC	None Detected - Acoustic Tile
27	Pipe Insulation Mastic (White), Mechanical Room North, Fine Arts Building	None Detected - Thermal Insulation None Detected - White Mastic
28	Pipe Insulation Mastic (White), Mechanical Room North, Fine Arts Building	None Detected - Thermal Insulation None Detected - White Mastic

PLM Summary Report

2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 22B-02539
Report Date : 03/09/2022
Sample Date : 03/06/2022

On 3/8/2022, thirty nine (39) bulk material samples were submitted by Eloy Palacios of Terracon - Pharr for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
29	Pipe Insulation Mastic (White), Mechanical Room South, Fine Arts Building	None Detected - Thermal Insulation None Detected - White Mastic
30	Pipe Insulation Mastic (White), Mechanical Room North, Fine Arts Building	None Detected - Thermal Insulation None Detected - White Mastic
31	Pipe Insulation Mastic (White), Mechanical Room North, Fine Arts	None Detected - Thermal Insulation None Detected - White Mastic
32	Pipe Insulation Mastic (White), Mechanical Room South, Fine Arts	None Detected - Thermal Insulation None Detected - White Mastic
33	CMU Texture, Mechanical Room North, Fine Arts	None Detected - Paint / Texture
34	CMU Texture, Mechanical Room South, Fine Arts	None Detected - Paint / Texture
35	CMU Texture, Cafeteria, NEC	None Detected - Paint / Texture
36	CMU Texture, Cafeteria, SEC	None Detected - Paint / Texture
37	CMU Texture, Cafeteria, NWC	None Detected - Paint / Texture
38	CMU Texture, Cafeteria, SWC	None Detected - Paint / Texture
39	CMU Texture, Kitchen, SEC	None Detected - Paint / Texture

These samples were analyzed by layers. Quantification, unless otherwise noted, is performed by calibrated visual estimate. The test report shall not be reproduced except in full without written approval of the laboratory. The results relate only to the items tested. These test results do not imply endorsement by NVLAP or any agency of the U.S. Government. Accredited by the National Voluntary Laboratory Accreditation Program for Bulk Asbestos Fiber Analysis under Lab Code 102056-0.

NVLAP Testing NVLAP Lab Code 102056-0

Analyst(s): Bruce Crabb

Lab Manager : Heather Lopez — Approved Signatory : Heather Lopez

Lab Director : Bruce Crabb — Approved Signatory : Bruce Crabb

Thank you for choosing Moody Labs

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Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050

Lab Job No. : 22B-02539
Report Date : 03/09/2022

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
1	Thermal Insulation (Yellow)	3%	Mineral Wool Fibers	95%	03/08	BC
			Resin Binders	5%		
	Foil Wrap (Silver)	2%	Metal Foil	100%		
	White Mastic (Off-White)	95%	Quartz Grains	5%		
			Pigment / Binders	95%		
2	White Mastic (Off-White)	100%	Quartz Grains	5%	03/08	BC
			Pigment / Binders	95%		
3	Thermal Insulation (Yellow)	3%	Mineral Wool Fibers	95%	03/08	BC
			Resin Binders	5%		
	Foil Wrap (Silver)	2%	Metal Foil	100%		
	White Mastic (Off-White)	95%	Quartz Grains	5%		
			Pigment / Binders	95%		
4	Thermal Insulation (Yellow)	5%	Mineral Wool Fibers	95%	03/08	BC
			Resin Binders	5%		
	White Mastic (Off-White)	95%	Quartz Grains	5%		
			Pigment / Binders	95%		
5	Thermal Insulation (Yellow)	5%	Mineral Wool Fibers	95%	03/08	BC
			Resin Binders	5%		
	White Mastic (Off-White)	95%	Quartz Grains	5%		
			Pigment / Binders	95%		
6	Thermal Insulation (Yellow)	5%	Mineral Wool Fibers	95%	03/08	BC
			Resin Binders	5%		
	White Mastic (Off-White)	95%	Quartz Grains	5%		
			Pigment / Binders	95%		
7	Paper / Foil Wrap (Tan / Silver)	15%	Cellulose Fibers	60%	03/08	BC
			Glass Wool Fibers	20%		
			Metal Foil	20%		
	Gray Mastic (Gray)	85%	Glass Wool Fibers	1%		
			Graphite	10%		
			Calcite Binders / Fillers	89%		

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050

Lab Job No. : 22B-02539
Report Date : 03/09/2022

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
8	Paper / Foil Wrap (Tan / Silver)	15%	Cellulose Fibers	60%	03/08	BC
			Glass Wool Fibers	20%		
			Metal Foil	20%		
	Gray Mastic (Gray)	85%	Glass Wool Fibers	1%		
			Graphite	10%		
			Calcite Binders / Fillers	89%		
9	Gray Mastic (Gray)	100%	Glass Wool Fibers	1%	03/08	BC
			Calcite Binders / Fillers	99%		
10	Drywall Material (White)	15%	Glass Wool Fibers	2%	03/08	BC
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper / Tape (Tan / White)	15%	Cellulose Fibers	100%		
	Joint Compound (White)	25%	Calcite / Talc / Binders	100%		
	Texture (White)	45%	Calcite / Talc / Binders	100%		
11	Drywall Material (White)	45%	Glass Wool Fibers	2%	03/08	BC
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper / Tape (Tan / White)	15%	Cellulose Fibers	100%		
	Joint Compound (White)	15%	Calcite / Talc / Binders	100%		
	Texture (White)	25%	Calcite / Talc / Binders	100%		
12	Drywall Material (White)	55%	Glass Wool Fibers	2%	03/08	BC
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper Facing (Tan)	15%	Cellulose Fibers	100%		
	Texture / Joint Cmpd (White)	30%	Calcite / Talc / Binders	100%		
13	Joint Compound (White)	55%	Calcite / Talc / Binders	100%	03/08	BC
	DW Tape (White)	10%	Cellulose Fibers	100%		
	Texture (White)	35%	Calcite / Talc / Binders	100%		

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050

Lab Job No. : 22B-02539
Report Date : 03/09/2022

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
14	Drywall Material (White)	65%	Glass Wool Fibers	2%	03/08	BC
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper / Tape (Tan / White)	10%	Cellulose Fibers	100%		
	Joint Compound (White)	10%	Calcite / Talc / Binders	100%		
	Texture (White)	15%	Calcite / Talc / Binders	100%		
15	Drywall Material (White)	45%	Glass Wool Fibers	2%	03/08	BC
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper / Tape (Tan / White)	15%	Cellulose Fibers	100%		
	Joint Compound (White)	15%	Calcite / Talc / Binders	100%		
	Texture (White)	25%	Calcite / Talc / Binders	100%		
16	Drywall Material (White)	65%	Glass Wool Fibers	2%	03/08	BC
			Cellulose Fibers	1%		
			Gypsum / Binders	97%		
	DW Paper Facing (Tan)	15%	Cellulose Fibers	100%		
	Texture / Joint Cmpd (White)	20%	Calcite / Talc / Binders	100%		
17	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
18	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
19	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
20	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
21	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
22	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050

Lab Job No. : 22B-02539
Report Date : 03/09/2022

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
23	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
24	Acoustic Tile (Light Tan)	100%	Cellulose Fibers	40%	03/09	BC
			Mineral Wool Fibers	40%		
			Perlite	20%		
25	Acoustic Tile (Light Tan)	100%	Cellulose Fibers	40%	03/09	BC
			Mineral Wool Fibers	40%		
			Perlite	20%		
26	Acoustic Tile (Light Tan)	100%	Cellulose Fibers	40%	03/09	BC
			Mineral Wool Fibers	40%		
			Perlite	20%		
27	Thermal Insulation (Yellow)	15%	Mineral Wool Fibers	95%	03/09	BC
			Resin Binders	5%		
	White Mastic (Off-White)	85%	Quartz Grains	2%		
			Pigment / Binders	98%		
28	Thermal Insulation (Yellow)	15%	Mineral Wool Fibers	95%	03/09	BC
			Resin Binders	5%		
	White Mastic (Off-White)	85%	Quartz Grains	2%		
			Pigment / Binders	98%		
29	Thermal Insulation (Yellow)	15%	Mineral Wool Fibers	95%	03/09	BC
			Resin Binders	5%		
	White Mastic (Off-White)	85%	Quartz Grains	2%		
			Pigment / Binders	98%		
30	Thermal Insulation (Yellow)	5%	Mineral Wool Fibers	95%	03/09	BC
			Resin Binders	5%		
	White Mastic (White)	95%	Wollastonite	3%		
			Glass Wool Mesh	3%		
			Binders / Fillers	94%		

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Pharr
Project : Memorial Middle School
Project # : 88227050

Lab Job No. : 22B-02539
Report Date : 03/09/2022

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
31	Thermal Insulation (Yellow)	5%	Mineral Wool Fibers	95%	03/09	BC
			Resin Binders	5%		
	White Mastic (Off-White)	95%	Quartz Grains	2%		
			Pigment / Binders	98%		
32	Thermal Insulation (Yellow)	5%	Mineral Wool Fibers	95%	03/09	BC
			Resin Binders	5%		
	White Mastic (White)	95%	Wollastonite	3%		
			Binders / Fillers	97%		
33	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
34	Paint / Texture (White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
35	Paint / Texture (Blue/White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
36	Paint / Texture (Green/White)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
37	Paint / Texture (White/Green)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
38	Paint / Texture (White/Blue)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		
39	Paint / Texture (White/Orange)	100%	Calcite	25%	03/09	BC
			Pigment / Binders	75%		

SERVICE | QUALITY | INTEGRITY | SUSTAINABILITY

200 South 10th Street
Suite 901
McAllen, TX 78501
v 956.683.1640

Addendum

DATE
4/7/2022

ADDENDUM NO.
2

PROJECT 218007.002| Edinburg CISD - Memorial MS - HVAC Improvements

The work described herein shall be added to the scope of work defined by the contract documents or it shall modify the scope of work defined by the contract documents as described. This work shall become a part of the contract documents by addendum.

SPECIFICATIONS

Item 01 **Specification 23 73 13 – Modular Central Station Air Handling Units**

A. Replace specification section in its entirety.

DRAWINGS

Item 02 **SHEET M0.01 – MECHANICAL LEGEND**

A. Added general note 23.

Item 03 **SHEET MD2.12F – LEVEL 1 MECHANICAL DEMO PLAN – F.**

A. Revised keyed notes 2 and 3.

Item 04 **SHEET MD2.13G – LEVEL 1 MECHANICAL DEMO PLAN – G.**

A. Replaced keyed note 4 with keyed note 3 for EXRTU-19 and EXRTU-20.

Item 05 **SHEET MD3.12 – ENLARGED MECHANICAL DEMO PLAN**

A. Revised keyed notes 3 and 10.

Item 06 **SHEET MD3.13 – ENLARGED MECHANICAL DEMO PLAN**

A. Scheduled cooling tower 3-way valve to be demolished.
B. Clarified that the chillers and cooling towers to remain.
C. Revised keyed note 6.

Item 07 **SHEET M1.11 – COMPOSITE LEVEL 1 MECHANICAL HYDRONIC PIPING PLAN**

A. Added differential pressure sensor.

Item 08 **SHEET M2.11A – LEVEL 1 MECHANICAL PLAN - A**

A. Revised keyed note 1.

Item 09 SHEET M2.11B – LEVEL 1 MECHANICAL PLAN - B

A. Revised keyed note 1.

Item 10 SHEET M2.11C – LEVEL 1 MECHANICAL PLAN - C

A. Revised keyed note 1.

Item 11 SHEET M2.11D – LEVEL 1 MECHANICAL PLAN - D

A. Revised keyed note 1.

Item 12 SHEET M3.10 – ENLARGED MECHANICAL ROOM PLANS

A. Revised view of enlarged mechanical room plan #5.

Item 13 SHEET M3.11 – ENLARGED MECHANICAL ROOM PLANS

A. Replaced keyed note 5 with keyed note 10 on LEVEL 2A MECHANICAL AHU-8.
B. Revised view of LEVEL 2B MECHANICAL AHU-9.
C. Revised view of LEVEL 2B MECHANICAL AHU-10.

Item 14 SHEET M3.13 – ENLARGED MECHANICAL ROOM PLANS

A. Corrected title block.
B. Added control valves to condenser water at chillers.
C. Revised keyed note 9.

Item 15 SHEET M4.02 – MECHANICAL CONTROLS

A. Revised Single Zone VAV Air Handling Unit – Control Schematic and Sequence of Operations.
B. Revised Multi Zone VAV Air Handling Unit – Control Schematic and Sequence of Operations.

Item 16 SHEET M4.03 – MECHANICAL CONTROLS

A. Revised Chilled Water System – Variable Primary Flow – Control Schematic Sequence of Operations
B. Revised Condenser Water System – Chiller Plant – Control Schematic and Sequence of Operations

Item 17 SHEET M5.01 – MECHANICAL SCHEDULES

A. Revised fan schedule.
B. Revised packaged dx roof top unit schedule

Item 18 SHEET M5.02 – MECHANICAL SCHEDULES

A. Removed duplicate details #7 and #8.

Item 19 SHEET M6.01 – MECHANICAL SCHEDULES

A. Corrected detail numbering.

Item 20 SHEET EP2.11C – LEVEL 1 ELECTRICAL POWER PLAN - C

Addendum No. 1

A. Added distribution panel DP-C.

Item 21 **SHEET EP2.12G – LEVEL 1 ELECTRICAL POWER PLAN - G**

A. Showed location of existing panel CK.

Item 22 **SHEET E3.01 – ELECTRICAL ENLARGED POWER PLANS**

A. Added power for Refrigerant Monitoring Panel and chiller valves.

Item 23 **SHEET E4.01 – ELECTRICAL ONE-LINE DIAGRAM**

A. Added distribution panel DP-C.
B. Revised the feeding of branch circuit panels MC1, MC2, MD1, MD2, MF1 and MG1.

Item 24 **SHEET E5.01 – ELECTRICAL SHCEDULES**

A. Revised the parameters of panels MC1 and MD1.

Item 25 **SHEET E5.02 – ELECTRICAL SHCEDULES**

A. Revised the parameters of panel MG1.

Item 26 **CSP Request for Information**

A. Question: Schedule/Phasing: Is there a project schedule or phasing plan for Memorial Middle School and or Edinburg High School?
Answer: There is no set schedule nor phasing for the project. This will be determined once the project is awarded. The owner has expressed the desire to replace one air handler at a time to allow for relocation of students as staff during the down time of the equipment. During long periods of time where there is no school, such as holidays, the contractor may schedule several equipment replacements.
B. Question: Schedule/Phasing: Is there a project completion deadline for Memorial Middle School and or Edinburg High School to meet the funding requirements of the ESSER funds?
Answer: There is an expected date of completion of 2024.

END OF ADDENDUM

SECTION 23 73 13

MODULAR INDOOR CENTRAL STATION AIR HANDLING UNITS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Indoor central station air handling unit.

B. The Contractor and the building automation controls installer shall participate in the commissioning process of this equipment as required; including, but not limited to, meeting attendance, completion of checklists, and participation in functional testing.

1.2 RELATED SECTIONS

A. Section 23 02 00 - Basic Materials and Methods for HVAC

B. Section 23 05 16 - Expansion Fittings and Loops for HVAC Piping

C. Section 23 05 13 - Common Motor Requirements for HVAC Equipment

D. Section 23 05 26 - Variable Frequency Motor Speed Control for HVAC Equipment

E. Section 23 05 48 - Vibration and Seismic Controls for HVAC Piping and Equipment

F. Section 23 07 13 - Duct Insulation

G. Section 23 31 13 - Metal Ductwork

H. Section 23 33 00 - Ductwork Accessories

I. Section 23 34 00 - HVAC Fans

J. Section 23 41 00 - Air Filters

1.3 REFERENCES

A. AHRI 260 - Sound Rating of Ducted Air Moving and Conditioning Equipment.

B. AHRI 410 - Forced-Circulation Air-Cooling and Air-Heating Coils.

C. AHRI 430 (I-P) - Performance Rating of Central Station Air-handling Unit Supply Fans.

D. AMCA 210 - Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating.

E. AMCA 300 - Reverberant Room Method for Sound Testing of Fans.

F. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems.

G. ASHRAE Std 15 - Safety Standard for Refrigeration Systems.

H. ASHRAE Std 62.1 - Ventilation for Acceptable Indoor Air Quality.

I. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings.

J. ICC (IECC) - International Energy Conservation Code.

K. NEMA MG 1 - Motors and Generators.

L. NFPA 70 - National Electrical Code.

M. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems.

1.4 QUALITY ASSURANCE

A. Unit performance shall be certified in accordance with AHRI 430 (I-P) for central station air handling units.

B. Coil performance shall be certified in accordance with AHRI 410.

C. Direct-expansion coils shall be designed and tested in accordance with ASHRAE Std 15 Safety Code for Mechanical Refrigeration.

D. Insulation and insulation adhesive shall comply with NFPA 90A requirements or flame spread and smoke generation.

E. Unit shall be rated for sound performance in accordance with AHRI 260 and AMCA 300.

F. Unit shall be provided to comply with the maximum allowable fan horsepower per ICC (IECC) and ASHRAE Std 90.1 I-P.

1.5 GENERAL DESCRIPTION

A. Indoor mounted, central station air handling unit designed to provide air to a conditioned space as required to meet specified performance requirements for ventilation, heating, cooling, filtration, and distribution. Unit shall be assembled for horizontal/vertical application and arranged to discharge conditioned air as shown on the drawings. Units shall be supplied by the specified manufacturer.

1.6 SUBMITTALS

A. Submit shop drawings and product data under provisions of Division One.

B. Shop drawings shall indicate assembly, unit dimensions, weight loading, required clearances, construction details, and field connection details.

C. Product data shall indicate dimensions, weights, capacities, ratings, fan performance, motor electrical characteristics, and gauges and finishes of materials.

D. Provide fan curves with specified operating point clearly plotted.

E. Submit product data of filter media, filter performance data, filter assembly, and filter frames.

F. Submit electrical requirements for power supply wiring including wiring diagrams for interlock and control wiring, clearly indicating factory installed and field installed wiring.

G. Submit manufacturer’s installation instructions under provisions of Division One.

H. Submit operation and maintenance data under provisions of Section 23 02 00.

I. Include instructions for lubrication, filter replacement, motor and drive replacement, spare parts lists, and wiring diagrams.

1.7 WARRANTY

A. The air handling unit manufacturer shall warrant parts and labor for a period of eighteen (18) months from date of shipment, or twelve (12) months from date of start-up, whichever occurs first.

1.8 DELIVERY, STORAGE AND HANDLING

A. Unit shall be stored and handled in accordance with the unit manufacturer's instructions.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not operate units for any purpose, temporary or permanent, until ductwork is clean, filters are in place, and fan has been test-run under observation.

1.10 OPERATIONS PERSONNEL TRAINING

A. Provide a training session for the owner's operations personnel. Training session shall be performed by a qualified person who is knowledgeable in the subject system/equipment. Submit a training agenda two (2) weeks prior to the proposed training session for review and approval. Training session shall include at the minimum:

1. Purpose of equipment.
2. Principle of how the equipment works.
3. Important parts and assemblies.
4. How the equipment achieves its purpose and necessary operating conditions.
5. Most likely failure modes, causes and corrections.
6. On site demonstration.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Carrier

B. Trane

C. JCI

D. Daikin

E. Temtrol

2.2 GENERAL DESCRIPTION

A. Unit shall be factory supplied, central station air handler suitable for the capacities and configurations as shown on drawings. Unit may consist of a fan and coil section with a factory installed chilled water or direct-expansion coil, heating coil section, electric heat section, face and bypass section, filter section, access section, mixing box or combination filter-mixing box, return fan, diffuser, or air blender as indicated on the drawings.

B. All sections, whether assembled into a unit or supplied as separate components, shall have mating flanges for bolted assembly. The flange shall extend around the complete perimeter of each section. The manufacturer shall supply bolts and sufficient closed cell gasket for full perimeter coverage.

2.3 CASING

A. All unit sections shall be supplied with a formed galvanized steel perimeter base rail of at least 6 inches in height designed to support the weight and structural integrity of the unit. Condensate drain connection will not penetrate the base rail. If external isolators are not used, provide 6 inch minimum

height housekeeping pads or sufficient overall height to provide p-trap with 1 inch greater that unit total static pressure.

B. Unit panels for all sections shall be double wall construction. Panel deflection shall not exceed L/240 ratio at +5/-6 in w.c. of pressure at the panel midpoint. . Casing panels shall be fully removable for easy access to the unit, and shall be secured to structural frame with aluminized or cadmium plated screws. Removal of panels must not affect the structural integrity of the unit. All panels shall have a minimum of 2-inch thick foam insulation (R-13). All panels shall be completely gasketed prior to shipping.

C. Casing air leakage shall not exceed 0.5 CFM per square foot of casing surface area at +5/-6" in w.c. of pressure. Specified air leakage shall be accomplished without the use of caulk.

D. Double wall hinged removable access doors with multiple handles shall be provided in the fan, coil, and filter sections on the drive side of the unit. Access doors must also be provided in all sections where the removal of sheet metal screws is required for unit access. Doors shall be of the same thickness and construction as the wall panels. A gasket shall be provided around the entire door perimeter. Access sections shall be installed where indicated on the drawings and shall be double walled hinged door.

2.4 FANS

A. Units shall be provided with direct-driven, single-width, single-inlet (SWSI) airfoil plenum fans constructed per AMCA requirements for the duty specified. Class I fans are not acceptable. Fan wheels shall be aluminum construction and rated in accordance with and certified by AMCA 210. All fans shall be selected to deliver the specified airflow quantity at the specified operating Total Static Pressure and specified fan/motor speed. The fan shall be selected to operate at a system Total Static Pressure that does not exceed 90% of the specified fan's peak static pressure producing capability at the specified fan/motor speed. Each fan/motor assembly shall include a minimum 14 gauge spun steel fan inlet funnel, and a G90 galvanized steel motor support plate and fan base with 2" spring type vibration isolation. Provide horizontal spring type thrust restraints between the unit casing and each fan/motor assembly.

B. Units delivering supply airflow rates of significant magnitude shall be equipped with multiple supply fans in an array configuration. Refer to scheduled values to verify motor quantity per unit. Where multiple fans are provided, provide a manual blank-off plate for each unit to be mounted upstream of each fan for isolation. Each unit shall have factory mounted conduit and wiring from each fan motor terminated at an external junction box.

2.5 MOTORS

A. All motors shall be premium efficiency, totally enclosed fan-cooled (TEFC), selected at the specified operating voltage, RPM, and efficiency as specified or as scheduled elsewhere. Motors shall meet the requirements of NEMA MG 1 Part 30 and 31, section 4.4.2. Motor HP shall not exceed the scheduled HP as indicated in the AHU equipment schedules.

B. All fan motors shall be operated from variable frequency drives. Variable frequency drives shall be furnished, installed, and wired by the installing Contractor. Reference Section 23 05 26 - Variable Frequency Motor Speed Control for HVAC Equipment for additional VFD requirements.

C. All motors operated by variable frequency drive shall be equipped with a maintenance free, conductive microfiber, shaft grounding ring with a minimum of two rows of circumferential microfibers to discharge electrical shaft currents within the motor and/or its bearings.

2.6 COILS

A. All coils shall be tested at 300 psig air pressure, under water.

B. All coils shall be installed on tracks for easy removal from the air handling unit. Units that require disassembly of the unit for coil removal are not acceptable.

C. Coils shall be aluminum plate fin type with belled collars and shall be bonded to 1/2 inch or 5/8 inch OD copper tubes by mechanical expansion. Coils shall have headers with steel MPT connections. Working pressure shall be 250 psig at 300°F.

D. All coil segments shall be furnished with 304 stainless steel coil casings and 304 stainless steel coil supports.

E. Coils shall be drainable and have non-trapping circuits. Headers shall have drain and vent connections extended to the outside of the unit casing. Supply and return headers shall be clearly labeled on the outside of the unit. Provide grommets at all pipe penetrations through cabinet.

F. Main drain pan shall be double wall stainless steel with minimum 2 inch insulation, sloped toward drain fitting, with integral elbow for side discharge and FPT connection, and shall comply with ASHRAE Std 62.1. A maximum of one drain shall be supplied for each cooling coil section which shall extend at least 16” downstream of the coil (units with a single fan can be reduced to 12”). The unit design shall not require a drain pan in any downstream section to contain the coil condensate. Moisture shall not carry over past the coil. Moisture eliminators are not acceptable for moisture carryover prevention.

G. Direct expansion coils shall be furnished with a brass distributor with solder type connections. Suction and discharge connections shall be on the same end regardless of rows deep. Coils shall have intertwined circuits for equal operation on each circuit. Provide the number of distributors equal to the amount of refrigerant circuits to the associated condensing unit. Direct expansion coil shall be selected to match the saturated suction temperature and capacity of the associated condensing unit.

H. Maximum face velocity across cooling coils shall be 500 FPM, unless noted otherwise on equipment schedule.

I. Coils in series shall have a minimum of 14 inch access section between coil casings.

J. In units larger than 10,000 cfm, coils shall be removable through a service panel without disassembly of the unit.

2.7 FILTERS

A. Filter section shall accept 2 inch or 4 inch filters of standard sizes as indicated on drawings and shall be designed and constructed to house the type of filter specified. Section shall include side access slide rails.

B. A magnahelic differential pressure gauge shall be factory installed and flush mounted on drive side to measure the pressure drop across the filter.

C. A dirty filter allowance of 0.50” w.g. shall be incorporated into the total static pressure calculation of each air handling unit filter section.

D. Reference Section 23 41 00 - Air Filters for additional requirements.

2.8 MIXING BOXES AND INLET PLENUMS

A. Mixing boxes and inlet plenums shall be factory installed unless otherwise indicated on the Mechanical Drawings.

B. Field fabricated mixing boxes and sheet metal plenums shall be provided by the installing Contractor where indicated on the Mechanical Drawings. When field fabricated mixing boxes are provided, the installing Contractor and EMCS Contractor shall provide outside air and return air motorized control dampers and actuators.

C. Factory installed mixing boxes, economizer, and/or inlet plenums shall have factory mounted motorized control dampers. Dampers shall be opposed blades and interconnecting outside air, return air, and mixed air (if applicable) type. Installing EMCS Contractor shall furnish damper actuators. All

factory installed mixing boxes shall have a double wall hinged access door on the drive side of the unit.

2.9 ACCESSORIES

A. All damper blades shall be galvanized steel, double skin airfoil type, housed in a galvanized steel frame and mechanically fastened to a hex axle rod rotating in stainless steel bearings. Dampers shall be sectionalized to limit blade length to no more than 48 inches so as to minimize blade warpage. Blade seals are required to assure tight closure. The damper shall be rated for a maximum leakage rate of 1 percent of nominal airflow at 1 inch w.g.

PART 3 - EXECUTION

3.1 INSTALLATION

A. If floor mounted air handling units are furnished with internal vibration isolation option, provide 2" thick Amber/Booth type NRC ribbed neoprene pads or approved equal to address high frequency breakout and provide additional unit elevation with overall sufficient height to provide p-trap with one inch greater than the unit total static pressure. Ribbed neoprene pads shall be located in accordance with the air handling unit manufacturer's recommendations. Condensate drain connection shall not penetrate the base air handling unit's rail.

B. Install in accordance with manufacturer's instructions.

C. All items required for a complete and proper installation are not necessarily indicated on the plans or in the specifications. Provide all items required as per manufacturer's requirements.

D. Make electrical connections, taking care that these do not block access to any part of the equipment requiring service.

E. Unit wiring shall comply with NFPA 70 and all applicable UL standards.

F. Connect full size condensate drain pipe to air handling unit and extend to nearest drain. Pipe shall be schedule 40 galvanized steel with malleable iron screwed fittings.

G. Unit installation shall comply with NFPA 90A requirements.

H. System Startup Requirements: The installing Contractor service technician shall startup all air handling units. Technician shall at a minimum perform the following steps for each unit:

1. Energize the unit disconnect switch.
2. Verify correct voltage, phases and cycles.
3. Energize fan motor and verify correct direction of rotation.
4. Re-check damper operation: verify that unit cannot and will not operate with all dampers in the closed position.
5. Energize fan motors and verify that motor FLA is within manufacturer's tolerance of nameplate FLA for each phase.

I. Do not operate units for any purpose, temporary or permanent, until ductwork is clean, filters are in place, bearings lubricated, and fans have been test run under observation.

J. The installing Contractor shall comply with manufacturer's start-up requirements to ensure safe and correct operation.

END OF SECTION

ABBREVIATIONS

A

	AIR (COMPRESSED)
ABV	ABOVE
A/C	AIR CONDITIONING
AC	ALTERNATING CURRENT, AIR COMPRESSOR
ACCH	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR, AREA DRAIN
ADJ	ADJUSTABLE
AF	AIR FILTER
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHRI	AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AMB	AMBIENT
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECT, ARCHITECTURAL
AS	AIR SEPARATOR
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AV	ACID VENT, AIR VENT
AVG	AVERAGE
AW	ACID WASTE
AWS	AMERICAN WELDING SOCIETY
AUX	AUXILIARY

B

B	BOILER
BC	BELOW COUNTER
B/C	BACK OF CURB
BFF	BELOW FINISHED FLOOR
BFV	BUTTERFLY VALVE
BH	BOX HYDRANT
BLDG	BUILDING
BM	BENCHMARK
BOF	BOTTOM OF FOOTING
BOS	BOTTOM OF STRUCTURE
BP	BACKFLOW PREVENTER
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BWV	BACK WATER VALVE

C

C	CELSIUS
CAB	CABINET
CB	CATCH BASIN
CD	CONDENSATE DRAIN LINE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CH	CHILLER
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CI	CAST IRON
CIRC	CIRCULATING
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMB	COMBINATION
COMP	COMPRESSOR
CONC	CONCRETE, CONCENTRIC
COND	CONDENSER, CONDENSATE
CONN	CONNECTION
CONT	CONTINUOUS,CONTINUATION
CTR	CENTER
CU	COPPER

D

D	DEPTH, DRAIN, DRYER
DB	DRY BULB
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROL
DDMB	DUAL DUCT MIXING BOX
DESIG	DESIGNATION
DTL	DETAIL
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DN	DOWN
DPR	DAMPER
DW	DISHWASHER
DWG	DRAWING
DWH	DOMESTIC WATER HEATER
DWP	DOMESTIC WATER PUMP
DX	DIRECT EXPANSION

E

EA	EACH
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECC	ECCENTRIC
EDB	ENTERING DRY BULB
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EFF	EFFICIENCY
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMERG	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EVAP	EVAPORATOR
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EX	EXPLOSION PROOF
EXT	EXTERNAL
EXTG	EXISTING

F

F	FAHRENHEIT, FIRE
FBO	FURNISHED BY OTHERS
FCO	FLOOR CLEAN OUT
FCS	FLOOR CONTROL STATION
FCU	FAN COIL UNIT
FD	FLOOR DRAIN, FIRE DAMPER
FDC	FIRE DEPARTMENT SIAMESE CONNECTION
FDV	FIRE DEPARTMENT VALVE
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLR	FLOOR
FPTU	FAN POWERED TERMINAL UNIT
FT	FOOT, FEET
FUT	FUTURE

G

G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GV	GATE VALVE

H

HORIZ	HORIZONTAL
HP	HORSEPOWER
HSTAT	HUMIDISTAT
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HW	HOT WATER
HWP	HEATING WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ

I

ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INFRARED HEATER
IN	INCH
INSUL	INSULATION
INT	INTERNAL, INTERIOR
INV	INVERT
IW	INDIRECT WASTE

J

JB	JUNCTION BOX
JP	JOCKEY PUMP

K

KEC	KITCHEN EQUIPMENT CONTRACTOR
KO	KNOCKOUT
KVA	KILOVOLT- AMPS
KW	KILOWATT

L

L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LF	LINEAR FEET
LP	LOW PRESSURE
LRA	LOCKED ROTOR AMPS
LVL	LEVEL
LWB	LEAVING WET BULB
LWCO	LOW WATER CUT OFF
LWT	LEAVING WATER TEMPERATURE

M

MAT	MIXED AIR TEMPERATURE
MAX	MAXIMUM
MBTUH	THOUSAND OF BTU'S
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MI	MALLEABLE IRON
MIN	MINIMUM
MP	MEDIUM PRESSURE
MS	MOP SINK
MTD	MOUNTED
MU	MAKE-UP
MVD	MANUAL VOLUME DAMPER
MSAH	MINI-SPLIT AIR HANDLER
MSCU	MINI-SPLIT CONDENSING UNIT

N

N.C.	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO.	NUMBER
NTS	NOT TO SCALE

O

OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OAHU	OUTSIDE AIR HANDLING UNIT
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER, OVERFLOW DRAIN
OFCU	OUTSIDE AIR FAN COIL UNIT
OPG	OPENING
OS&Y	OPEN STEM AND YOLK

P

PG	PRESSURE GAUGE
PP	POLYPROPYLENE
PPM	PART PER MILLION
PRI	PRIMARY
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE

Q

QTY	QUANTITY

R

RA	RETURN AIR
RAD	REFRIGERATED AIR DRYER
RAF	RETURN AIR FAN
RAG	RETURN AIR GRILLE
RAT	RETURN AIR TEMPERATURE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RE	REFERENCE, REFER
RED	REDUCER
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCING
REQD	REQUIRED
REV	REVISION, REVISE
RH	RELATIVE HUMIDITY
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RLA	RUNNING LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
RV	RELIEF VALVE

S

SA	SUPPLY AIR
SAF	SUPPLY AIR FAN
SAG	SUPPLY AIR GRILLE
SAN	SANITARY SEWER
SAR	SUPPLY AIR REGISTER
SC	STEAM CONDENSATE
SCHED	SCHEDULED
SD	STORM DRAIN
SEC	SECONDARY
SECT	SECTION
SENS	SENSIBLE
SF	SQUARE FEET
SFCS	SPRINKLER FLOOR CONTROL STATION
SH	SHOWER
SHT	SHEET
SIM	SIMILAR
SK	SINK
SM	SHEETMETAL
SP	STATIC PRESSURE, SUMP PUMP
SPEC	SPECIFICATION
SPR	SPRINKLER
SQ	SQUARE
SS	SERVICE SINK
SSSC	SOLID STATE SPEED CONTROL
STD	STANDARD
STL	STEEL
STR	STRAINER
SURF	SURFACE
SUSP	SUSPEND
SV	SANITARY VENT
SW	SOFT WATER

T

TC	TEMPERATURE CONTROL
TCC	TEMPERATURE CORNEAL COMPRESSOR
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TF	TRANSFER FAN
TH BLK	THRUST BLOCK
THERM	THERMOMETER
TMV	THERMOSTATIC MIXING VALVE
TP	TRAP PRIMER
TPD	TRAP PRIMER DEVICE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TW	TEMPERED HOT WATER
TYP	TYPICAL

U

U	URINAL
UCD	UNDER CUT DOOR
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC
UNO	UNLESS NOTED OTHERWISE
U/F	UNDERFLOOR
U/S	UNDERSLAB

V

V	VOLT
VA	VOLT- AMPERE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VALVE BOX, VACUUM BREAKER
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VIB	VALVE IN BOX
VOV	VALVE ON VERTICAL
VP	VACUUM PUMP
VR	VARIABLE AIR VOLUME REHEAT
VTR	VENT THRU ROOF

W

W	WATT, WIDTH
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WH	WALL HYDRANT
WM	WATER METER
WP	WEATHERPROOF
WPD	WATER PRESSURE DROP
WWF	WELDED WIRE FABRIC

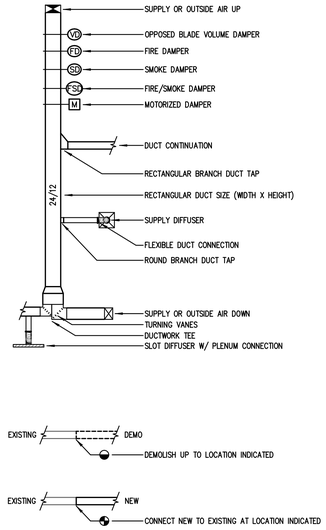
Y

Y	YARD HYDRANT

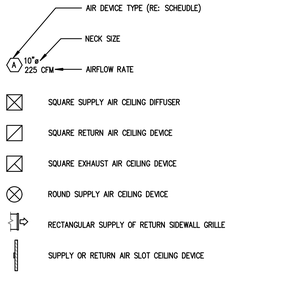
Z

Z	ZONE

DUCTWORK



AIR DEVICE TYPES



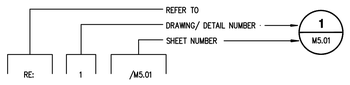
WALL MOUNTED SENSOR TYPES

T	THERMOSTAT
H	HUMIDISTAT
C	CARBON DIOXIDE SENSOR
CM	CARBON MONOXIDE SENSOR
N	NITROGEN DIOXIDE SENSOR
$	ON/OFF SWITCH

PIPING TYPES

CD	CONDENSATE DRAIN LINE
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
REF	REFRIGERANT PIPING SIZED BY MFR.

DRAWING/DETAIL REFERENCE KEY



MECHANICAL GENERAL NOTES

1. PIPING AND DUCTWORK SHOWN ON PLANS ARE SCHEMATIC ONLY. COORDINATE WITH OTHER TRADES FOR PIPING AND DUCTWORK ROUTING. OFFSET AND RUN PIPING DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ALL NECESSARY PIPING, DUCTWORK, FITTING, INSULATION, AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATIONS.
2. EXACT LOCATIONS OF VAV TERMINAL UNITS, GRILLES, AND DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCES.
3. EQUIPMENT SIZES, DIMENSIONS, AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE MANUFACTURER DRAWINGS AND CUTSHEETS BEFORE FABRICATING OF DUCTWORK, PIPING, OR POURING OF CONCRETE HOUSEKEEPING PADS.
4. SHEET METAL INLET DUCTS TO VAV TERMINAL UNITS SHALL BE SAME SIZE AS THE BOX INLET SIZE. PROVIDE RIGID ROUND DUCT THAT IS ONE SIZE LARGER THAN THE INLET BOX SIZE IF THE DISTANCE BETWEEN THE MAIN DUCT AND THE VAV BOX IS MORE THAN 6'-0".
5. PROVIDE CONICAL SPIN-IN CONNECTOR FOR ALL ROUND DUCT CONNECTIONS TO VAV TERMINAL UNIT INLETS.
6. INSTALL VAV TERMINAL UNITS TO ENSURE ACCESS PANELS ARE NOT BLOCKED. ACCESS FOR SERVICE MUST BE PROVIDED.
7. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.
8. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS.
9. PROVIDE RECTANGULAR BRANCH DUCT TAP FOR ALL RECTANGULAR DUCT CONNECTIONS TO RECTANGULAR DUCT TRUNKS.
10. ALL MEDIUM AND LOW PRESSURE DUCTWORK AND ASSOCIATED ACCESSORIES SHALL BE CONSTRUCTED TO MEET THE LATEST SMACNA STANDARDS FOR MEDIUM AND LOW PRESSURE DUCTWORK.
11. ALL OUTSIDE AIR, SUPPLY AIR, AND RETURN AIR DUCTWORK AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND SHALL BE INSULATED WITH A MINIMUM OF R-8 INSULATION WHERE LOCATED OUTSIDE THE BUILDING. REFER TO SPECIFICATION 23 07 13 DUCT INSULATION FOR FURTHER INFORMATION AND ADDITIONAL REQUIREMENTS.
12. ALL DUCTWORK SHALL BE CONSTRUCTED TO SEAL CLASS 'A' AS REFERENCED IN SMACNA STANDARDS. ALL NON-WELDED JOINTS AND SEAMS SHALL BE SEALED. THIS INCLUDES BUT IS NOT LIMITED TO TRANSVERSE JOINTS, LONGITUDINAL SEAMS, DUCT WALL PENETRATIONS, SPIN-INS, TAPS, AND OTHER BRANCH CONNECTIONS, ACCESS DOORS, ACCESS PANELS, AND DUCT CONNECTIONS TO EQUIPMENT. OPENINGS FOR ROTATING SHAFTS SHALL ALSO BE SEALED WITH BUSHINGS. REFER TO SPECIFICATION 23 31 13 METAL DUCTWORK FOR FURTHER INFORMATION.
13. ALL EXPOSED DUCTWORK AND PIPING WITH ASSOCIATED ACCESSORIES IN AREAS WITH NO CEILING OR PARTIAL CEILING SHALL BE PAINTED. REFER TO ARCHITECT FOR COLOR.
14. DIVISION 23 MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE SENSORS AND HUMIDITY SENSORS.
15. PROVIDE REMOTE SPIN-IN DAMPER OPERATOR FOR SPIN-IN CONNECTIONS AND VOLUME DAMPERS LOCATED OVER GYPSUM CEILINGS.
16. PROVIDE AIRFOIL TYPE TURNING VANES IN ALL 90 DEGREE ELBOWS.
17. COORDINATE LOCATIONS OF FLOOR AND WALL OPENINGS WITH ARCHITECT AND STRUCTURAL ENGINEER.
18. ALL CEILING MOUNTED AND WALL MOUNTED AIR DEVICE FINISHES SHALL MATCH ADJACENT ARCHITECTURAL SURFACE. CONTRACTOR SHALL COORDINATE COLOR WITH ARCHITECT.
19. NO PIPE HANGERS SHALL BE SPACED MORE THAN 10'-0" O.C. COMPLY WITH PIPE SPACING AS SPECIFIED IN THE PIPING SUPPORT SPECIFICATIONS.
20. MECHANICAL CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL OUTSIDE AIR INTAKES TO MAINTAIN 15 FEET DISTANCE BETWEEN OUTSIDE AIR INTAKES AND ANY EXHAUST AIR OUTLET, FLUES OR PLUMBING VENTS.
21. MECHANICAL CONTRACTOR SHALL COORDINATE WITH PLUMBING CONTRACTOR FOR ALL CONDENSATE DRAIN PIPES CONNECTING TO A SINK DRAIN TAIL PIECE.
22. CONTRACTOR SHALL CUT AND REMOVE PORTIONS OF "HARD CEILINGS" AS NECESSARY TO INSTALL NEW EQUIPMENT. CONTRACTOR SHALL RE-PAINT ALL HARD CEILINGS TO MATCH EXISTING CONDITIONS. ANY DAMAGED "LAY-IN" CEILINGS DAMAGED DURING THE REMOVAL PROCESS SHALL BE REPLACED WITH NEW "CEILING TILES" AT CONTRACTOR'S EXPENSE.

2 23. WHERE NEW SPRINKLER HEADS MUST BE ADDED UNDER FIXED OBSTRUCTIONS (DUCTWORK) OVER 4 FEET WIDE PER NFPA 13, 8.6.5.3.3, PROVIDE PIPING, FITTINGS, JOINING METHODS, AND SPRINKLER HEADS TO MATCH EXISTING TYPE. FIELD VERIFY.

MECHANICAL PIPING SYMBOLS

CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
CD	CONDENSATE DRAIN LINE
	CAP ON END OF PIPE
	ELBOW UP
	ELBOW DOWN
	VALVE IN DROP
	VALVE IN RISE
	DIRECTION OF FLOW
	DIRECTION OF SLOPE DOWN
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	TEE OUTLET UP
	TEE OUTLET DOWN
	UNION
	FLANGE
	PIPE ANCHOR
	EXPANSION JOINT
	PRESSURE AND TEMPERATURE TAP
	FLOW VENTURI
	VACUUM BREAKER
	VACUUM RELIEF VALVE
	BACKFLOW PREVENTOR
	THERMOMETER
	CIRCULATING PUMP
	STRAINER WITH BLOW DOWN VALVE
	GATE VALVE, HVAC BALANCING/STOP VALVE
	GLOBE VALVE
	BALL VALVE
	BALANCING VALVE WITH DIFFERENTIAL PRESSURE TAPS
	OS&Y VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	TWO-WAY MODULATING CONTROL VALVE
	THREE-WAY MODULATING CONTROL VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	GAS REGULATOR
	GAS COCK
FCS	SPRINKLER FLOOR CONTROL STATION
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	T&P RELIEF VALVE
	PRESSURE GAUGE WITH GAUGE COCK
	STEAM TRAP
	WATER METER
	FLEXIBLE CONNECTION

CONTROLS SCHEMATIC SYMBOLS LEGEND

AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI/BI	DIGITAL/BINARY INPUT
DO/BO	DIGITAL/BINARY OUTPUT
MD	ON-OFF MOTORIZED DAMPER
MMD	MODULATING TYPE MOTORIZED DAMPER
AFMS	AIR FLOW MEASURING STATION
MCV	CONTROL VALVE MODULATING TYPE
VFD	VARIABLE FREQUENCY DRIVE
CSR	CURRENT SENSING RELAY
FRZ	FREEZESTAT
HSL	HIGH STATIC LIMIT
SPT	STATIC PRESSURE TRANSMITTER
DPT	DIFFERENTIAL PRESSURE TRANSDUCER
FM	FLOW METER
FS	FLOW SWITCH
DAT	DISCHARGE AIR TEMPERATURE SENSOR
S	WALL SENSOR
T	THERMOSTAT
CO2	CARBON DIOXIDE SENSOR
SP	SET POINT
S/A	SUPPLY AIR
R/A	RETURN AIR
O/A	OUTSIDE AIR
HC	HEATING COIL
CC	COOLING COIL
DX	DIRECT EXPANSION COOLING COIL
PICCV	PRESSURE INDEPENDENT CHARACTERIZED CONTROL VALVE
AFC	AIRFLOW CROSS
DPS	DIFFERENTIAL PRESSURE SWITCH

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San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

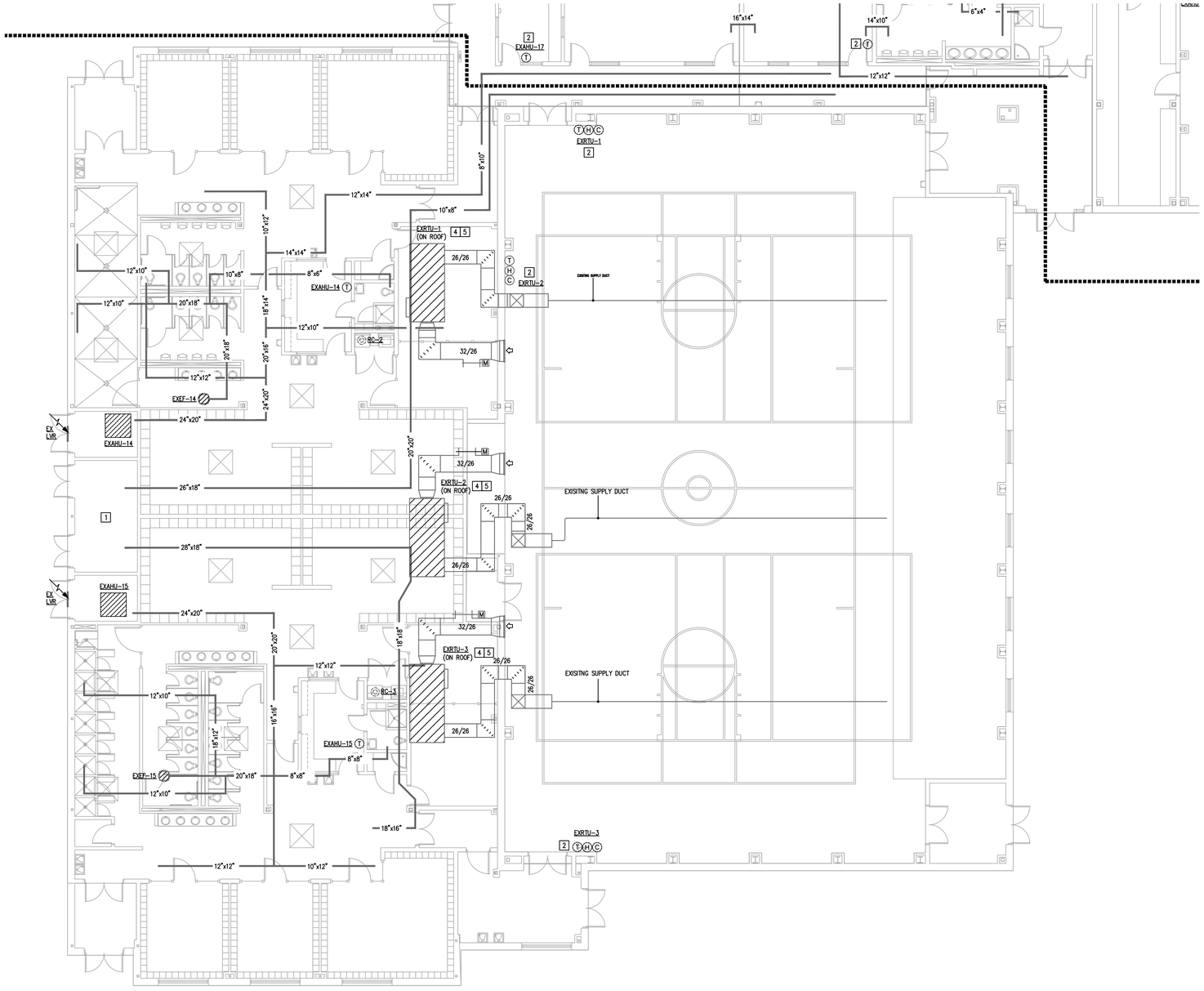
EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE:
1
MECHANICAL LEGEND
SHEET NUMBER:
M0.01

DBR
9990 Richmond Avenue South Building, Suite 300
Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---



1 MD2.12F LEVEL 1 MECHANICAL DEMO PLAN - F

1/8" = 1'-0"

MECHANICAL DEMO GENERAL NOTES:

A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE VERIFIED EXISTING JOBSITE CONDITIONS DURING THE BIDDING PERIOD, SO THEY HAVE OBTAINED THE SCOPE OF THE MECHANICAL DEMOLITION WORK INVOLVED AS A RESULT OF MODIFICATIONS TO THE EXISTING STRUCTURE. THE SCOPE OF WORK SHALL INCLUDE MATERIALS AND DUCTWORK CONSISTING OF DEVICES, EQUIPMENT, OR APPARATUS WHICH MAY BE REROUTED, RELOCATED, OR REMOVED EITHER TEMPORARILY OR PERMANENTLY, OR WHICH MUST BE REROUTED OR REMOVED EITHER ACCOMPLISHED. NOT ALL EXISTING CONDITIONS ARE NECESSARILY INDICATED ON DRAWINGS, CONTRACTOR SHALL DEMOLISH ONLY WHAT IS INDICATED TO BE DEMOLISHED ON DRAWINGS.

B. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL EQUIPMENT BEING REMOVED. OWNER SHALL RESERVE THE RIGHT TO CLAIM ALL EQUIPMENT, DUCTWORK, AND AIR DEVICES REMOVED DURING DEMOLITION.

C. CONTRACTOR TO REPORT ANY DAMAGED EQUIPMENT THAT IS SHOWN AS EXISTING TO REMAIN TO THE OWNER PRIOR TO STARTING ALL WORK. ALL EQUIPMENT FOUND TO BE DAMAGED AT THE TIME OF SUBSTANTIAL COMPLETION, THAT HAD NOT BEEN REPORTED PRIOR TO CONSTRUCTION, CONTRACTOR TO REPAIR AT THEIR OWN COST.

D. ALL REMOVED EQUIPMENT WITH ACCESS TO DUCTWORK, SHAFTS, OR PIPING, SHALL HAVE ALL CONNECTIONS TO THESE MATERIAL CLEANED, WHERE THE MATERIALS ARE REUSED. FOR EXAMPLE, EXHAUST SHAFTS THAT ARE SCHEDULED FOR REUSE AND SHALL BE CLEANED TO THE FULLEST EXTENT POSSIBLE. NOTIFY ARCHITECT/ENGINEER TEAM OF ANY DEFICIENCIES FOUND UPON REMOVAL OF HVAC SYSTEM, THAT ARE NOT INDICATED IN THESE PLANS AND SPECIFICATIONS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. ALL EXISTING DUCTWORK AND EQUIPMENT TO BE REUSED MUST BE CLEANED, PAINTED, AND ALL DAMAGED PARTS MUST BE REPAIRED OR REPLACED.

G. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

H. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

MECHANICAL DEMOLITION KEY NOTES:

1. REFER TO ENLARGED MECHANICAL ROOM PLANS FOR MECHANICAL ROOM VIEWS CONTINUATION.
2. EXISTING T-STAT, HUMIDITY SENSOR, CO2 SENSOR, AND CONDUCTORS SHALL BE REMOVED. EXISTING J-BOX SHALL REMAIN FOR RE-USE.
3. NOT USED.
4. EQUIPMENT LOCATED ON ROOF.
5. CONTRACTOR SHALL DEMOLISH HOT WATER PIPING TO ROOF TOP UNIT AND ABANDON HOT WATER COIL. UNIT WILL RECEIVE AN ELECTRIC DUCT HEATER. COORDINATE WITH NEW WORK REQUIREMENTS. REFERENCE SITE PLAN FOR HOT WATER PIPING ROUTING.

LEGEND:

EXISTING TO BE DEMOLISHED

EXISTING TO REMAIN

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TBPE Firm Registration NO. 2234

REVISION:

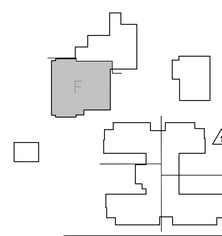
No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: LEVEL 1 MECHANICAL DEMO PLAN - F.
SHEET NUMBER: MD2.12F



TRUE NORTH
PLAN NORTH

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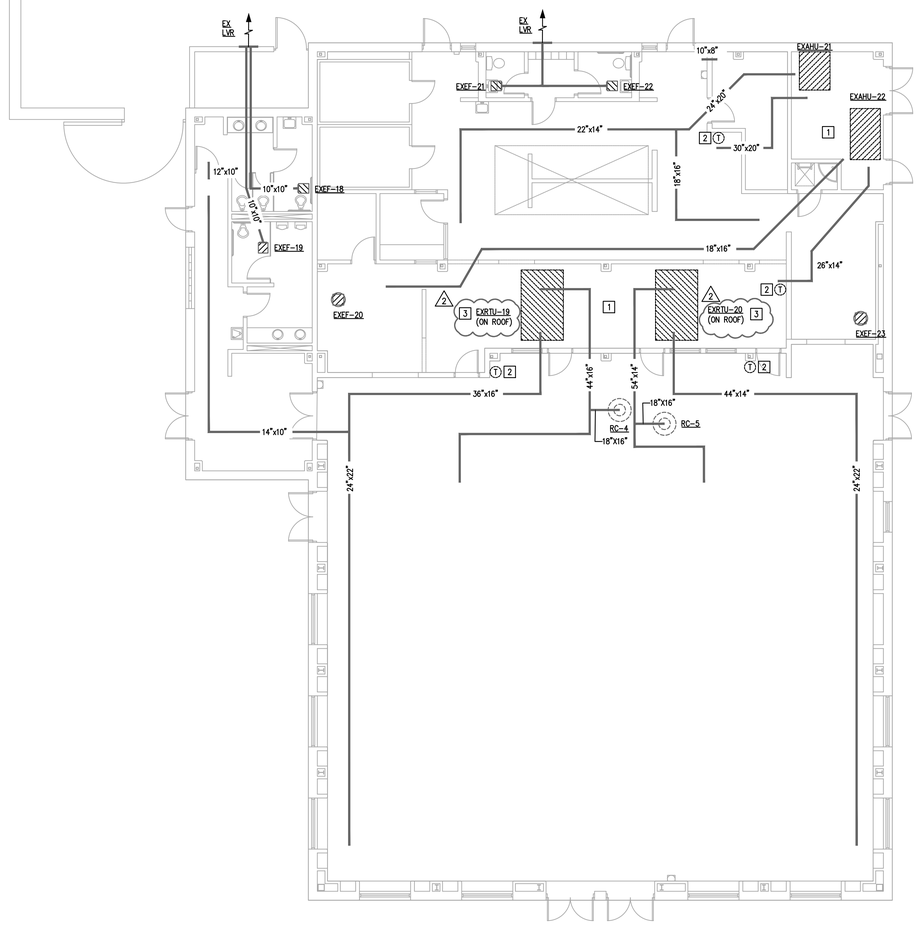
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---



1 MD2.13G LEVEL 1 MECHANICAL DEMO PLAN - G
1/8" = 1'-0"

MECHANICAL DEMO GENERAL NOTES:

A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE VERIFIED EXISTING JOBSITE CONDITIONS DURING THE BIDDING PERIOD, SO THEY HAVE OBTAINED THE SCOPE OF THE MECHANICAL DEMOLITION WORK INVOLVED AS A RESULT OF MODIFICATIONS TO THE EXISTING STRUCTURE. THE SCOPE OF WORK SHALL INCLUDE MATERIALS AND DUCTWORK CONSISTING OF DEVICES, EQUIPMENT, OR APPARATUS WHICH MAY BE REROUTED, RELOCATED, OR REMOVED EITHER TEMPORARILY OR PERMANENTLY, OR WHICH MUST BE REROUTED OR REMOVED EITHER ACCOMPLISHED. NOT ALL EXISTING CONDITIONS ARE NECESSARILY INDICATED ON DRAWINGS, CONTRACTOR SHALL DEMOLISH ONLY WHAT IS INDICATED TO BE DEMOLISHED ON DRAWINGS.

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E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. ALL EXISTING DUCTWORK AND EQUIPMENT TO BE REUSED MUST BE CLEANED, PAINTED, AND ALL DAMAGED PARTS MUST BE REPAIRED OR REPLACED.

G. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

H. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

MECHANICAL DEMOLITION KEY NOTES:

1. REFER TO ENLARGED MECHANICAL ROOM PLANS FOR MECHANICAL ROOM VIEWS CONTINUATION.
2. EXISTING T-STAT AND CONDUCTORS SHALL BE REMOVED. EXISTING J-BOX SHALL REMAIN FOR RE-USE.
3. EQUIPMENT LOCATED ON ROOF.

LEGEND:

EXISTING TO BE DEMOLISHED

EXISTING TO REMAIN

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REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
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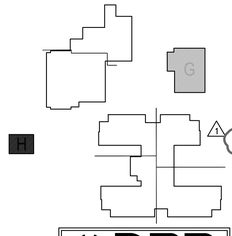

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DBR Project Number 218007.002

HA	JA	JB	---	---

DATE: 4/7/2022

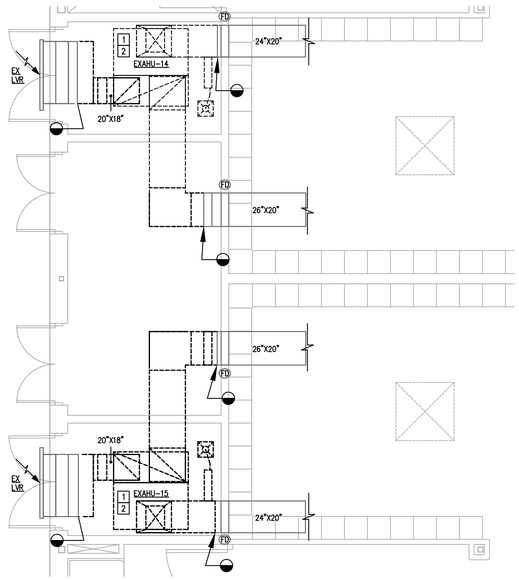
DRAWN BY: DBR

CHECKED BY: DBR

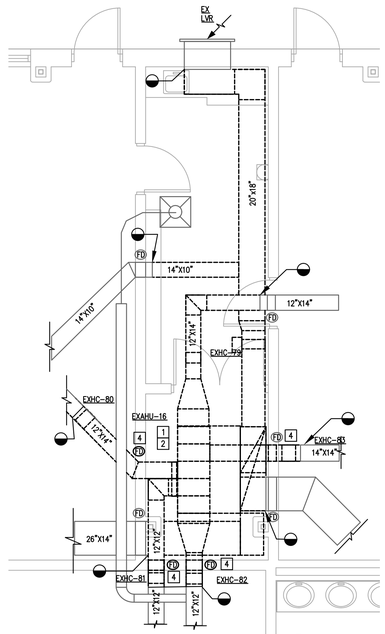
PROJECT NUMBER: 218007.002

SHEET TITLE:
LEVEL 1 MECHANICAL DEMO PLAN - G

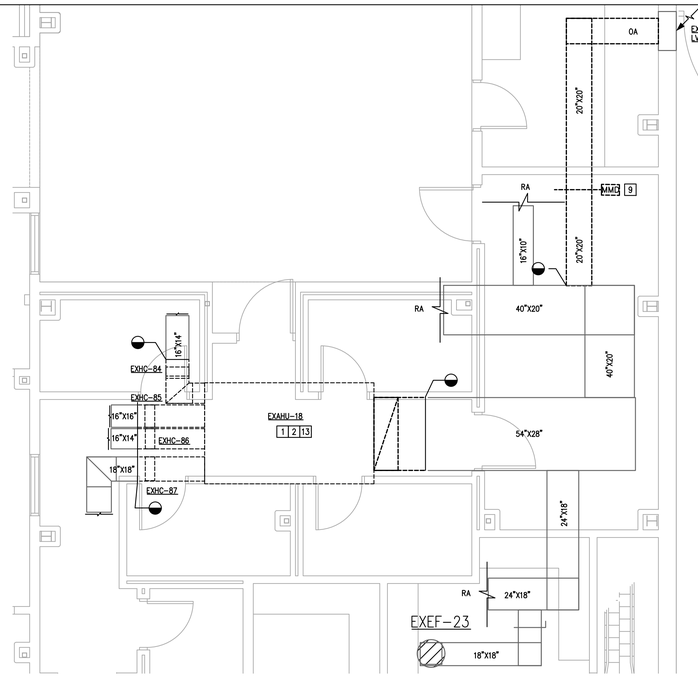
SHEET NUMBER:
MD2.13G



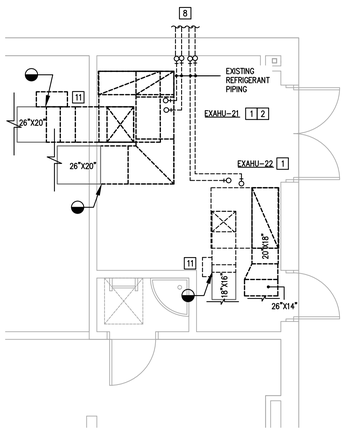
1 MD3.12 LEVEL 1F DEMO EXAHU-14 AND EXAHU-15
1/4" = 1'-0"



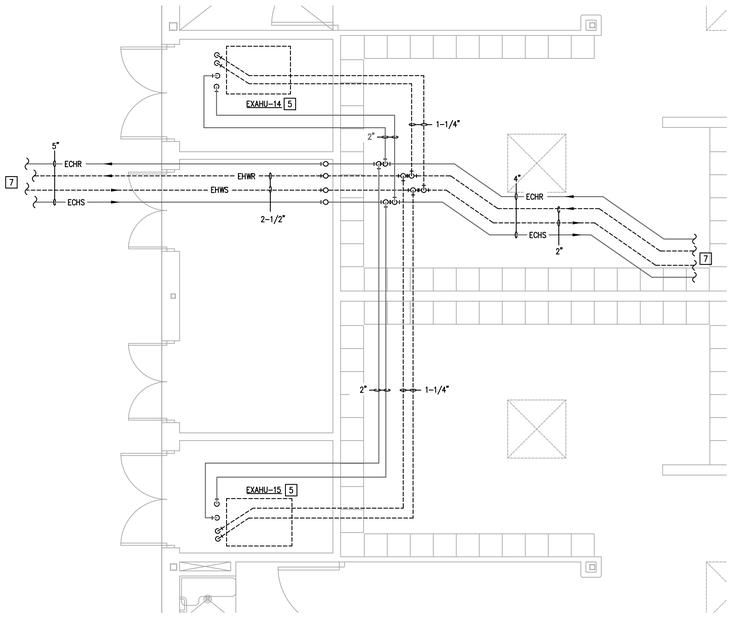
4 MD3.12 LEVEL 1E DEMO EXAHU-16
1/4" = 1'-0"



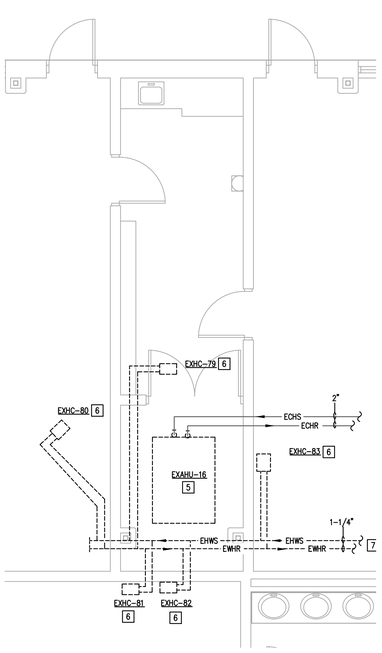
6 MD3.12 LEVEL 1E DEMO EXAHU-18
1/4" = 1'-0"



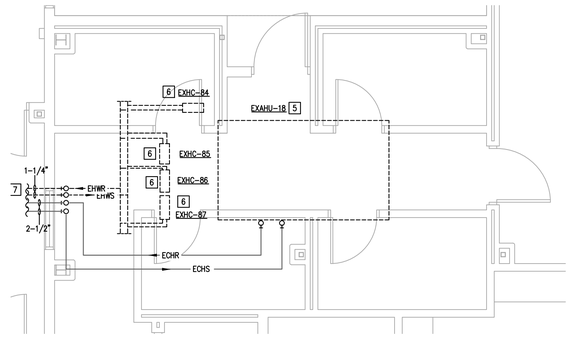
9 MD3.12 LEVEL 1G DEMO EXAHU-21 AND EXAHU-22
1/4" = 1'-0"



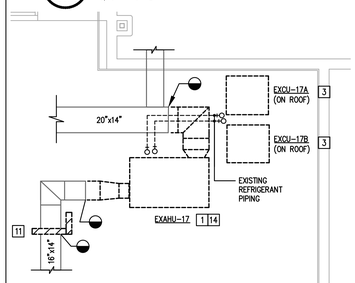
2 MD3.12 LEVEL 1 DEMO HYDRONIC PIPING EXAHU-14 AND EXAHU-15
1/4" = 1'-0"



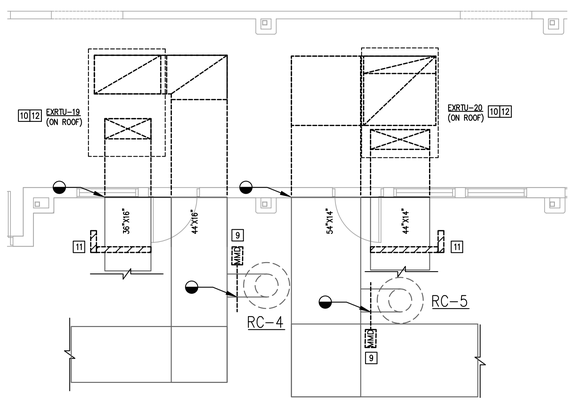
5 MD3.12 LEVEL 1E DEMO HYDRONIC PIPING EXAHU-16
1/4" = 1'-0"



7 MD3.12 LEVEL 1E DEMO HYDRONIC PIPING EXAHU-18
1/4" = 1'-0"



3 MD3.12 LEVEL 1E DEMO EXAHU-17
1/4" = 1'-0"



8 MD3.12 LEVEL 1G DEMO EXRTU-19 AND EXRTU-20
1/4" = 1'-0"

MECHANICAL DEMO GENERAL NOTES:

A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE VERIFIED EXISTING JOBSITE CONDITIONS DURING THE BIDDING PERIOD, SO THEY HAVE OBTAINED THE SCOPE OF THE MECHANICAL DEMOLITION WORK INVOLVED AS A RESULT OF MODIFICATIONS TO THE EXISTING STRUCTURE. THE SCOPE OF WORK SHALL INCLUDE MATERIALS AND DUCTWORK CONSISTING OF DEVICES, EQUIPMENT, OR APPARATUS WHICH MAY BE REROUTED, RELOCATED, OR REMOVED EITHER TEMPORARILY OR PERMANENTLY, OR WHICH MUST BE REROUTED OR REMOVED EITHER ACCOMPLISHED. NOT ALL EXISTING CONDITIONS ARE NECESSARILY INDICATED ON DRAWINGS, CONTRACTOR SHALL DEMOLISH ONLY WHAT IS INDICATED TO BE DEMOLISHED ON DRAWINGS.

B. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL EQUIPMENT BEING REMOVED. OWNER SHALL RESERVE THE RIGHT TO CLAIM ALL EQUIPMENT, DUCTWORK, AND AIR DEVICES REMOVED DURING DEMOLITION.

C. CONTRACTOR TO REPORT ANY DAMAGED EQUIPMENT THAT IS SHOWN AS EXISTING TO REMAIN TO THE OWNER PRIOR TO STARTING ALL WORK. ALL EQUIPMENT FOUND TO BE DAMAGED AT THE TIME OF SUBSTANTIAL COMPLETION, THAT HAD NOT BEEN REPORTED PRIOR TO CONSTRUCTION, CONTRACTOR TO REPAIR AT THEIR OWN COST.

D. ALL REMOVED EQUIPMENT WITH ACCESS TO DUCTWORK, SHAFTS, OR PIPING, SHALL HAVE ALL CONNECTIONS TO THESE MATERIAL CLEANED, WHERE THE MATERIALS ARE REUSED. FOR EXAMPLE, EXHAUST SHAFTS THAT ARE SCHEDULED FOR REUSE AND SHALL BE CLEANED TO THE FULLEST EXTENT POSSIBLE. NOTIFY ARCHITECT/ENGINEER TEAM OF ANY DEFICIENCIES FOUND UPON REMOVAL OF HVAC SYSTEM, THAT ARE NOT INDICATED IN THESE PLANS AND SPECIFICATIONS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. ALL EXISTING DUCTWORK AND EQUIPMENT TO BE REUSED MUST BE CLEANED, PAINTED, AND ALL DAMAGED PARTS MUST BE REPAIRED OR REPLACED.

G. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

H. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

MECHANICAL DEMOLITION KEY NOTES:

1. EXISTING AIR HANDLING UNIT TO BE REMOVED IN ITS ENTIRETY. REMOVE THE SUPPLY, RETURN (WHERE APPLICABLE), AND OUTSIDE AIR DUCT AS INDICATED. REMOVE EXISTING BUILDING AUTOMATION SENSORS.
2. HOUSE KEEPING PAD SHALL REMAIN AND BE MODIFIED AND NECESSARY TO ACCOMMODATE THE NEW AIR HANDLING UNIT FOOTPRINT. COORDINATE WITH NEW WORK REQUIREMENTS AND EXISTING FLOOR DRAINS. FIELD VERIFY EXISTING CONDITIONS.
3. CONTRACTOR SHALL DEMOLISH EXISTING CONDENSING UNIT, ASSOCIATED REFRIGERANT PIPING BETWEEN CONDENSING UNIT AND AHU, AND ROOF CURB. PATCH AND REPAIR ROOF TO MATCH EXISTING. CONTRACTOR SHALL COORDINATE WITH ROOF MANUFACTURER FOR RECOMMENDED PATCHING METHODS TO MAINTAIN ROOF WARRANTY. COORDINATE WITH NEW WORK REQUIREMENTS.
4. REMOVE EXISTING FIRE DAMPER AS INDICATED. PROVIDE NEW FIRE DAMPER AND SEAL WALL PENETRATION IN ORDER TO MAINTAIN EXISTING FIRE RATING. COORDINATE WITH NEW WORK REQUIREMENTS. FIELD VERIFY EXISTING CONDITIONS.
5. REMOVE EXISTING CHILLED WATER PIPING AS INDICATED.
6. EXISTING DUCT MOUNTED HOT WATER COIL TO BE REMOVED IN ITS ENTIRETY.
7. REMOVE EXISTING HWS/R LINES INCLUSIVE OF MAINS, BRANCHES, RISERS, VALVES, ACCESSORIES, ETC. AS INDICATED. SEAL WALL PENETRATION IN ORDER TO MAINTAIN EXISTING FIRE RATING.
8. REMOVE EXISTING REFRIGERANT PIPING BETWEEN CONDENSING UNIT AND AHU. PIPING IN WALLS SHALL BE CAPPED AND ABANDONED. SEAL WALL PENETRATION IN ORDER TO MAINTAIN EXISTING FIRE RATING.
9. REMOVE EXISTING CONTROL DAMPER AND ACTUATOR. COORDINATE WITH NEW WORK REQUIREMENTS. FIELD VERIFY EXISTING CONDITIONS.
10. REMOVE EXISTING ROOFTOP UNIT AND ASSOCIATED CONDENSATE PIPING. REMOVE EXISTING ROOF CURB TO DECK. REMOVE DUCTWORK AS INDICATED. CONTRACTOR SHALL COORDINATE WITH ROOF MANUFACTURER FOR RECOMMENDED PATCHING METHODS TO MAINTAIN ROOF WARRANTY.
11. REMOVE EXISTING ELECTRIC DUCT HEATER.
12. EQUIPMENT LOCATED ON ROOF.
13. EQUIPMENT LOCATED ON MEZZANINE.
14. EQUIMENT SUSPENDED ABOVE CEILING.

LEGEND:

EXISTING TO BE DEMOLISHED

EXISTING TO REMAIN

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DBR Project Number 218007.002

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TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022

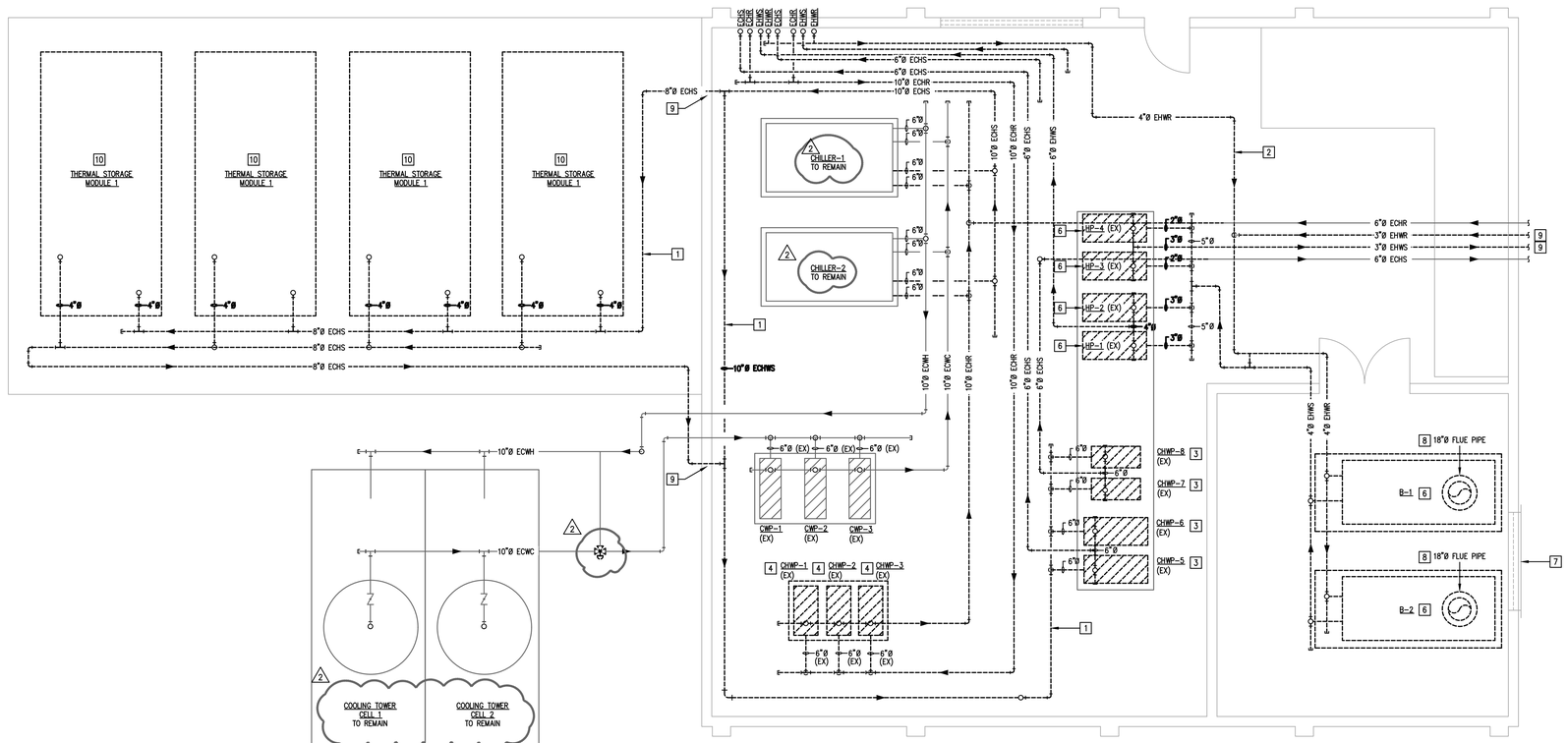
DRAWN BY: DBR

CHECKED BY: DBR

PROJECT NUMBER: 218007.002

SHEET TITLE: ENLARGED MECHANICAL DEMO PLAN

SHEET NUMBER: MD3.12



1 MD3.13 LEVEL 1H DEMO CHILLED WATER PLANT

1/4" = 1'-0"

MECHANICAL DEMO GENERAL NOTES:

A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE VERIFIED EXISTING JOBSITE CONDITIONS DURING THE BIDDING PERIOD, SO THEY HAVE OBTAINED THE SCOPE OF THE MECHANICAL DEMOLITION WORK INVOLVED AS A RESULT OF MODIFICATIONS TO THE EXISTING STRUCTURE. THE SCOPE OF WORK SHALL INCLUDE MATERIALS AND DUCTWORK CONSISTING OF DEVICES, EQUIPMENT, OR APPARATUS WHICH MAY BE REROUTED, RELOCATED, OR REMOVED EITHER TEMPORARILY OR PERMANENTLY, OR WHICH MUST BE REROUTED OR REMOVED EITHER ACCOMPLISHED. NOT ALL EXISTING CONDITIONS ARE NECESSARILY INDICATED ON DRAWINGS, CONTRACTOR SHALL DEMOLISH ONLY WHAT IS INDICATED TO BE DEMOLISHED ON DRAWINGS.

B. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL EQUIPMENT BEING REMOVED. OWNER SHALL RESERVE THE RIGHT TO CLAIM ALL EQUIPMENT, DUCTWORK, AND AIR DEVICES REMOVED DURING DEMOLITION.

C. CONTRACTOR TO REPORT ANY DAMAGED EQUIPMENT THAT IS SHOWN AS EXISTING TO REMAIN TO THE OWNER PRIOR TO STARTING ALL WORK. ALL EQUIPMENT FOUND TO BE DAMAGED AT THE TIME OF SUBSTANTIAL COMPLETION, THAT HAD NOT BEEN REPORTED PRIOR TO CONSTRUCTION, CONTRACTOR TO REPAIR AT THEIR OWN COST.

D. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

E. ALL EXISTING DUCTWORK AND EQUIPMENT TO BE REUSED MUST BE CLEANED, PAINTED, AND ALL DAMAGED PARTS MUST BE REPAIRED OR REPLACED.

F. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

G. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

MECHANICAL DEMOLITION KEY NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING CHILLED WATER PIPE INCLUSIVE OF MAINS, BRANCHES, RISERS, VALVES, ETC. AS INDICATED ON PLAN. COORDINATE EXTENT OF DEMOLITION WITH NEW WORK REQUIREMENTS. FIELD VERIFY EXISTING CONDITIONS.
2. CONTRACTOR SHALL REMOVE EXISTING HOT WATER PIPE INCLUSIVE OF MAINS, BRANCHES, RISERS, VALVES, ETC. AS INDICATED ON PLAN. COORDINATE EXTENT OF DEMOLITION WITH NEW WORK REQUIREMENTS. FIELD VERIFY EXISTING CONDITIONS.
3. CONTRACTOR SHALL DEMOLISH EXISTING CHILLED WATER PUMPS AS INDICATED. HOUSE KEEPING PAD SHALL REMAIN AND BE MODIFIED AS NECESSARY TO ACCOMMODATE NEW PUMPS NO EQUIPMENT. COORDINATE WITH NEW WORK REQUIREMENTS. FIELD VERIFY EXISTING CONDITIONS.
4. CONTRACTOR SHALL DEMOLISH EXISTING CHILLED WATER PUMPS AND HOUSE KEEPING PAD AS INDICATED. COORDINATE WITH NEW WORK REQUIREMENTS. FIELD VERIFY EXISTING CONDITIONS.
5. REMOVE EXISTING LOUVER AS INDICATED. PATCH AND REPAIR WALL AND BASE FINISH TO MATCH EXISTING ADJACENT SURFACES. FIELD VERIFY EXISTING CONDITIONS.
6. CONTRACTOR SHALL DEMOLISH EXISTING BOILER 1, BOILER 2 AND ASSOCIATED HP-1 THRU HP-4 IN ITS ENTIRETY AND DISPOSE OF PROPERLY. CONTRACTOR SHALL DISCONNECT VENT, ELECTRICAL, WATER CONNECTIONS, GAS CONNECTION AND BUILDING AUTOMATION WIRING. PATCH AND REPAIR ROOF TO MATCH EXISTING. CONTRACTOR SHALL COORDINATE WITH ROOF MANUFACTURER FOR RECOMMENDED PATCHING METHODS TO MAINTAIN ROOF WARRANTY.
7. REMOVE EXISTING LOUVER AS INDICATED. PATCH AND REPAIR WALL AND BASE FINISH TO MATCH EXISTING ADJACENT SURFACES. FIELD VERIFY EXISTING CONDITIONS.
8. CONTRACTOR SHALL REMOVE FLUE PIPING, CAP ROOF CAP, AND MAKE WATERTIGHT.
9. CONTRACTOR SHALL PATCH AND REPAIR WALL AND BASE FINISH TO MATCH EXISTING ADJACENT SURFACES. FIELD VERIFY EXISTING CONDITIONS.
10. CONTRACTOR SHALL DEMOLISH EXISTING THERMAL STORAGE MODULES IN THEIR ENTIRETY AND DISPOSE OF PROPERLY.

LEGEND:

- EXISTING TO BE DEMOLISHED
- EXISTING TO REMAIN

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4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

MEMORIAL MS - HVAC IMPROVEMENTS

3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022

DRAWN BY: DBR

CHECKED BY: DBR

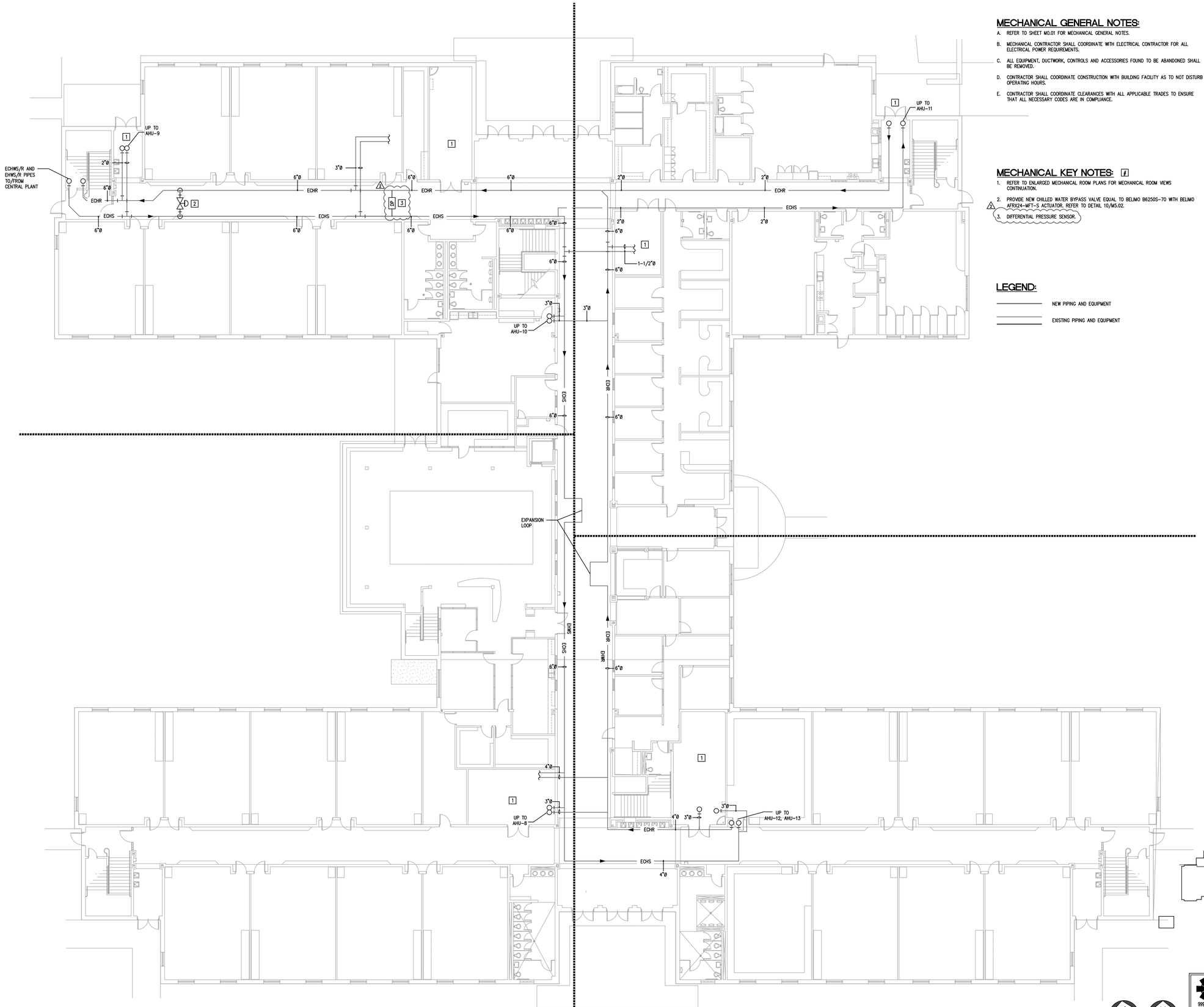
PROJECT NUMBER: 218007.002

1 SHEET TITLE:

ENLARGED MECHANICAL DEMO PLAN

SHEET NUMBER:

MD3.13



MECHANICAL GENERAL NOTES:

A. REFER TO SHEET M0.01 FOR MECHANICAL GENERAL NOTES.

B. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

C. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

D. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

E. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

MECHANICAL KEY NOTES:

1. REFER TO ENLARGED MECHANICAL ROOM PLANS FOR MECHANICAL ROOM VIEWS CONTINUATION.
2. PROVIDE NEW CHILLED WATER BYPASS VALVE EQUAL TO BELIMO B6250S-70 WITH BELIMO AFRX24-MFT-S ACTUATOR. REFER TO DETAIL 10/M5.02.
3. DIFFERENTIAL PRESSURE SENSOR.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

1 / M1.11 COMPOSITE LEVEL 1 MECHANICAL HYDRONIC PIPING PLAN

3/32" = 1'-0"

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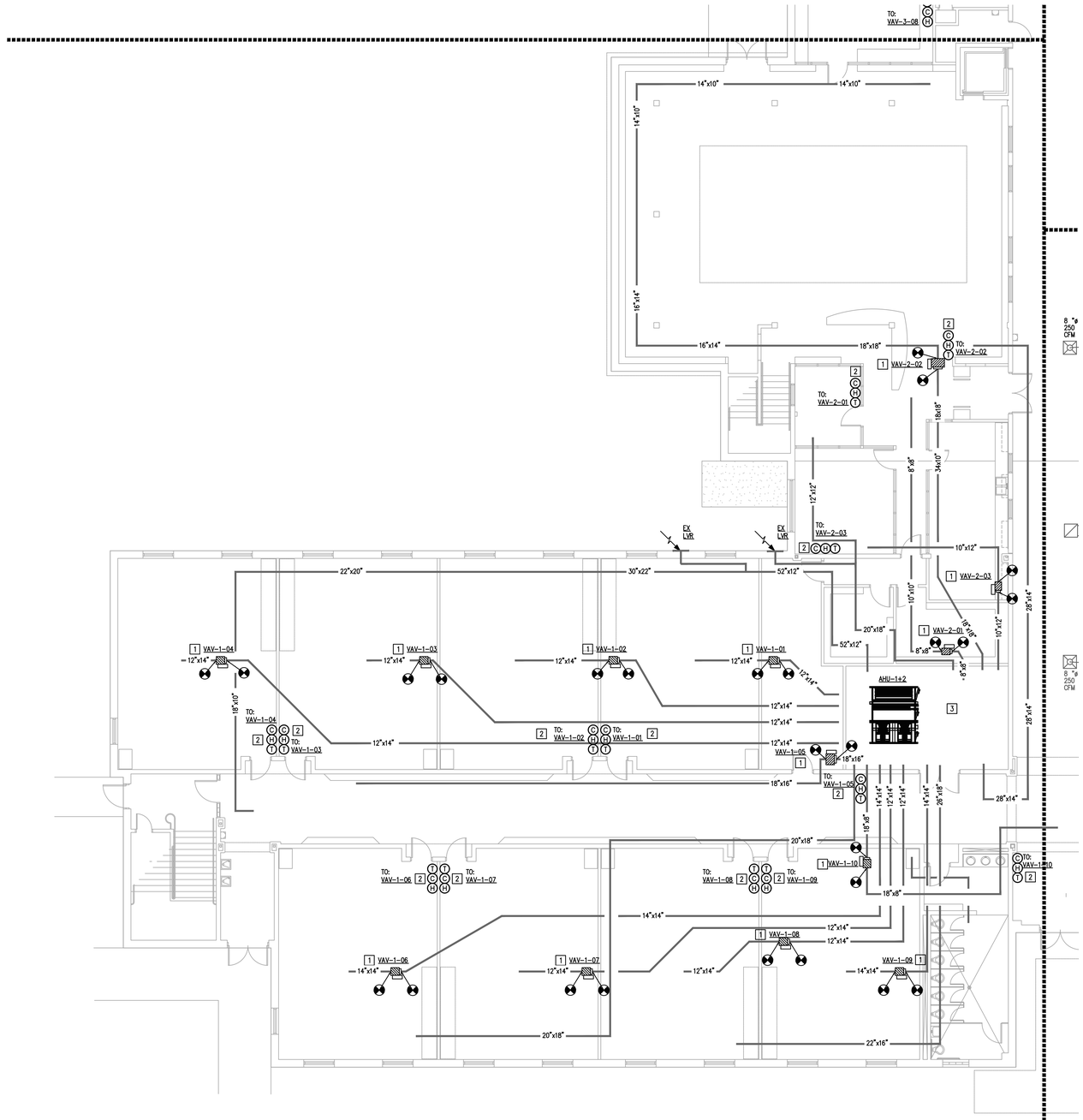
PROJECT NUMBER: 218007.002

SHEET TITLE:

COMPOSITE LEVEL 1 MECHANICAL HYDRONIC PIPING PLAN

SHEET NUMBER:

M1.11



MECHANICAL GENERAL NOTES:

A. REFER TO SHEET M0.01 FOR MECHANICAL GENERAL NOTES.

B. EXACT LOCATIONS OF HOT WATER DUCT COILS AND DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCES.

C. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

D. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE AND HUMIDITY SENSORS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

G. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

H. EXISTING DUCTWORK SHOWN AS A SINGLE LINE.

⚠1 MECHANICAL KEY NOTES:

1. APPROXIMATE LOCATION OF NEW SINGLE DUCT BOX. CONTRACTOR SHALL INSTALL NEW SINGLE DUCT BOX IN EXISTING DUCTWORK. PROVIDE DUCT TRANSITIONS TO BOX INLET AND OUTLET AS REQUIRED. CONTRACTOR SHALL REMOVE AND PATCH EXISTING DUCTWORK AS NECESSARY. TYP.
2. NEW DDC TEMPERATURE, RELATIVE HUMIDITY, AND CO2 SENSORS.
3. REFER TO ENLARGED MECHANICAL ROOM PLANS FOR MECHANICAL ROOM VIEW CONTINUATION.
4. PROVIDE NEW MANUAL BALANCING DAMPER.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

1 / M2.11A LEVEL 1 MECHANICAL PLAN - A

1/8" = 1'-0"

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LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
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PROJECT NUMBER: 218007.002
SHEET TITLE: LEVEL 1 MECHANICAL PLAN - A
SHEET NUMBER: M2.11A

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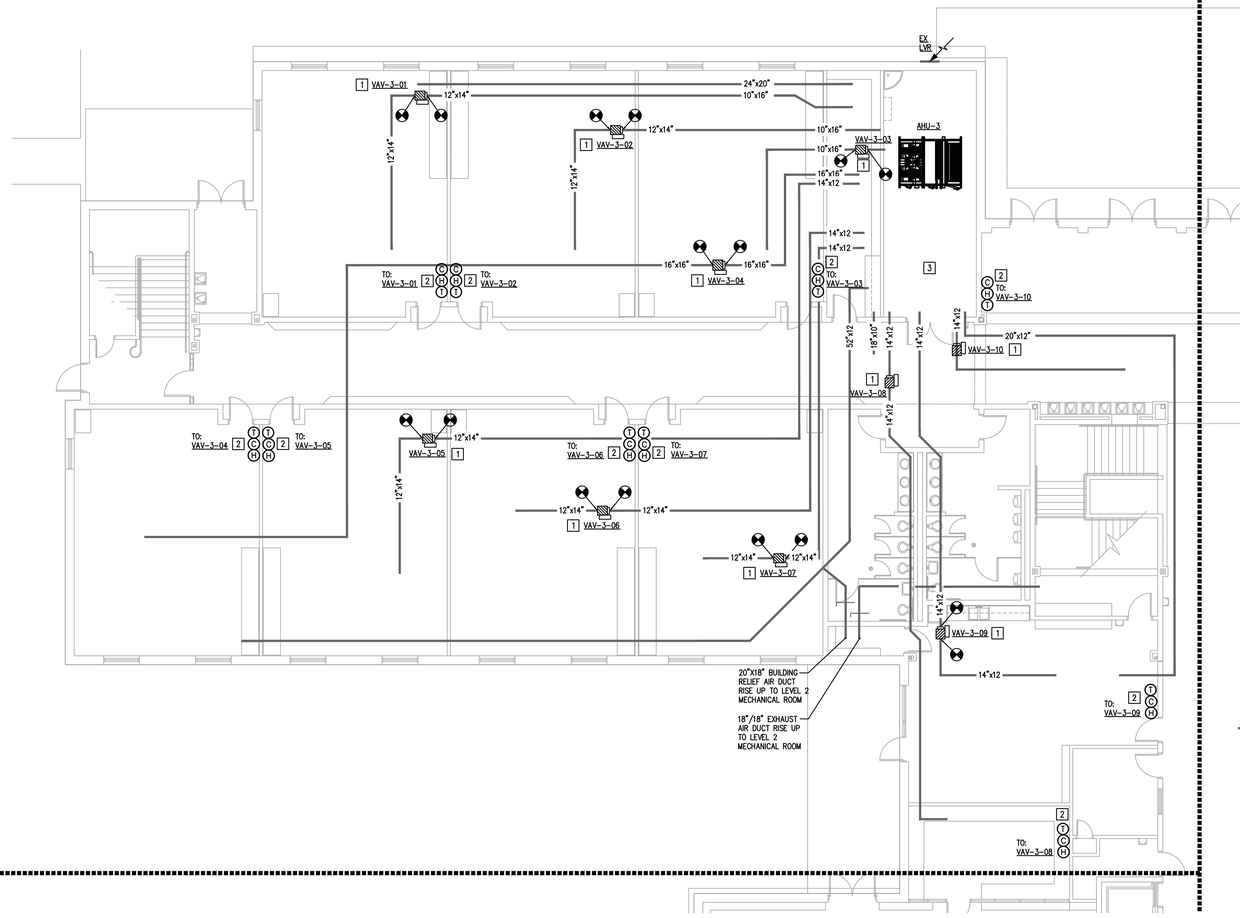

MECHANICAL GENERAL NOTES:

A. REFER TO SHEET M0.01 FOR MECHANICAL GENERAL NOTES.

B. EXACT LOCATIONS OF HOT WATER DUCT COILS AND DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCES.

C. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

D. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE AND HUMIDITY SENSORS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

G. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

H. EXISTING DUCTWORK SHOWN AS A SINGLE LINE.

2 MECHANICAL KEY NOTES:

1. APPROXIMATE LOCATION OF NEW SINGLE DUCT BOX. CONTRACTOR SHALL INSTALL NEW SINGLE DUCT BOX IN EXISTING DUCTWORK. PROVIDE DUCT TRANSITIONS TO BOX INLET AND OUTLET AS REQUIRED. CONTRACTOR SHALL REMOVE AND PATCH EXISTING DUCTWORK AS NECESSARY. TYP.
2. NEW DDC TEMPERATURE, RELATIVE HUMIDITY, AND CO2 SENSORS.
3. REFER TO ENLARGED MECHANICAL ROOM PLANS FOR MECHANICAL ROOM VIEW CONTINUATION.
4. PROVIDE NEW MANUAL BALANCING DAMPER.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

1 / M2.11B LEVEL 1 MECHANICAL PLAN - B

1/8" = 1'-0"

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EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

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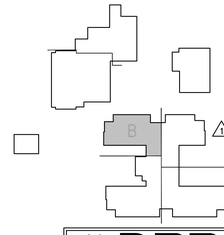

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DATE: 4/7/2022

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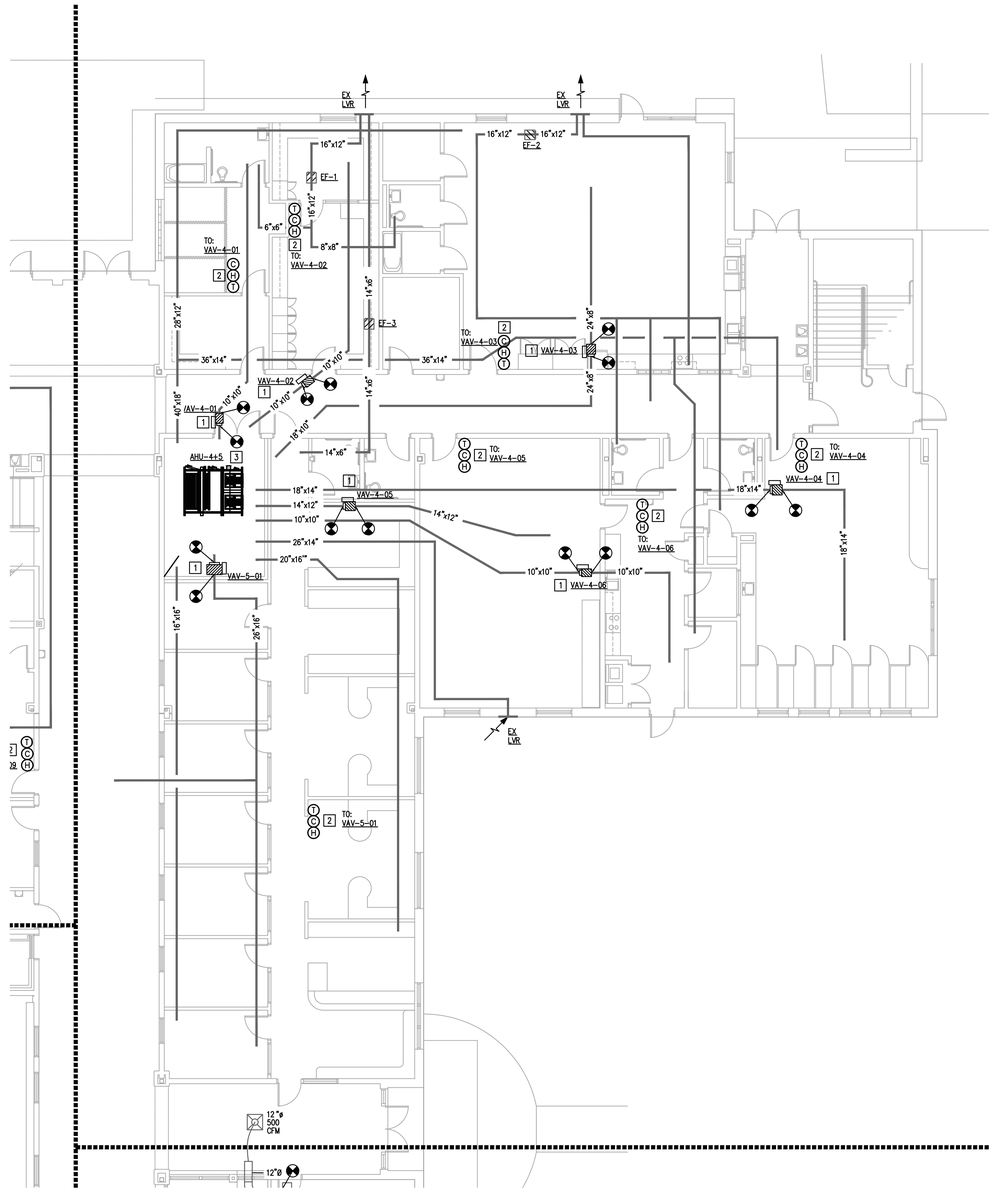
PROJECT NUMBER: 218007.002

SHEET TITLE: LEVEL 1 MECHANICAL PLAN - B

SHEET NUMBER: M2.11B



1 M2.11C **LEVEL 1 MECHANICAL PLAN - C**
1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

A. REFER TO SHEET M0.01 FOR MECHANICAL GENERAL NOTES.

B. EXACT LOCATIONS OF HOT WATER DUCT COILS AND DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCES.

C. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

D. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE AND HUMIDITY SENSORS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

G. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

H. EXISTING DUCTWORK SHOWN AS A SINGLE LINE.

2 MECHANICAL KEY NOTES:

1. APPROXIMATE LOCATION OF NEW SINGLE DUCT BOX. CONTRACTOR SHALL INSTALL NEW SINGLE DUCT BOX IN EXISTING DUCTWORK. PROVIDE DUCT TRANSITIONS TO BOX INLET AND OUTLET AS REQUIRED. CONTRACTOR SHALL REMOVE AND PATCH EXISTING DUCTWORK AS NECESSARY. TYP.
2. NEW DDC TEMPERATURE, RELATIVE HUMIDITY, AND CO2 SENSORS.
3. REFER TO ENLARGED MECHANICAL ROOM PLANS FOR MECHANICAL ROOM VIEW CONTINUATION.
4. PROVIDE NEW MANUAL BALANCING DAMPER.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

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MEMORIAL MS - HVAC IMPROVEMENTS
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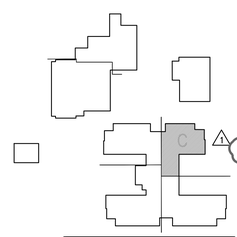

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DBR Project Number 218007.002

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DATE: 4/7/2022

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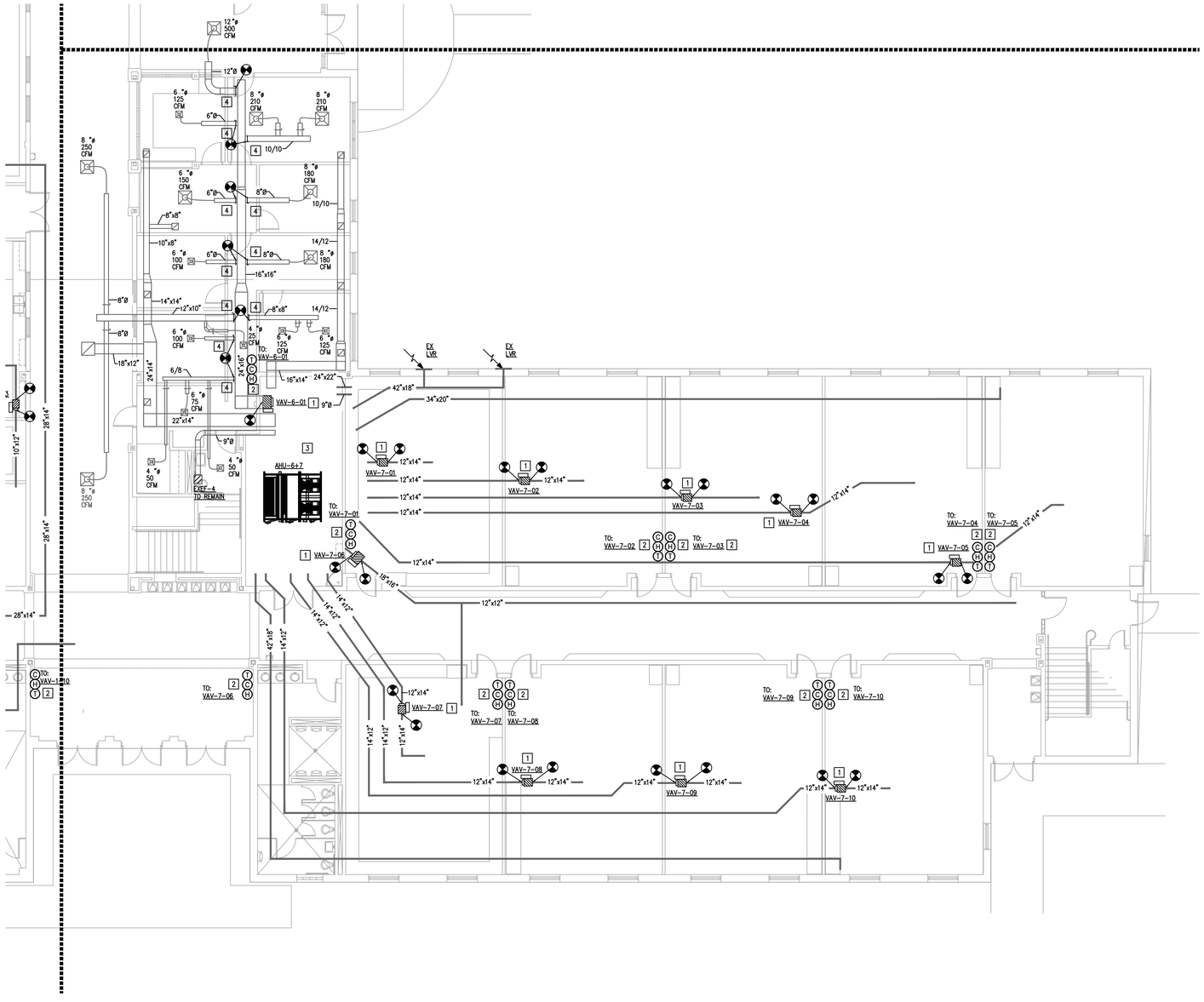
CHECKED BY: DBR

PROJECT NUMBER: 218007.002

SHEET TITLE: LEVEL 1 MECHANICAL PLAN - C

SHEET NUMBER: M2.11C



MECHANICAL GENERAL NOTES:

A. REFER TO SHEET M0.01 FOR MECHANICAL GENERAL NOTES.

B. EXACT LOCATIONS OF HOT WATER DUCT COILS AND DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCES.

C. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

D. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE AND HUMIDITY SENSORS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

G. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

H. EXISTING DUCTWORK SHOWN AS A SINGLE LINE.

2 MECHANICAL KEY NOTES:

1. APPROXIMATE LOCATION OF NEW SINGLE DUCT BOX. CONTRACTOR SHALL INSTALL NEW SINGLE DUCT BOX IN EXISTING DUCTWORK. PROVIDE DUCT TRANSITIONS TO BOX INLET AND OUTLET AS REQUIRED. CONTRACTOR SHALL REMOVE AND PATCH EXISTING DUCTWORK AS NECESSARY. TYP.
2. NEW DDC TEMPERATURE, RELATIVE HUMIDITY, AND CO2 SENSORS.
3. REFER TO ENLARGED MECHANICAL ROOM PLANS FOR MECHANICAL ROOM VIEW CONTINUATION.
4. PROVIDE NEW MANUAL BALANCING DAMPER.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

1 M2.11D LEVEL 1 MECHANICAL PLAN - D

1/8" = 1'-0"

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210.546.0200 v 210.546.0201 f
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

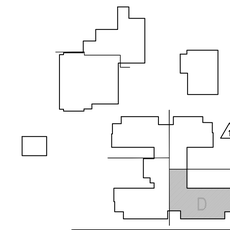
No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: LEVEL 1 MECHANICAL PLAN - D
SHEET NUMBER: M2.11D



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713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

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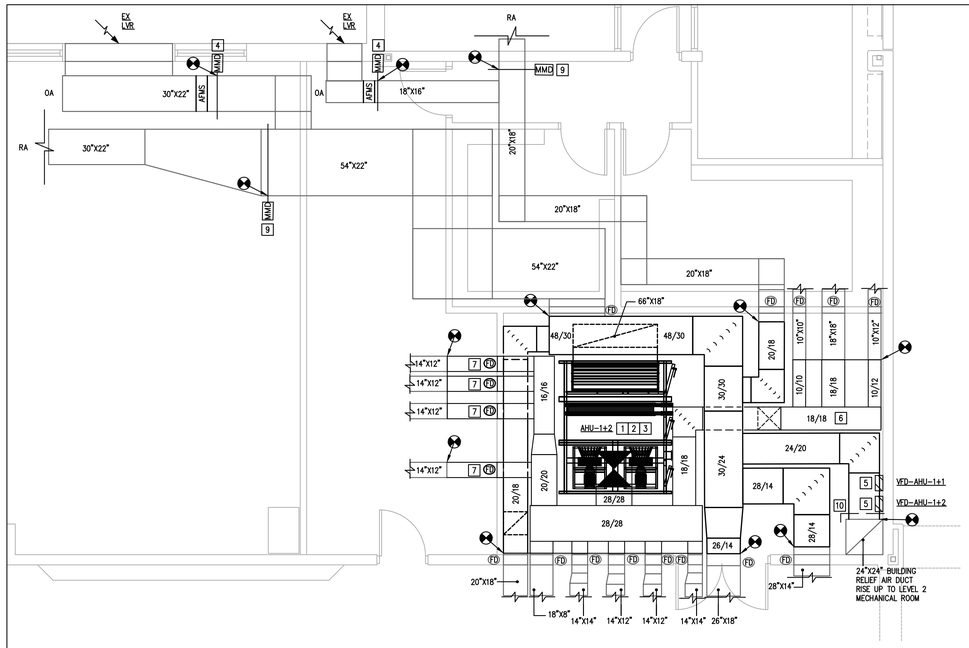
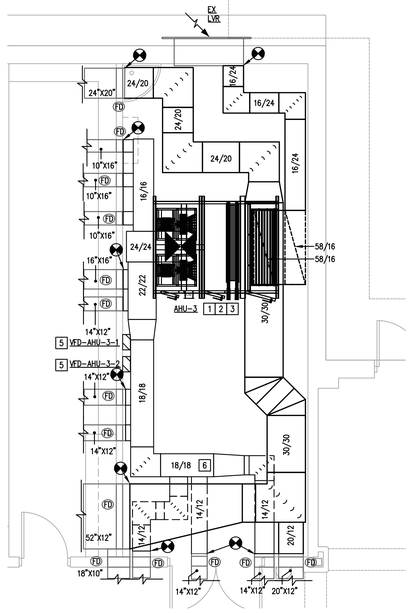


1 M3.10 LEVEL 1A MECHANICAL AHU-1+2
1/4" = 1'-0"



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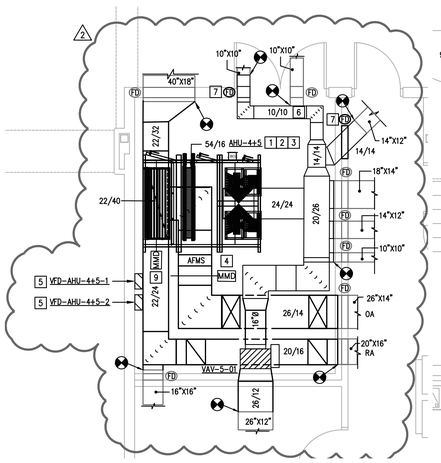
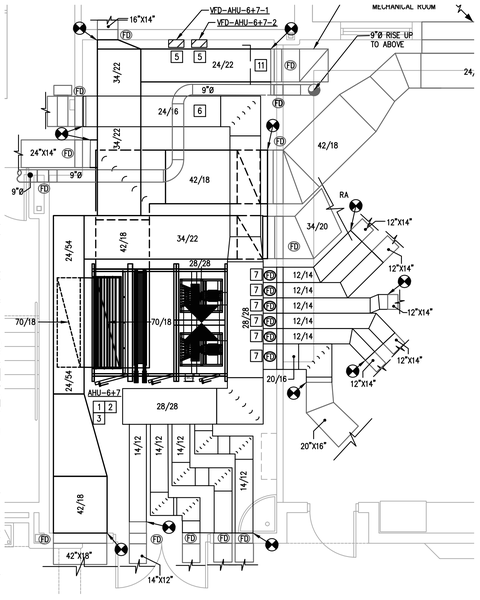
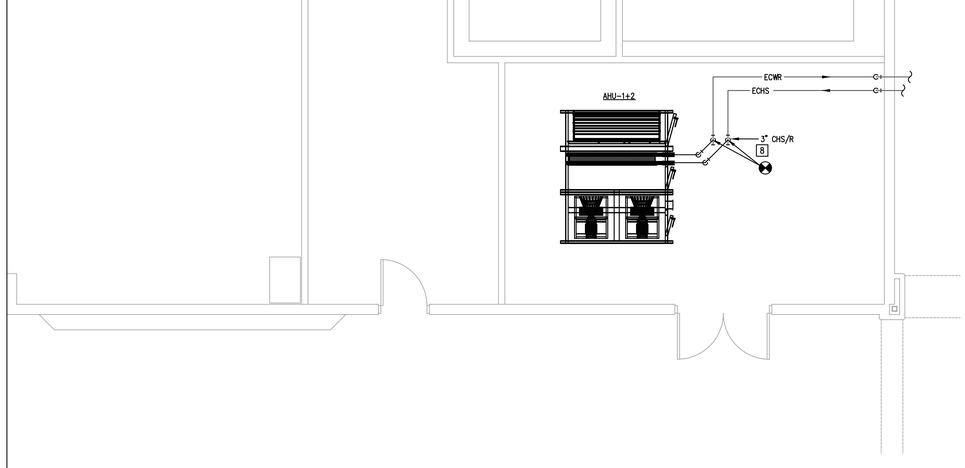


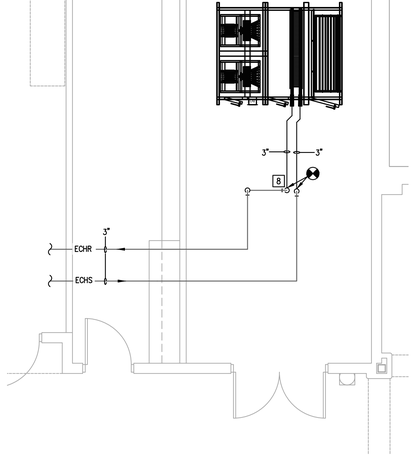
5 M3.10 LEVEL 1C MECHANICAL AHU-4+5
1/4" = 1'-0"



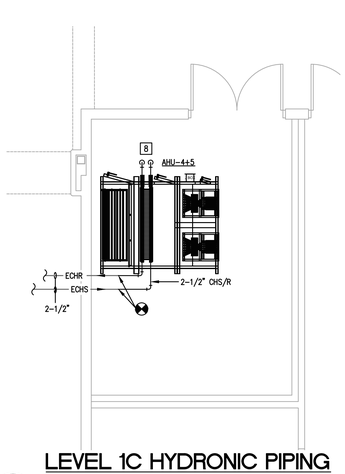
7 M3.10 LEVEL 1D MECHANICAL AHU-6+7
1/4" = 1'-0"



2 M3.10 LEVEL 1A HYDRONIC PIPING AHU-1+2
1/4" = 1'-0"



4 M3.10 LEVEL 1B HYDRONIC PIPING AHU-3
1/4" = 1'-0"



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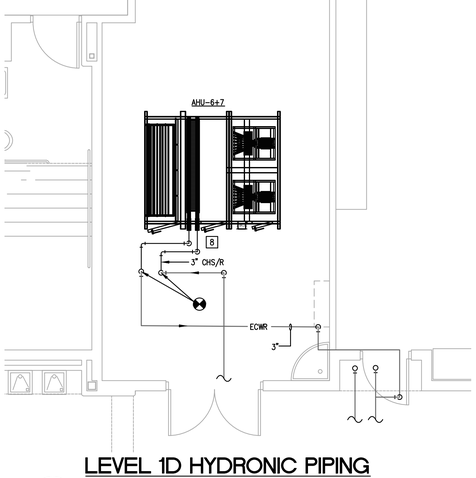
1/4" = 1'-0"



8 M3.10 LEVEL 1D HYDRONIC PIPING AHU-6+7
1/4" = 1'-0"

MECHANICAL GENERAL NOTES:

A. REFER TO SHEET M0.01 FOR MECHANICAL GENERAL NOTES.

B. EXACT LOCATIONS OF HOT WATER DUCT COILS AND DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCES.

C. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

D. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE AND HUMIDITY SENSORS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

G. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

H. EXISTING DUCTWORK SHOWN AS A SINGLE LINE.

MECHANICAL KEY NOTES:

1. MODIFY EXISTING HOUSE KEEPING PAD TO ACCOMMODATE THE NEW AIR HANDLING UNIT.
2. INSTALL SUPPLY AND RETURN AIR DUCTWORK AS INDICATED AND AS REQUIRED. FIELD VERIFY REQUIREMENT OF CONNECTION.
3. CONTRACTOR SHALL PROVIDE A NEW FULL SIZE INSULATED COPPER CONDENSATE DRAIN LINE. PROVIDE PIPE SUPPORT MAXIMUM 5'-0" O.C. SPACING. SLOPE PIPING 1/8" PER FOOT. ROUTE AND DRAIN CONDENSATE LINE INDIRECTLY INTO NEAREST FLOOR SINK. REFER TO DETAIL 26/M6.01 FOR REQUIREMENTS.
4. PROVIDE AND INSTALL MODULATING CONTROL DAMPER WITH AFMS IN OUTSIDE AIR DUCT. DAMPER SHALL BE EQUAL TO RUSKIN MODEL "IAQ50X", HIGH PERFORMANCE, AIRFOIL, OPPOSED BLADE.
5. VFD SHALL BE PROVIDED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR.
6. DUCT MOUNTED STATIC PRESSURE SENSOR.
7. PROVIDE NEW FIRE DAMPER.
8. CONTRACTOR SHALL ROUTE AND CONNECT EXISTING CHILLED WATER SUPPLY AND RETURN LINES TO THE NEW AIR HANDLING UNIT.
9. PROVIDE AND INSTALL MODULATING CONTROL DAMPER IN OUTSIDE AIR DUCT. DAMPER SHALL BE EQUAL TO RUSKIN MODEL "CD60", HIGH PERFORMANCE, AIRFOIL, OPPOSED BLADE.
10. CONNECT BUILDING RELIEF AIR DUCT TO RETURN AIR DUCT. PROVIDE NEW MANUAL BALANCING DAMPER. BALANCE RELIEF AIR DUCT TO 3,600 CFM.
11. CONNECT BUILDING RELIEF AIR DUCT TO RETURN AIR DUCT. PROVIDE NEW MANUAL BALANCING DAMPER. BALANCE RELIEF AIR DUCT TO 3,160 CFM.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

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DBR Project Number 218007.002

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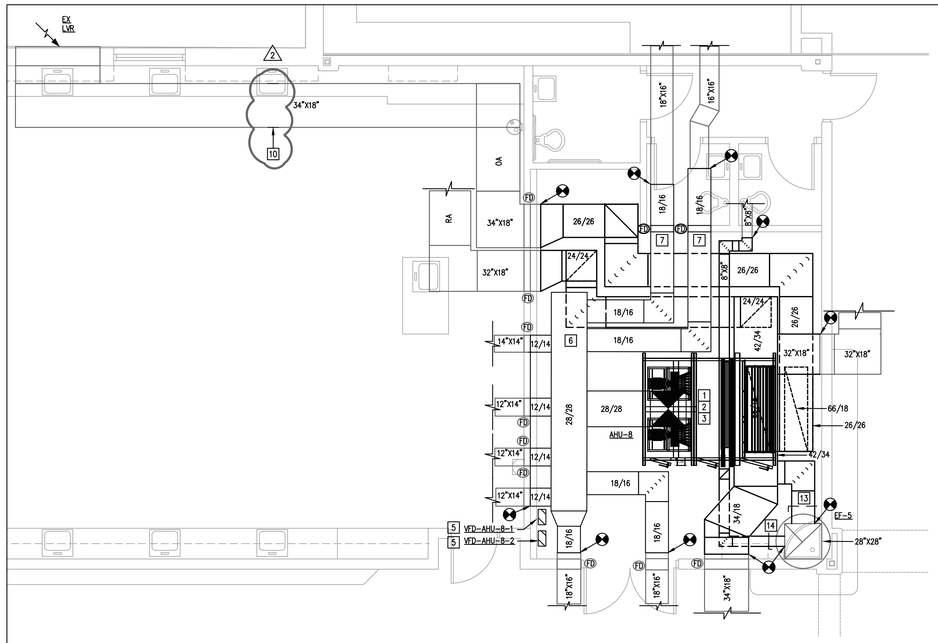
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

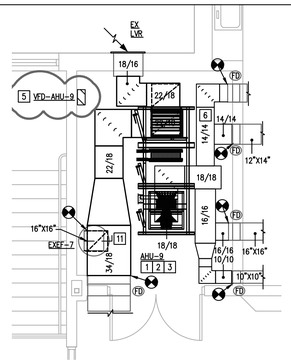
DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE:

1 ENLARGED MECHANICAL ROOM PLANS

SHEET NUMBER: M3.10



1 M3.11 LEVEL 2A MECHANICAL AHU-8
1/4" = 1'-0"



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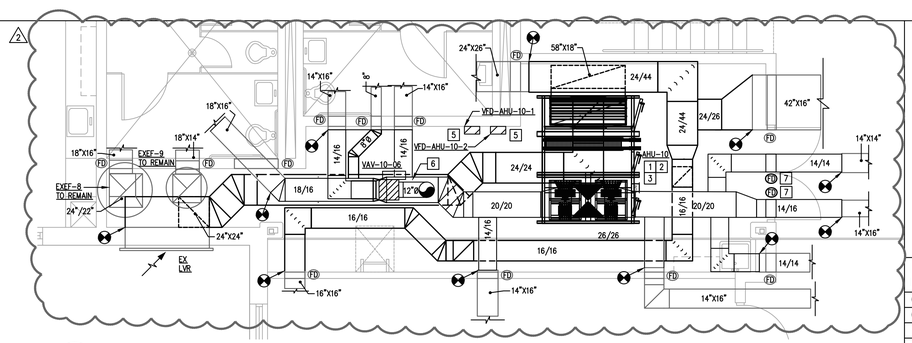
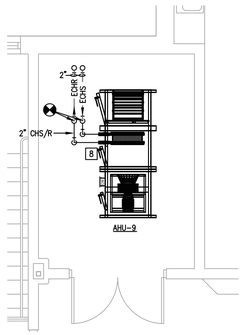
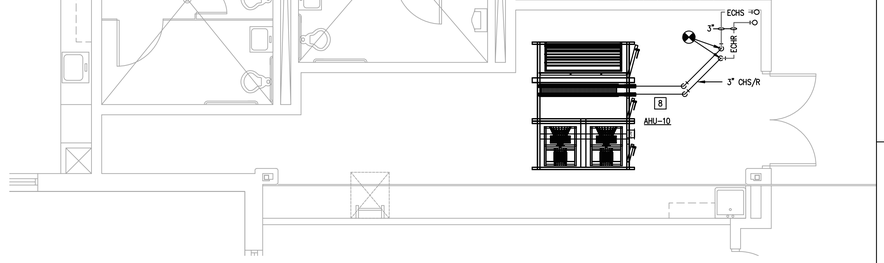
1/4" = 1'-0"



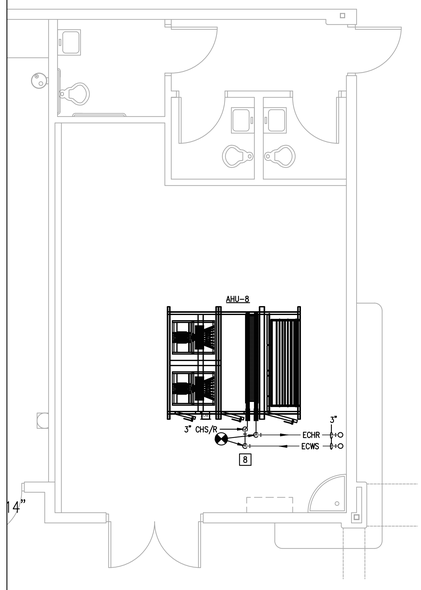
7 M3.11 LEVEL 2B MECHANICAL AHU-10
1/4" = 1'-0"



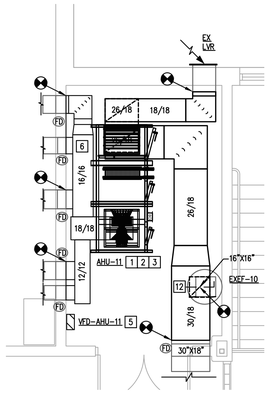
5 M3.11 LEVEL 2B HYDRONIC PIPING AHU-9
1/4" = 1'-0"



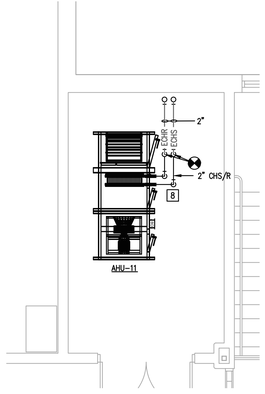
8 M3.11 LEVEL 2B HYDRONIC PIPING AHU-10
1/4" = 1'-0"



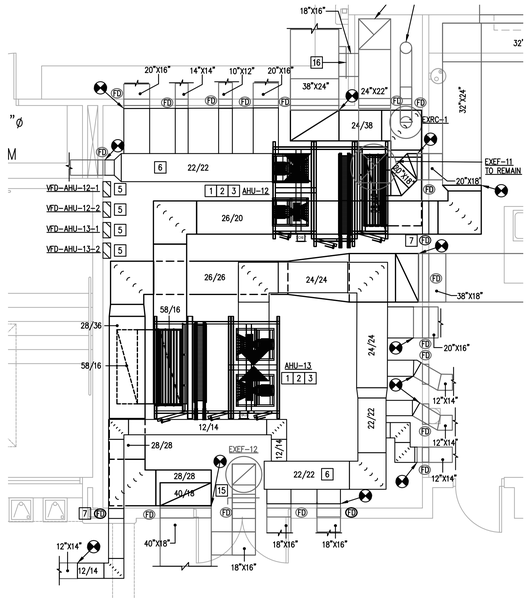
2 M3.11 LEVEL 2A HYDRONIC PIPING AHU-8
1/4" = 1'-0"



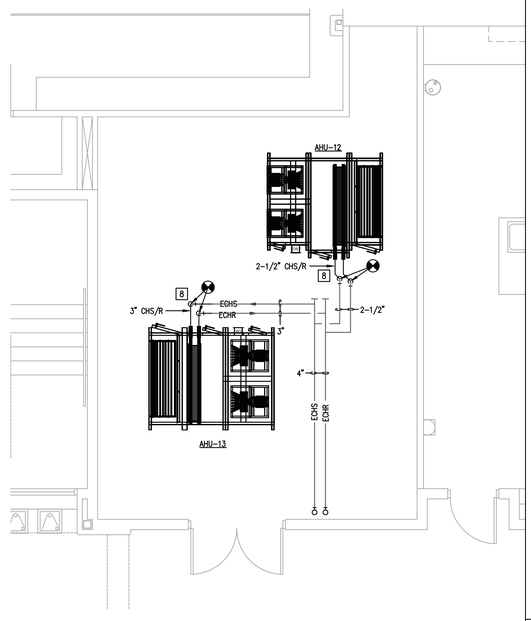
3 M3.11 LEVEL 2C MECHANICAL AHU-11
1/4" = 1'-0"



6 M3.11 LEVEL 2C HYDRONIC PIPING AHU-11
1/4" = 1'-0"



9 M3.11 LEVEL 2D MECHANICAL AHU-13
1/4" = 1'-0"



10 M3.11 LEVEL 2D HYDRONIC PIPING AHU-13
1/4" = 1'-0"

MECHANICAL GENERAL NOTES:

A. REFER TO SHEET M0.01 FOR MECHANICAL GENERAL NOTES.

B. EXACT LOCATIONS OF HOT WATER DUCT COILS AND DAMPERS SHALL BE FIELD COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS AND ALLOW ADEQUATE CLEARANCES.

C. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

D. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE AND HUMIDITY SENSORS.

E. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

F. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

G. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

H. EXISTING DUCTWORK SHOWN AS A SINGLE LINE.

MECHANICAL KEY NOTES:

1. MODIFY EXISTING HOUSE KEEPING PAD TO ACCOMMODATE THE NEW AIR HANDLING UNIT.
2. INSTALL SUPPLY AND RETURN AIR DUCTWORK AS INDICATED AND AS REQUIRED. FIELD VERIFY REQUIREMENT OF CONNECTION.
3. CONTRACTOR SHALL PROVIDE A NEW FULL SIZE INSULATED COPPER CONDENSATE DRAIN LINE. PROVIDE PIPE SUPPORT MAXIMUM 5'-0" O.C. SPACING. SLOPE PIPING 1/8" PER FOOT. ROUTE AND DRAIN CONDENSATE LINE INDIRECTLY INTO NEAREST FLOOR SINK. REFER TO DETAIL 26/M6.01 FOR REQUIREMENTS.
4. PROVIDE AND INSTALL MODULATING CONTROL DAMPER WITH AFMS IN OUTSIDE AIR DUCT. DAMPER SHALL BE EQUAL TO RUSKIN MODEL "IAQ50X", HIGH PERFORMANCE, AIRFOIL, OPPOSED BLADE.
5. VFD SHALL BE PROVIDED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR.
6. DUCT MOUNTED STATIC PRESSURE SENSOR.
7. PROVIDE NEW FIRE DAMPER.
8. CONTRACTOR SHALL ROUTE AND CONNECT EXISTING CHILLED WATER SUPPLY AND RETURN LINES TO THE NEW AIR HANDLING UNIT.
9. PROVIDE AND INSTALL MODULATING CONTROL DAMPER IN OUTSIDE AIR DUCT. DAMPER SHALL BE EQUAL TO RUSKIN MODEL "CD60", HIGH PERFORMANCE, AIRFOIL, OPPOSED BLADE.
10. PATCH, SEAL, AND RE-INSULATE DUCT.
11. CONNECT EXHAUST FAN TO RETURN AIR DUCT. PROVIDE NEW MANUAL BALANCING DAMPER IN RISER. BALANCE RELIEF AIR DUCT TO 1,200 CFM.
12. CONNECT EXHAUST FAN TO RETURN AIR DUCT. PROVIDE NEW MANUAL BALANCING DAMPER IN RISER. BALANCE RELIEF AIR DUCT TO 1,255 CFM.
13. CONNECT BUILDING RELIEF AIR DUCT TO EXHAUST FAN. PROVIDE NEW MANUAL BALANCING DAMPER. BALANCE RELIEF AIR DUCT TO 2,400 CFM.
14. CONNECT EXHAUST AIR DUCT TO EXHAUST FAN. PROVIDE NEW MANUAL BALANCING DAMPER. BALANCE EXHAUST AIR DUCT TO 175 CFM.
15. BALANCE BUILDING RELIEF AIR TO 1,800 CFM.
16. BALANCE BUILDING RELIEF AIR TO 1,1480 CFM.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

TRUE NORTH

PLAN NORTH

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MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022

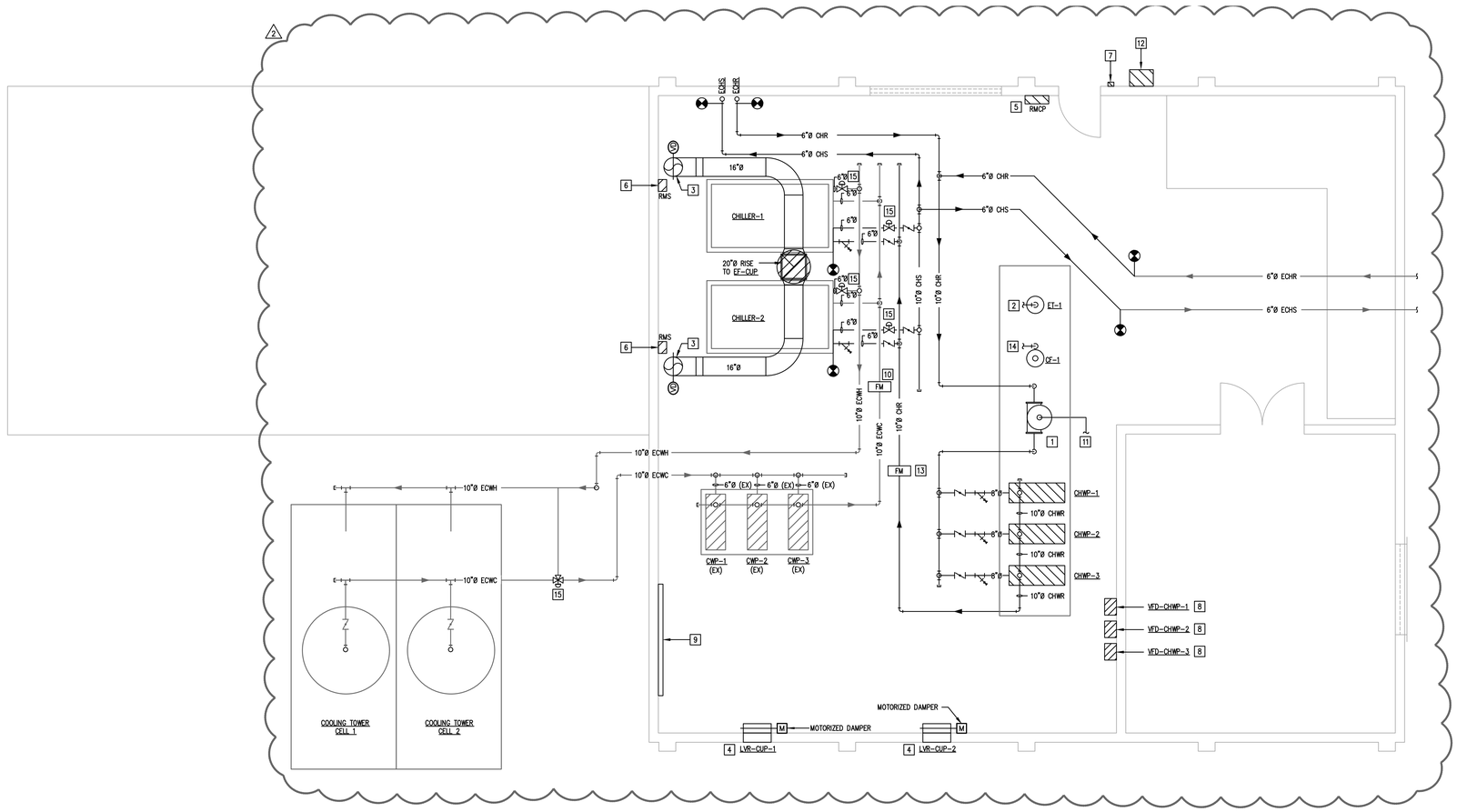
DRAWN BY: DBR

CHECKED BY: DBR

PROJECT NUMBER: 218007.002

SHEET TITLE:
ENLARGED MECHANICAL ROOM PLANS

SHEET NUMBER:
M3.11



1 M3.13 LEVEL 1H MECHANICAL CHILLED WATER PLANT

1/4" = 1'-0"

MECHANICAL GENERAL NOTES:

A. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE VERIFIED EXISTING JOBSITE CONDITIONS DURING THE BIDDING PERIOD, SO THEY HAVE OBTAINED THE SCOPE OF THE MECHANICAL DEMOLITION WORK INVOLVED AS A RESULT OF MODIFICATIONS TO THE EXISTING STRUCTURE. THE SCOPE OF WORK SHALL INCLUDE MATERIALS AND DUCTWORK CONSISTING OF DEVICES, EQUIPMENT, OR APPARATUS WHICH MAY BE REROUTED, RELOCATED, OR REMOVED EITHER TEMPORARILY OR PERMANENTLY, OR WHICH MUST BE REROUTED OR REMOVED EITHER ACCOMPLISHED. NOT ALL EXISTING CONDITIONS ARE NECESSARILY INDICATED ON DRAWINGS, CONTRACTOR SHALL DEMOLISH ONLY WHAT IS INDICATED TO BE DEMOLISHED ON DRAWINGS.

B. CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL EQUIPMENT BEING REMOVED. OWNER SHALL RESERVE THE RIGHT TO CLAIM ALL EQUIPMENT, DUCTWORK, AND AIR DEVICES REMOVED DURING DEMOLITION.

C. CONTRACTOR TO REPORT ANY DAMAGED EQUIPMENT THAT IS SHOWN AS EXISTING TO REMAIN TO THE OWNER PRIOR TO STARTING ALL WORK. ALL EQUIPMENT FOUND TO BE DAMAGED AT THE TIME OF SUBSTANTIAL COMPLETION, THAT HAD NOT BEEN REPORTED PRIOR TO CONSTRUCTION, CONTRACTOR TO REPAIR AT THEIR OWN COST.

D. WHERE EQUIPMENT IS SCHEDULED TO BE DEMOLISHED/REMOVED AND REPLACED, THE CONTRACTOR SHALL PREP ALL OPENINGS, CONNECTIONS, FLASHING, PENETRATIONS, DUCT OR PIPING FITTINGS, ETC. TO ACCOMMODATE THE NEW EQUIPMENT. IT IS UNLIKELY THAT NEW EQUIPMENT SPECIFIED IN NEW WORK PHASE WILL DIRECTLY ALIGN WITH EXISTING CONDITIONS.

E. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.

F. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ACTUAL INSTALLATION OF TEMPERATURE AND HUMIDITY SENSORS.

G. ALL EQUIPMENT, DUCTWORK, CONTROLS AND ACCESSORIES FOUND TO BE ABANDONED SHALL BE REMOVED.

H. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH BUILDING FACILITY AS TO NOT DISTURB OPERATING HOURS.

I. CONTRACTOR SHALL COORDINATE CLEARANCES WITH ALL APPLICABLE TRADES TO ENSURE THAT ALL NECESSARY CODES ARE IN COMPLIANCE.

MECHANICAL KEY NOTES:

1. AIR SEPARATOR, AS-1, SHALL BE FLOOR SUPPORTED ON EXISTING HIGH HOUSE KEEPING PAD. OFFSET AIR VENT TO MINIMIZE WATER SPILLAGE ONTO UNIT. RE: TO 18/M6.01
2. EXPANSION TANK, ET-1, SHALL BE FLOOR MOUNTED ON EXISTING HIGH HOUSEKEEPING PAD. RE: TO 16/M6.01.
3. 16"Ø EXHAUST DUCT. DROP DOWN TO 18" ABOVE FINISHED FLOOR. TERMINATE IN BIRD SCREEN. RACK TO PERIMETER WALL BALANCE INLET AT 1300 CFM.
4. PROVIDE LVR-CUP-1 & LVR-CUP-2 WITH CONTROL DAMPER. DAMPER SHALL REMAIN CLOSED UNLESS COMMANDED OPEN THRU REFRIGERANT MONITORING SYSTEM. MOUNT BOTTOM OF LOUVER AT 16" ABOVE FINISHED FLOOR (TOP OF SECOND CMU COURSE).
5. MOUNT REFRIGERANT MONITORING CONTROL PANEL (RMCP) 54" ABOVE FINISHED FLOOR TO TOP. UNIT SHALL COME COMPLETE WITH HORNS/STROBE ASSEMBLY. PROVIDE COMMUNICATIONS MODULE AS REQUIRED FOR DDC SYSTEM. INITIATION OF REFRIGERANT PURGE/ALARM CYCLE SHALL SEND AN ALARM THRU DDC. PROVIDE MANUAL RESET IN PANEL.
6. REFRIGERANT MONITORING SENSOR (RMS). MOUNT AT 18" ABOVE FINISHED FLOOR.
7. REFRIGERANT MONITORING SYSTEM HORN/STROBE. COORDINATE FINAL LOCATION WITH ARCHITECTURAL DOORS. UNIT SHALL BE WEATHER PROOF (EXTERIOR UNITS ONLY) AND MOUNTED 80" ABOVE FINISHED FLOOR. PROVIDE SIGN AT EACH LOCATION THAT READS "MACHINERY ROOM AUTHORIZED PERSONNEL ONLY". SIGN MUST ALSO INCLUDE WORDING TO PROHIBIT ENTERING MACHINERY ROOM WITHOUT PROPER PROTECTIVE EQUIPMENT DURING A REFRIGERANT ALARM CONDITION.
8. VFD SHALL BE PROVIDED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR.
9. NEW CONDENSER WATER TREATMENT PUMPS/CONTROLLER IN THIS AREA. REFER TO DETAIL 24/M6.01 FOR PIPING/EQUIPMENT REQUIREMENTS. INSTALL 4X8X3/4" TREATED PLYWOOD AT 2'-0" ABOVE FINISHED FLOOR. PAINT TO MATCH SURROUNDING WALL FINISH.
10. APPROXIMATE LOCATION OF CONDENSER WATER FLOW METER. SPECIFIC LOCATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
11. NEW 1-1/2" MAKEUP WATER LINE AND RPZ BACKFLOW PREVENTER.
12. SELF CONTAINED BREATHING APPARATUS IN WEATHER PROOF ENCLOSURE.
13. APPROXIMATE LOCATION OF CHILLED WATER FLOW METER. SPECIFIC LOCATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
14. THREE SOCK CHEMICAL FEEDER MOUNTED ON EXISTING HOUSE KEEPING PAD. REFER TO DETAIL 17/M6.01.
15. NEW MOTORIZED CONTROL VALVE EQUAL TO BRAY SERIES 70.

LEGEND:

NEW PIPING AND EQUIPMENT

EXISTING PIPING AND EQUIPMENT

DBR
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REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022

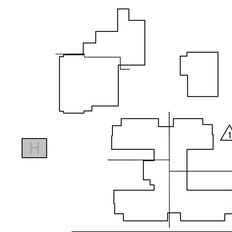
DRAWN BY: DBR

CHECKED BY: DBR

PROJECT NUMBER: 218007.002

SHEET TITLE:
ENLARGED MECHANICAL ROOM PLANS

SHEET NUMBER:
M3.13



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DBR Project Number 218007.002

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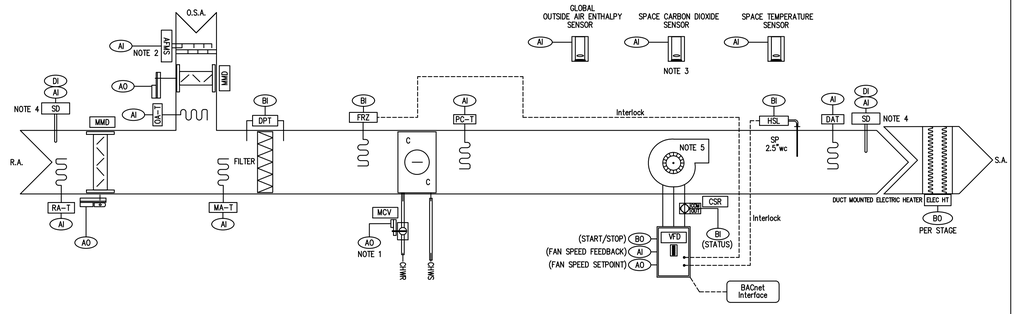


NOTES:
1. Provide PICCV coil control valve as indicated in mechanical schedules and control specifications.
2. Provide adequate length before and after air flow measuring station as recommended by manufacturer.
3. Refer to floor plans for location of all associated space carbon dioxide sensors.
4. Wire to fire alarm system. Alarm to DDC. Duct smoke detectors provided by fire alarm contractor and installed by mechanical contractor.
5. AHU is specified with two supply fans with an individual VFD for each. 2

(Typical of AHU-14 and AHU-15)

System Off - When the system is off:
The outside air damper shall be closed.
The return air damper shall be open.
The supply air fan shall be off.
The chilled water coil valve shall be closed.
The control loops shall be disabled.

System Start-up - System start-up shall be initiated:
By an operator entered manual command at the EMCS.
Automatically by the EMCS based on Pre-Start Mode or Night-Setback Mode. 2

Pre-Start Mode:
The system shall be enabled by an operator entered manual command at the EMCS or automatically by the EMCS based on the Optimal Start/Stop algorithm. Once enabled, the system shall operate per the System Operation section as detailed below. Operation of the system during Pre-Start Mode shall not include ventilation air.

Night-Setback Mode:
The system shall be enabled automatically by the EMCS when the space temperature drifts outside the active Unoccupied Cooling or Heating Setpoint. Once enabled, the system shall operate per the System Operation section as detailed below. Operation of the system during Night-Setback Mode shall not include ventilation air.

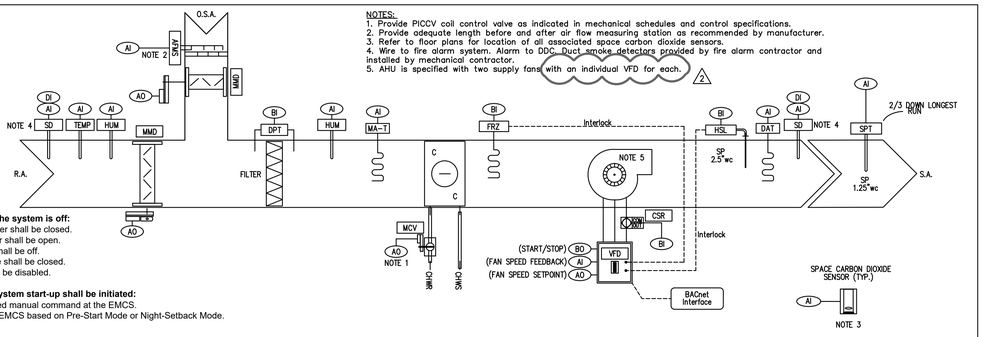
System Operation - When system start-up has been initiated:
The variable speed supply air fan shall start. Following a confirmation of fan start status, the supply fan shall initially be indexed to its minimum speed reference value. The speed of the fan shall not be adjusted by more than 20 Hz in any one-minute period.
OUTSIDE AIR CFM AND DAMPER CONTROL: When the system is commanded to start, the EMCS shall index the outside air damper to the scheduled maximum outside airflow rate as measured by the outside airflow measuring station.
OUTSIDE AIR DAMPER / RETURN AIR DAMPER INTEGRATION WITH SUPPLY FAN VFD: The EMCS shall provide dynamic control of the outside air damper and return air damper positions through the full range of the supply fan VFD modulation. The outside air and return air motorized dampers shall modulate in sequence to maintain the active outside air flow rate setpoint. The outside air damper shall first modulate open. If the outside air damper has reached the 100% open position and still cannot achieve the active outside air flow rate setpoint, then the return air damper shall begin to modulate closed. The return air damper position shall have a low limit of 50% (adj) during normal system operation. Damper positions shall not be adjusted by more than 20% (adj) in any one-minute time period.
DEMAND CONTROL VENTILATION: During occupied building hours, the EMCS shall allow the outside air damper to modulate from its scheduled maximum flow rate to its scheduled minimum flow rate. If the space CO2 level is at least 100 ppm (adj) less than its active high limit setpoint for a time period of 10 minutes (adj), the EMCS shall index the outside air damper to maintain its minimum scheduled outside air flow rate. If the space CO2 level rises to within 50 ppm (adj) of its active high limit, the EMCS shall index the outside air damper to maintain its scheduled maximum outside air flow rate.
COOLING MODE: The EMCS shall modulate the chilled water control valve as required to maintain the active coil discharge air temperature setpoint. The EMCS shall modulate the supply fan VFD from its minimum setting to its maximum setting as required to maintain the active space temperature setpoint.
HEATING MODE: When the supply fan is operating at its minimum setting, the duct mounted electric heater shall to maintain the active space temperature setpoint. If the space temperature drops below its active setpoint and the unit discharge air temperature is at its active setpoint, then the EMCS shall modulate the supply fan VFD from its minimum setting to its maximum setting as required to maintain the active space temperature setpoint and the duct mounted electric heater shall stage to maintain the re-heat coil discharge air temperature setpoint.
DEHUMIDIFICATION MODE: - If space RH exceeds 60% (adj) under any mode of operation, AHU shall enter dehumidification mode. In this mode, airflow shall be 50% cooling flow (minimum airflow shall not be less than VFD minimum or minimum outside air scheduled. Cooling coil shall provide 50°F discharge air, and electric heater shall stage to maintain space temperature. System shall return to normal operation after RH levels drop to 55%.

System Setpoints - The setpoints for the system shall be determined as follows:
The maximum speed reference value shall be the VFD speed required to obtain the design supply airflow value from the unit schedule on the Mechanical Drawings.
The minimum speed reference value shall be VFD speed required to obtain 50% of the design supply airflow value from the unit schedule on the mechanical drawings but not less than the active outside air flow rate setpoint.
The occupied heating space temperature setpoint shall be set at 70°F (adj) with a low-limit alarm of 66°F (adj).
The occupied cooling space temperature setpoint shall be set at 74°F (adj) with a high-limit alarm of 79°F (adj).
The unoccupied heating space temperature setpoint shall be set at 55°F (adj) with a low-limit alarm of 51°F (adj).
The unoccupied cooling space temperature setpoint shall be set at 85°F (adj) with a high-limit alarm of 89°F (adj).
The chilled water coil discharge air temperature setpoint shall be set at 53°F (adj) with a low-limit alarm of 48°F (adj).
The re-heat coil discharge air temperature setpoint shall be set at 85°F (adj) with a high-limit alarm of 100°F (adj).
The minimum outside air flowrate setpoint shall be set at the scheduled minimum flowrate from the unit schedule on the mechanical drawings.
The maximum outside air flowrate setpoint shall be set at the scheduled maximum flowrate from the unit schedule on the mechanical drawings.
The space carbon dioxide high-limit setpoint shall be set at 1000 ppm (adj).
The supply duct static pressure high-limit setpoint shall be set at 2.0 in. wc. (adj).
The air filter pressure differential high-limit setpoint shall be set at 1.0 in. wc. (adj).
The freeze-stat low-limit trip setpoint shall be set at 37°F(adj).

System Shutdown - System shutdown shall be initiated:
By operator entered manual command at the EMCS.
Automatically by the EMCS based on Night-Setback or Time of Day schedule.
Automatically by the high-static pressure shut down.
Automatically by the unit freeze-stat shut down.
Automatically by a supply fan current sensor status failure.

System Alarms - The EMCS shall generate an alarm condition for each of the following:
If the space temperature is outside the active low or high-limit for 5 minutes (adj).
If the supply air temperature drops below the chilled water coil discharge air temperature low-limit for 5 minutes (adj).
If the supply air temperature rises above the heating coil discharge air temperature high-limit for 5 minutes (adj).
If the space carbon dioxide level exceeds its high-limit for more than 20 minutes (adj) or the space carbon dioxide level exceeds the high-limit by 10% or more.
If the supply duct static pressure exceeds the high-limit setpoint.
If the filter differential pressure exceeds the trip point.
If the unit freeze-stat trips.
If the current sensor relay indicates a supply fan failure status.
All alarms shall be inhibited when the supply fan is not operating except the space temperature alarms. The alarms, except the fan failure and the space temperature alarms, shall remain inhibited following startup of the unit for 2 minutes.

3 Single Zone VAV Air Handling Unit - Control Schematic and Sequence of Operations
NOT TO SCALE



NOTES:
1. Provide PICCV coil control valve as indicated in mechanical schedules and control specifications.
2. Provide adequate length before and after air flow measuring station as recommended by manufacturer.
3. Refer to floor plans for location of all associated space carbon dioxide sensors.
4. Wire to fire alarm system. Alarm to DDC. Duct smoke detectors provided by fire alarm contractor and installed by mechanical contractor.
5. AHU is specified with two supply fans with an individual VFD for each. 2

System off - When the system is off:
The outside air damper shall be closed.
The return air damper shall be open.
The unit supply fan shall be off.
The cooling coil valve shall be closed.
All control loops shall be disabled.

System Start-up - System start-up shall be initiated:
By an operator entered manual command at the EMCS.
Automatically by the EMCS based on Pre-Start Mode or Night-Setback Mode.

PRE-START MODE:
The system shall be enabled by an operator entered manual command at the EMCS or automatically by the EMCS based on the Optimal Start/Stop algorithm. Once enabled, the system shall operate per the **System Operation** section, as detailed below. Operation of the system during Pre-Start Mode shall not include ventilation air.

NIGHT-SETBACK MODE:
The system shall be enabled automatically by the EMCS based on the cooling demand of 5 (adjustable) or more associated terminal units whose space temperature has exceeded the terminal units Unoccupied Cooling Setpoint. Once enabled, the system shall operate per the **System Operation** section, as detailed below. Operation of the system during Night-Setback Mode shall not include ventilation air.

OCCUPIED MODE:
The system shall be enabled automatically by the EMCS based on the actual space occupancy. When the Time of Day schedule (TOD) is active, the system shall operate per the **System Operation** section, as detailed below, and the Demand Control Ventilation sequence shall be active.

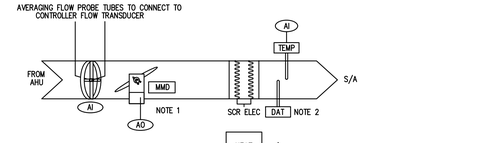
Demand Control Ventilation - The outside air intake damper shall be modulated to maintain the scheduled minimum outside air flowrate setpoint. If the space carbon dioxide concentration for any zone served by the associated AHU is above the defined high-limit, then the OSA damper shall be modulated to maintain the scheduled maximum outside air flowrate setpoint. If the OSA damper is above 95% open and the maximum outside air flowrate setpoint cannot be met, then modulate the return air damper closed until the flowrate is achieved. Do not modulate the return air damper to less than 60% open. Once the space carbon dioxide concentration for all associated zones has been below the defined high limit for 5 minutes (adj.), the OSA damper shall be modulated to maintain the scheduled minimum outside air flowrate setpoint.
System Operation - When system start-up has been initiated:
The variable speed supply fans shall start at its minimum speed. Following a confirmation of fan start status, the supply fans speed shall be modulated in parallel to maintain the supply air static pressure at setpoint. The speed of the fans shall not be adjusted by more than 20% in any one-minute period. The static pressure setpoint shall be reset via the control algorithm below to optimize the energy usage.
Supply Air Static Pressure Reset - The static pressure setpoint shall be reset up in defined increments at defined intervals until the primary air damper position to all of the associated terminal units have been below the defined value for more than the defined interval. The static pressure setpoint shall be reset down in defined increments at defined intervals until the primary air damper position to at least one (critical zone) of the associated terminal units has been above the defined value for more than the defined interval. The setpoints are detailed in the **System Setpoint** section below.
Temperature Control - The chilled water coil control valve shall be modulated to maintain the active supply air temperature setpoint. The supply air temperature setpoint shall be reset via the control algorithm below to optimize the energy usage.
Supply Air Temperature Reset - The supply air temperature setpoint shall be reset based on the actual return air temperature, according to the defined reset schedule detailed in the **System Setpoint** section below. If the Demand Control Ventilation sequence is in maximum flow mode, then the supply air temperature reset shall be disabled and the setpoint shall be set to the initial value. 2
Humidity Control - A return air, duct mounted, humidity sensor shall monitor the R/A relative humidity to 50% (ADJ.). When return air relative humidity is above setpoint by 5% (not to exceed 60%), the chilled water valve shall open to provide 50°F cooling coil discharge temperature and signal the terminal units to go into humidity control. When relative humidity attains set point, the system will return to normal operation.

System Setpoints - The setpoints for the system shall be determined as follows:
The maximum speed reference value shall be the VFD speed required to obtain the design supply airflow value from the unit schedule on the Mechanical Drawings.
The minimum speed reference value shall be VFD speed required to obtain 50% of the design supply airflow value from the unit schedule on the mechanical drawings but not less than the active outside air flow rate setpoint.
The supply air static pressure setpoint shall be set initially at 1.25 inches w.c. (adj) and shall have reset limits of 0.20 to 2.00 inches w.c. (adj)
The time interval for static pressure reset shall be set at 10 minutes (adj).
The static pressure reset increment shall be set at 0.05 inches w.c. (adj)
The terminal unit primary damper position setpoint shall be 90% open. (adj)
The time interval for terminal unit primary damper position shall be set at 15 minutes. (adj)
The supply air temperature setpoint shall be set initially at 54 °F. (adj)
The supply air temperature setpoint shall be reset to 54 °F (adj) when the return air temperature is at 78 °F. (adj)
The supply air temperature setpoint shall be reset to 58 °F (adj) when the return air temperature is at 72 °F. (adj)
The minimum outside air flowrate setpoint shall be set at the scheduled minimum flowrate from the unit schedule on the mechanical drawings.
The maximum outside air flowrate setpoint shall be set at the scheduled maximum flowrate from the unit schedule on the mechanical drawings.
The space carbon dioxide high-limit setpoint shall be set at 1000 ppm (adj).
The supply duct static pressure high-limit setpoint shall be set at 2.0 in. wc. (adj).
The air filter pressure differential high-limit setpoint shall be set at 1.0 in. wc. (adj).
The freeze-stat low-limit trip setpoint shall be set at 37°F(adj).

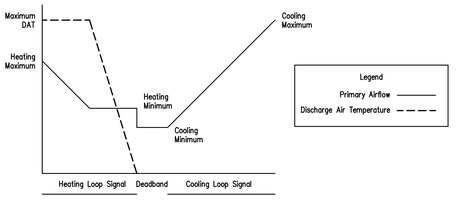
System Shutdown - System shutdown shall be initiated:
By operator entered manual command at the EMCS.
Automatically by the EMCS based on Night-Setback or Time of Day schedule.
Automatically by the high-static pressure shut down.
Automatically by the unit freeze-stat shut down.
Automatically by a supply fan current sensor status failure.

System Alarms - The EMCS shall generate an alarm if:
If the supply air temperature is outside the limits, which shall be set at +/- 5 °F around setpoint.
If any associated space carbon dioxide level exceeds its high-limit for more than 20 minutes (adj) or exceeds the high-limit by 10% or more.
If the supply duct static pressure exceeds the high-limit setpoint.
If the unit freeze-stat trips.
If the filter differential pressure exceeds the trip point.
If the current sensor relay indicates a supply fan failure status.
If return air RH is 60% or above. 2
All alarms shall be inhibited when the supply fan is not operating.

1 MULTIZONE VAV Air Handling Unit - Control Schematic and Sequence of Operations
NOT TO SCALE



NOTES:
1. TERMINAL UNIT CONTROLLER AND DAMPER ACTUATOR SHALL BE SHIPPED TO THE TERMINAL UNIT MANUFACTURER FOR MOUNTING AND WIRING.
2. DAT SENSOR SUPPLIED BY UNIT VENDOR AND MOUNTED BY EMCS CONTRACTOR.
3. CONTROLS CONTRACTOR SHALL UTILIZE AUXILIARY RELAY ON OCCUPANCY SENSOR FOR STANDBY CONTROL. OCCUPANCY SENSOR SHALL BE PROVIDED BY DIVISION 26. IF AUXILIARY RELAY IS UNAVAILABLE FROM DIVISION 26 SENSOR, EMCS CONTRACTOR SHALL PROVIDE STANDALONE OCCUPANCY SENSOR AS REQUIRED PER SPECIFICATIONS.



System Off - When the system is off:
The primary air damper shall be closed.
The heating coil shall be disabled.
The control loops shall be disabled.

System Startup - Startup shall be initiated automatically by the EMCS:
In Unoccupied when the corresponding AHU is in UNOCCUPIED MODE.
In Occupied when the corresponding AHU is in PRE-START MODE.
In Unoccupied when the corresponding AHU is in NIGHT-SETBACK MODE.
In Occupied when the corresponding AHU is in OCCUPIED MODE.
In Standby when the corresponding AHU is in OCCUPIED MODE and the zone-mounted Occupancy Sensor times out.

System Operation - When system start-up has been initiated, the following sequences shall be implemented:
The primary air damper shall be modulated between the cooling minimum and maximum flow values to maintain the space temperature within +/- 0.5 °F of the active Cooling Setpoint.
When the space temperature falls below the deadband, the primary air damper shall modulate to maintain the heating minimum flow value and the SCR electric heat shall be modulated to maintain the space temperature within +/- 0.5 °F of the active Heating Setpoint.
If the space temperature drops below the active Heating Setpoint and the discharge air temperature is at its active setpoint, the primary air damper shall be modulated between the heating minimum and maximum heating flow values to maintain the space temperature within +/- 0.5°F of the active Heating Setpoint and the SCR electric heat shall be modulated to maintain the discharge air temperature setpoint. The SCR electric heat controller shall be set to maintain a maximum discharge air temperature of 85 °F (adjustable). When relative humidity, as determined by either space or AHU return air relative humidity sensor is above setpoint by 5% (not to exceed 60%) in any conditioning mode, terminal unit damper shall modulate to 50% of scheduled cooling CFM and electric heater shall modulate to maintain programmed or override temperature. Unit shall operate in this mode until return air relative humidity attains setpoint.

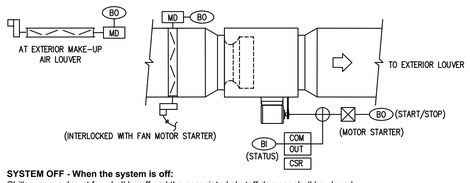
System Setpoints - The setpoints for the system shall be set as follows:
The Occupied Heating Setpoint shall be set initially at 70 °F (adjustable).
The Occupied Cooling Setpoint shall be set initially at 74 °F (adjustable).
The Unoccupied Heating Setpoint shall be set initially at 55 °F (adjustable).
The Unoccupied Cooling Setpoint shall be set initially at 85 °F (adjustable).
The Standby Heating Setpoint shall be set initially at 68 °F (adjustable).
The Standby Cooling Setpoint shall be set initially at 77 °F (adjustable).
The maximum heating mode discharge air temperature shall be set at 85 °F (adjustable).
The minimum and maximum primary air flowrates shall set at the values given in the Mechanical Drawings.

System Alarms - The EMCS shall generate an alarm as follows:
If the space temperature during the Occupied Mode is 5 °F above the cooling setpoint or 5 °F below the heating setpoint respectively.

2 VAV Terminal Unit with Electric Reheat - Control Schematic and Sequence of Operations
NOT TO SCALE

AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI/BI	DIGITAL/BINARY INPUT
DO/BO	DIGITAL/BINARY OUTPUT
MD	ON-OFF MOTORIZED DAMPER
MMD	MODULATING TYPE MOTORIZED DAMPER
AFMS	AIR FLOW MEASURING STATION
MCV	CONTROL VALVE MODULATING TYPE
VFD	VARIABLE FREQUENCY DRIVE
CSR	CURRENT SENSING RELAY
FRZ	FREEZESTAT
HSL	HIGH STATIC LIMIT
SPT	STATIC PRESSURE TRANSMITTER
DPT	DIFFERENTIAL PRESSURE TRANSDUCER
FM	FLOW METER
FS	FLOW SWITCH
DAT	DISCHARGE AIR TEMPERATURE SENSOR
S 1	WALL SENSOR/THERMOSTAT
CO2	CARBON DIOXIDE SENSOR
SP	SET POINT
S/A	SUPPLY AIR
R/A	RETURN AIR
O/A	OUTSIDE AIR
HC	HEATING COIL
CC	COOLING COIL
DX	DIRECT EXPANSION COOLING COIL
PICCV	PRESSURE INDEPENDENT CHARACTERIZED CONTROL VALVE
AFC	AIRFLOW CROSS
DPS	DIFFERENTIAL PRESSURE SWITCH

2 CONTROL SCHEMATIC LEGEND
NOT TO SCALE



SYSTEM OFF - When the system is off:
Chiller room exhaust fan shall be off and the associated shutoff damper shall be closed.

SYSTEM START-UP - System start-up shall be initiated:
By an operator command at the chiller room emergency switch.
Automatically by an alarm event triggered from the refrigerant leak detection panel.

SYSTEM OPERATION - The following sequences shall be implemented:
The chiller room exhaust fan shall utilize a two-position motorized damper interlocked with the refrigerant leak detection control panel and chiller room emergency switch. The exhaust fan shall be integrated with the EMCS to monitor fan status only. The exhaust fan shall be interlocked with the refrigerant leak detection control panel and chiller room emergency switch such that the exhaust fan is energized when an alarm event is signaled from panel or an operator command is entered at the emergency switch. The exhaust fan shall be normally off. The exhaust fan is to provide emergency ventilation to the chiller room in the event of an emergency refrigerant leak. In any event where the chiller room exhaust fan in energized, the normally closed motorized dampers at the chiller room exterior wall louvers shall be opened, when the fan is de-energized the exterior wall louvers shall return to the closed position.

SYSTEM SETPOINTS - The setpoints for the system shall be set as follows:
The design airflow rates shall be set at the values given in the Mechanical Drawings.

4 Chiller Room Exhaust Fan - Control Schematic and Sequence of Operations
NOT TO SCALE

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REVISION:

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01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
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LICENSED
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4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: MECHANICAL CONTROLS
SHEET NUMBER: M4.02

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DBR Project Number 218007.002

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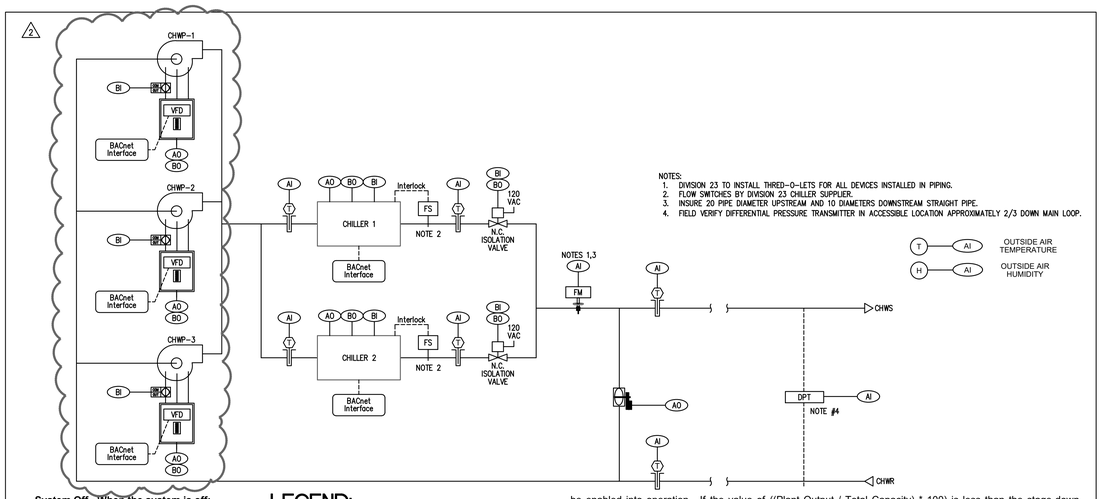


NOTES:
1. DIVISION 23 TO INSTALL THRED-O-LETS FOR ALL DEVICES INSTALLED IN PIPING.
2. FLOW SWITCHES BY DIVISION 23 CHILLER SUPPLIER.
3. INSURE 20 PIPE DIAMETER UPSTREAM AND 10 DIAMETERS DOWNSTREAM STRAIGHT PIPE.
4. FIELD VERIFY DIFFERENTIAL PRESSURE TRANSMITTER IN ACCESSIBLE LOCATION APPROXIMATELY 2/3 DOWN MAIN LOOP.

System Off - When the system is off:
The chillers shall be off.
The pumps shall be off.
The bypass valve shall be closed.
The chiller isolation valves shall be closed.
The control loops shall be disabled.

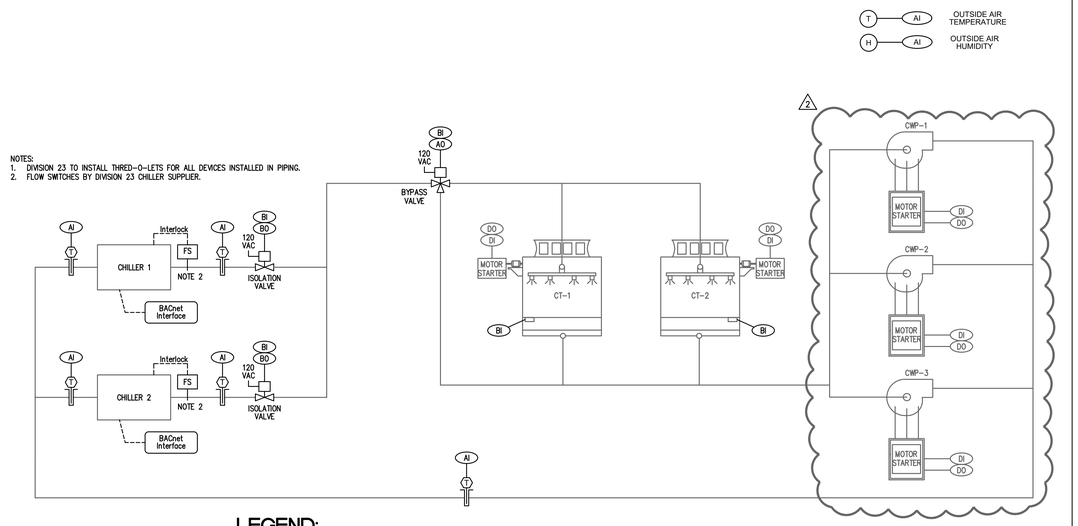
System Startup - System startup shall be initiated:
Manually by an Operator command on the chiller graphic at the EMCS.
Automatically by the EMCS, when a call for cooling has been received.

System Operation - When system start-up has been initiated:
The outside air temperature must be above the outside air lockout setpoint, before the chiller can be activated. The number of cooling requests required and the length of time the requests must be received before activating the chiller plant shall be adjustable. The chillers and pumps shall be lead/lag and rotated weekly at a time and on a day of the week when the chiller plant is not in operation. Rotation shall be based on accumulated runtime for each type of equipment.
When the chiller plant is activated, the EMCS shall open the evaporator barrel isolation valve on the lead chiller. When the valve end switch has been proven open, the EMCS shall enable the lead pump. A current switch shall prove the pump status at the EMCS, which shall generate an alarm, if the switch is not made within 45 seconds (adjustable). There shall also be a 10 second (adjustable) de-bounce time to prevent nuisance alarms from a bouncing switch. If the pump run status is not proven, the EMCS shall discontinue the enable signal to the pump and rotate pumps. The EMCS shall then energize a lag pump to run in the same manner as described above. The lag pump shall become the lead pump.
When the lead pump status is proven, the EMCS shall enable the lead chiller. A flow switch in the chilled water piping shall complete the circuit to the chiller factory installed controller proving that evaporator flow has been established. If the chiller alarm input closes (indicating that the chiller has alarm), the EMCS shall generate an alarm, discontinue the enable signal to the lead chiller and open the evaporator barrel isolation valve on the lag chiller. When the valve end switch has been proven open, the EMCS shall close the evaporator barrel isolation valve on the failed chiller and it shall be removed from service. The lag chiller shall become the lead chiller. The chiller shall run to maintain the supply water setpoint.
The EMCS shall monitor the "Chiller Output" point from each chiller. If the point is not available, the EMCS shall monitor the kW of the chiller and calculate the Chiller Output by the equation, ((instantaneous kW / full load kW) * (nominal capacity)). The combined total Chiller Output of all operating chillers shall be the Plant Output. The combined total Nominal Capacity of all operating chillers shall be the Total Capacity. The EMCS shall monitor temperature inputs from sensors mounted in the common supply and return piping and flow meters mounted in the chiller supply piping, and calculate the building load in Tons.
If the value of ((Plant Output / Total Capacity) * 100) is greater than the stage-up setpoint for 10 minutes (adjustable) or the CHW supply temperature rises greater than 4 °F (adjustable) above setpoint, a lag chiller shall be enabled into operation. If the value of ((Plant Output / Total Capacity) * 100) is less than the stage-down setpoint for 10 minutes (adjustable), a lag chiller shall be disabled.
A differential pressure sensor monitoring the pressure between the building CHWS and CHWR piping shall be used to modulate the speed of the CHW pumps. A PID control loop shall modulate the speed of the CHW pumps from their minimum speed to their maximum speed as the differential pressure deviates from setpoint. If the differential pressure is 2 psi below setpoint and the active pumps output are above the pump stage-up setpoint for 15 minutes (adjustable), a lag pump shall be enabled. When more than one pump is operating and the active pumps output are below the pump stage-down setpoint for 15 minutes (adjustable), the lag pump shall be de-energized. All active pumps shall be modulated with the same ramp signal.
While only one chiller is in operation, the corresponding flow meter shall be used to maintain the chiller minimum flow rate by modulating the bypass valve open. The chilled water flow rate shall not change by more than 10% per minute.
The EMCS shall monitor the position of all of the chilled water valves at the units that the plant serves and the differential pressure setpoint shall be reset based on achieving a target valve position of 90%. There shall be a dead band of 5% to prevent hunting of the reset program. The differential pressure setpoint shall not change by more than 1 psi per 5 minute (adj.) interval. The target valve position, the reset time, the deadband, and the rate of change values shall be adjustable.
When a chiller is to be disabled, the EMCS shall discontinue the command for the chiller to run. The EMCS shall continue to hold open the chiller isolation valve until the chiller status has indicated that it is off. Then the EMCS shall close the valve.
When the outdoor air temperature drops below the freeze protection setpoint, the EMCS shall open the chilled water valves to 50% open (adj.) for flow through the AHU coils, the lead chiller isolation valve shall be opened and the lead chilled water pump shall be activated to run at its minimum referenced speed value until ambient temperature rises above setpoint.
The EMCS shall monitor the outside air temperature and humidity. The EMCS shall calculate the outside air enthalpy, wet bulb temperature, and dew point temperature. These values shall be displayed on all air and water systems graphics.

System Setpoints - The setpoints for the system shall be set as follows:
The outside air temperature lockout setpoint shall be 50 °F (adjustable).
The chiller leaving water temperature setpoint shall be 42 °F (adjustable).
The chiller stage-up setpoint shall be 90% (adjustable).
The chiller stage-down setpoint shall be 50% (adjustable).
The chiller minimum flow setpoint shall be established by chiller manufacturer (adjustable).
The chilled water system differential pressure shall be initially set at 12 psi (adjustable) and shall have reset limits of 8 psi to 16 psi (adjustable).
The pump stage-up setpoint shall be 95% (adjustable).
The pump stage-down setpoint shall be 50% (adjustable).
The outdoor air temperature freeze protection setpoint shall be 38 °F (adjustable).

LEGEND:
NEW PIPING AND EQUIPMENT
EXISTING PIPING AND EQUIPMENT

3 Chilled Water System - Variable Primary Flow - Control Schematic and Sequence of Operations
NOT TO SCALE



NOTES:
1. DIVISION 23 TO INSTALL THRED-O-LETS FOR ALL DEVICES INSTALLED IN PIPING.
2. FLOW SWITCHES BY DIVISION 23 CHILLER SUPPLIER.

LEGEND:
NEW PIPING AND EQUIPMENT
EXISTING PIPING AND EQUIPMENT

System Off - When the system is off:
The chillers shall be off.
The pumps shall be off.
The fans shall be off.
The tower bypass valves shall be closed.
The chiller isolation valves shall be closed.
The control loops shall be disabled.

System Startup - System startup shall be initiated:
Automatically by the EMCS, when the chiller plant is enabled.

System Operation - When system start-up has been initiated:
When the condenser water system is activated, the EMCS shall open the condenser isolation valve on the lead chiller. When the valve end switches have been proven open, the EMCS shall send an enable signal to the lead pump. A current switch shall prove the pump status at the EMCS, which shall generate an alarm, if the switch is not made within 45 seconds (adjustable). There shall also be a 10 second (adjustable) de-bounce time to prevent nuisance alarms from a bouncing switch. If the pump run status is not proven, the EMCS shall discontinue the enable signal to the pump and rotate pumps. The EMCS shall then energize a lag pump to run in the same manner as described above. That pump shall become the lead pump.
When the lead pump status is proven, the EMCS shall enable the lead chiller. A flow switch in the condenser water piping shall complete the circuit to the chiller factory installed controller proving that flow has been established. If the chiller alarm input closes (indicating that the chiller has alarm), the EMCS shall generate an alarm, discontinue the enable signal to the lead chiller and open the condenser isolation valve on the lag chiller. When the valve end switch has been proven open, the EMCS shall close the condenser isolation valve on the failed chiller and it shall be removed from service. The lag chiller shall become the lead chiller. When more than one chiller is operating, the corresponding number of condenser pumps and cooling towers shall be enabled. The speed reference of the condenser water pumps shall be determined by TAB and set by the EMCS, refer to pump schedule for GPM values.

Two towers shall enable during plant operation except as follows:
1. A failure of either tower
2. A low load condition in which both towers provide a condenser water supply below 50 °F (see tower sequence below).

Both towers shall operate in parallel to maintain a condenser water supply temperature equal to the lesser of 85 °F or 5 °F above ambient wet bulb temperature. If both towers in operation provide a condenser water supply that reaches 50 °F (or recommended by chiller manufacturer), the lag tower shall be disabled. Single tower operation shall continue to maintain 50 °F. If the lead tower becomes disabled and CWC falls below 50 °F, condenser water bypass valve shall modulate open to maintain 50 °F. As condenser water temperature increases, sequence shall be reversed until both towers are again operational.

Condenser water pumps shall be operated to have speed controlled based upon Testing, Adjusting, and Balancing. When a single chiller and condenser water pump are operating, the lead pump shall provide 660 GPM. When both chillers and condenser water pumps are operating, two condenser water pumps shall operate together to provide 1320 GPM.

The EMCS shall calculate the outside air enthalpy, wet bulb temperature, and dew point temperature. These values shall be displayed on all air and water systems graphics.

System Alarms - The EMCS shall generate an alarm as follows:
Bypass Valve failure: Commanded open but the status is off.
Fan Failure: Commanded on but the status is off.
Vibration Cutout Switch: When tower vibration cutout switch signals a tower fan shutdown.
High Condenser Water Supply (Basin) Temp: If greater than 88 °F (adjustable).
Low Condenser Water Supply (Basin) Temp: If less than 37 °F (adjustable).
High Condenser Water Return Temp: If greater than 100 °F (adjustable).

1 Condenser Water System - Chiller Plant - Control Schematic and Sequence of Operations
NOT TO SCALE

AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI/BI	DIGITAL/BINARY INPUT
DO/BO	DIGITAL/BINARY OUTPUT
MD	ON-OFF MOTORIZED DAMPER
MMD	MODULATING TYPE MOTORIZED DAMPER
AFMS	AIR FLOW MEASURING STATION
MCV	CONTROL VALVE MODULATING TYPE
VFD	VARIABLE FREQUENCY DRIVE
CSR	CURRENT SENSING RELAY
FRZ	FREEZESTAT
HSL	HIGH STATIC LIMIT
SPT	STATIC PRESSURE TRANSMITTER
DPT	DIFFERENTIAL PRESSURE TRANSDUCER
FM	FLOW METER
FS	FLOW SWITCH
DAT	DISCHARGE AIR TEMPERATURE SENSOR
S T	WALL SENSOR/THERMOSTAT
CO2	CARBON DIOXIDE SENSOR
SP	SET POINT
S/A	SUPPLY AIR
R/A	RETURN AIR
O/A	OUTSIDE AIR
HC	HEATING COIL
CC	COOLING COIL
DX	DIRECT EXPANSION COOLING COIL
PICCV	PRESSURE INDEPENDENT CHARACTERIZED CONTROL VALVE
AFC	AIRFLOW CROSS
DPS	DIFFERENTIAL PRESSURE SWITCH

2 CONTROL SCHEMATIC LEGEND
NOT TO SCALE

DBR
210.546.0200 v 210.546.0201 f
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:
STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE:
MECHANICAL CONTROLS
SHEET NUMBER:
M4.03

DBR
9990 Richmond Avenue South Building, Suite 300
Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---

CHILLED WATER AIR HANDLING UNIT SCHEDULE

	MARK	AHU-1+2	AHU-3	AHU-4+5	AHU-6+7	AHU-8	AHU-9	AHU-10	AHU-11	AHU-12	AHU-13	AHU-14	AHU-15	AHU-16	AHU-18
	SERVES	1ST FLOOR AREA A	1ST FLOOR AREA B	1ST FLOOR AREA C	1ST FLOOR AREA D	2ND FLOOR AREA A	2ND FLOOR AREA B	2ND FLOOR AREA B+C	2ND FLOOR AREA C	2ND FLOOR AREA D	2ND FLOOR AREA D	GYM LOCKER ROOMS	GYM LOCKER ROOMS	ART WING	BAND ROOMS
	TYPE	MULTIZONE	MULTIZONE	MULTIZONE	MULTIZONE	MULTIZONE	MULTIZONE	MULTIZONE	MULTIZONE	MULTIZONE	MULTIZONE	SINGLE ZONE	SINGLE ZONE	MULTIZONE	MULTIZONE
	UNIT CONFIGURATION	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL
	DISCHARGE	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	HORIZONTAL
FAN	DESIGN SUPPLY AIR (CFM)	12,200	9,500	8,020	12,730	12,000	4,000	10,000	4,500	7,350	9,500	3,710	3,760	4,500	6,000
FAN	MINIMUM SUPPLY AIR (CFM)	5,540	4,025	3,210	5,020	5,180	1,600	4,000	1,800	2,940	3,800	2,100	2,100	1,800	3,685
FAN	DESIGN OUTDOOR AIR (CFM)	5,540	4,025	3,170	5,020	5,180	1,500	3,685	1,570	1,975	3,285	2,100	2,100	1,410	3,685
FAN	MINIMUM OUTSIDE AIR (CFM)	2,685	2,015	1,585	2,510	2,590	750	1,845	785	990	1,645	1,050	1,050	705	1,845
FAN	EXT. S.P. (IN. W.G.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FAN	FAN MOTOR HORSEPOWER (# OF FANS / HP)	2 / 5	2 / 7.5	2 / 5	2 / 5	2 / 5	1 / 3	2 / 7.5	1 / 3	2 / 5	2 / 5	1 / 3	1 / 5	1 / 5	2 / 5
FAN	MINIMUM REDUNDANCY (%)	70	78	61	68	71	N/A	75	N/A	66	72	N/A	N/A	N/A	79
FAN	VOLTS/PHASE/HERTZ	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60
FAN	MAX. FAN RPM	2,142	2,646	3,488	2,191	2,115	2,349	2,717	2,520	3,268	2,646	3,288	3,326	3,803	2,877
FAN	FULL LOAD AMPS (QTY) FLA EACH FAN	(2) 6.7	(2) 9	(2) 5.9	(2) 6.7	(2) 6.7	(1) 4.2	(2) 9	(1) 4.2	(2) 5.9	(2) 5.9	(1) 3.6	(1) 5.9	(1) 5.9	(2) 5.9
FAN	(QTY) MCA / MOP	(2) 8.4 / 15	(2) 11.3 / 20	(2) 7.4 / 15	(2) 8.4 / 15	(2) 8.4 / 15	(1) 5.3 / 15	(2) 11.3 / 20	(1) 5.3 / 15	(2) 7.4 / 15	(2) 7.4 / 15	(1) 4.5 / 15	(1) 7.4 / 15	(1) 7.4 / 15	(2) 7.4 / 15
COOLING COIL	MAX. COIL FACE VELOCITY (FPM)	500	500	500	500	500	500	500	500	500	500	500	500	500	500
COOLING COIL	MINIMUM COIL ROWS	6	6	6	6	6	6	6	6	6	6	6	6	6	6
COOLING COIL	MAX. FINS PER INCH	10	10	10	10	10	10	10	10	10	10	10	10	10	10
COOLING COIL	COIL CFM	12,200	9,500	8,020	12,730	12,000	4,000	10,000	4,500	7,350	9,500	3,710	3,760	4,500	6,000
COOLING COIL	EAT DB/WB (°F)	87.2/69.5	86.4/68.9	85.8/68.6	85.8/68.6	86.7/69.1	85.3/68.4	85.9/68.7	84.7/68.0	82.8/67.0	84.6/68.0	88.8/75.7	89.7/70.7	87.2/69.4	91.0/71.4
COOLING COIL	LAT DB/WB (°F)	54.5/53.4	55.0/53.6	54.8/53.6	55.0/53.7	54.3/53.3	54.3/53.6	54.5/53.3	54.3/53.4	54.0/52.9	54.7/53.4	54.9/54.6	54.3/53.5	55.0/53.8	54.6/53.5
COOLING COIL	TOTAL COOLING CAPACITY (MBH)	616.3	454.2	375.8	590.8	593.1	184.2	478.9	202.9	315.6	428.8	270.0	206.1	221.3	345.9
COOLING COIL	SENSIBLE COOLING CAPACITY (MBH)	436.7	326.6	271.5	428.1	425.2	135.4	342.9	149.4	231.3	310.8	137.3	145.6	158.6	239.1
COOLING COIL	EWT/LWT (°F)	42/52	42/52	42/52	42/52	42/52	42/52	42/52	42/52	42/52	42/52	42/52	42/52	42/52	42/52
COOLING COIL	COIL WATER FLOW (GPM)	123.3	90.8	75.2	118.2	118.6	36.8	95.8	40.6	63.1	85.8	54.0	41.2	44.3	69.2
COOLING COIL	QTY COILS / CHW BRANCH PIPING SIZE	1 / 3.0	1 / 2.5	1 / 2.5	1 / 3.0	1 / 3.0	1 / 2.0	1 / 2.5	1 / 2.0	1 / 2.5	1 / 2.5	1 / 2.0	1 / 2.0	1 / 2.0	1 / 2.5
COOLING COIL	MAX. WATER P.D. (FT. HD.)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
MANUFACTURER		DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN
MODEL NUMBER		CAH027GDGM	CAH021GDGM	CAH018GDGM	CAH029GDGM	CAH027GDGM	CAH010GDGM	CAH024GDGM	CAH011GDGM	CAH015GDGM	CAH021GDGM	CAH009GDGM	CAH009GDGM	CAH010GDGM	CAH013GDGM
OPERATING WEIGHT (LBS.)		2882	2510	2293	3012	2882	1469	2633	1566	2288	2412	1389	1352	1570	1966
UNIT CABINET DIMENSIONS, W x L x H (IN.)		80 x 104 x 66	72 x 98 x 60	68 x 92 x 56	84 x 106 x 66	80 x 104 x 66	36 x 100 x 66	72 x 100 x 66	40 x 100 x 66	68 x 90 x 48	72 x 98 x 60	38 x 80 x 60	38 x 80 x 60	36 x 82 x 66	68 x 88 x 42
NOTES		1,2,3,4,6,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,5,7,9,10,13	1,2,3,4,6,7,9,10,13	1,2,3,4,6,7,9,10,13	1,2,3,4,6,7,9,11,13	1,2,3,4,6,7,12,13

NOTES:

1. PROVIDE 2" DOUBLE WALL R-13 CHILLED WATER AHU WITH 2" MERV 13 FILTERS AND 6" BASE RAIL.
2. PROVIDE CHILLED WATER COIL WITH STAINLESS STEEL COIL CASING AND STAINLESS STEEL DRAIN PAN. PROVIDE ACCESS DOOR BETWEEN COIL AND FAN SECTION, ACCESS DOOR TO BE MINIMUM 12" FOR SINGLE FAN UNITS AND 16" FOR UNITS WITH MORE THAN ONE FAN.
3. PROVIDE 2-WAY AUTOMATIC CONTROL VALVE.
4. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE LOSSES DUE TO COILS, FILTERS, AND CASING.
5. PROVIDE MIXING BOX WITH LOW LEAK OUTSIDE AIR AND RETURN AIR DAMPERS
6. PROVIDE INTAKE PLENUM WITH TOP OPENING. OUTSIDE AIR AND RETURN AIR TO BE MIXED IN THE DUCT OR CONNECTED SEPARATELY AT THE OPENING. INSTALLING CONTRACTOR TO PROVIDE RETURN AND OUTSIDE AIR DAMPERS IN THE DUCT.
7. PROVIDE DIRECT DRIVE PLENUM FANS OF THE QUANTITY SCHEDULED ABOVE WITH PREMIUM EFFICIENT TEFC MOTORS. PROVIDE FACTORY INSTALLED MOTOR SHAFT GROUNDING RINGS ON EACH FAN. PROVIDE TOP OPENING IN FAN SECTION OR DISCHARGE PLENUM WITH TOP OPENING.
8. PROVIDE FACTORY MOUNTED J-BOX WITH TERMINAL CONNECTIONS FOR EACH FAN. PROVIDE ONE VFD FOR EACH FAN. VFDS TO BE FIELD INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR.
9. PROVIDE ACCESS DOORS FOR BOTH FANS ON DUAL FAN UNITS. FOR UNITS WITH ONE FAN UP AGAINST THE WALL, PROVIDE ACCESS DOOR ON END OF UNIT FOR SERVICING THE FAN MOTOR, OR PROVIDE A DISCHARGE PLENUM TO BE USED FOR ACCESS TO THE BACK FAN.
10. PROVIDE MODULAR UNIT WITH SECTIONS SIZED TO FIT THROUGH DOUBLE DOORS.
11. PROVIDE MODULAR UNIT WITH SECTIONS SIZED TO FIT THROUGH A 31"W x 78" H OPENING.
12. PROVIDE MODULAR UNIT WITH SECTIONS SIZED TO FIT THROUGH A 70"W x 58" H OPENING. PROVIDE WITH FRONT DISCHARGE AND DOORS ON BOTH SIDES OF UNIT.
13. PROVIDE MANUAL BLOCK OFF PLATE FOR DUAL FAN UNITS.

ELECTRIC DUCT HEATER SCHEDULE

MARK	EDH-1	EDH-2	EDH-3	EDH-4	EDH-5	EDH-6	EDH-7	EDH-8
SERVES	RTU-1	RTU-2	RTU-3	AHU-14	AHU-15	AHU-17	AHU-21	AHU-22
HEATER TYPE	INLINE	INLINE	INLINE	INLINE	INLINE	INLINE	INLINE	INLINE
DESIGN AIRFLOW (CFM)	3,000	3,000	3,000	2,100	2,100	685	2,000	1,000
CAPACITY (KW)	38.0	38.0	38.0	36.0	36.0	12.0	15.0	12.0
EAT/LAT (°F)	54.0/92.1	54.0/92.1	54.0/92.1	36.0/90.0	36.0/90.0	36.0/90.0	66.2/90.0	56.7/90.0
DUCT DIMENSION WxH (INSIDE)	26"X26"	26"X26"	26"X26"	24"X20"	24"X20"	24"X14"	26"X20"	18"X16"
VOLTS/PHASE/HERTZ	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	208/3/60	208/3/60
CONTROL TYPE	2 STAGES	2 STAGES	2 STAGES	3 STAGES	3 STAGES	3 STAGES	3 STAGES	3 STAGES
MANUFACTURER	TUTCO	TUTCO	TUTCO	REDD-I	REDD-I	REDD-I	REDD-I	REDD-I
MODEL	E-SERIES DH	E-SERIES DH	E-SERIES DH	HF	HF	HF	HF	HF
NOTES	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5

NOTES:

1. PROVIDE WITH AIRFLOW PROVING SWITCH AND DIGITAL DUCT MOUNTED DISCHARGE AIR TEMPERATURE SENSOR.
2. PROVIDE GALVANIZED FLANGE MOUNTED DUCT HEATER.
3. INSTALL DUCT HEATER PER MANUFACTURER'S RECOMMENDATIONS.
4. DUCT HEATER SHALL BE CONTROLLED BY DDC SYSTEM.
5. PROVIDE DISCONNECT SWITCH.
6. OUTDOOR RATED WITH OUTDOOR RATED NEMA4 CONTROL PANEL.

FAN SCHEDULE

MARK	EF-CUP
SERVES	CENTRAL PLANT
TYPE/DRIVE	DIRECT
CFM	2,600
EXT. S.P. (IN. W.G.)	0.500
HORSEPOWER	3/4
RPM (MAX.)	1,099
SONES (MAX.)	13.2
VOLTS/PHASE/HERTZ	120/1/60
MANUFACTURER	GREENHECK
MODEL NUMBER	CUE-160-VG
NOTES	1,2,3,4,5

NOTES:

1. PROVIDE WITH BACKDRAFT DAMPER.
2. FAN SHALL BE PROVIDED WITH VARI-GREEN MOTOR.
3. FAN SHALL BE CONTROLLED BY THE REFRIGERANT MONITORING SYSTEM.
4. FAN SHALL HAVE FACTORY INSTALLED, PRE-WIRED INTEGRAL DISCONNECT SWITCH FROM FACTORY.
5. FAN SHALL BE PROVIDED WITH ROOF CURB, TOP OF CURB SHALL ME MINIMUM OF 10" ABOVE FINISHED ROOF.

SPLIT AIR HANDLING UNIT SCHEDULE

MARK	AHU-17	AHU-21	AHU-22
SERVES	WEIGHT ROOM	KITCHEN	KITCHEN
UNIT CONFIGURATION	HORIZONTAL	HORIZONTAL	HORIZONTAL
DISCHARGE	HORIZONTAL	VERTICAL	HORIZONTAL
SUPPLY AIR (CFM)	1,350	4,000	2,000
OUTSIDE AIR (CFM)	685	225	390
EXT. S.P. (IN. W.G.)	1.0	1.0	1.0
FAN MOTOR HORSEPOWER	2.3	3.75	1.70
FAN MOTOR CONTROL (VFD, ECM 0-10VDC)	ECM 0-10VDC	ECM 0-10VDC	ECM 0-10VDC
FAN RPM	2051	1769	2,194
MAX COIL FAN VELOCITY (FPM)	500	500	500
MINIMUM COIL ROWS	6	6	4
MAX. FINS PER INCH	11	11	11
COOLING EAT DB/WB (°F)	88.4/70.0	81.0/67.0	81.0/67.0
COOLING LAT DB/WB (°F)	55.4/53.9	56.6/54.7	59.4/57.4
TOTAL COOLING CAPACITY (MBH)	69.2	151.9	60.9
SENSIBLE COOLING CAPACITY (MBH)	48.8	105.8	47.2
QTY REFRIGERANT CIRCUITS / TYPE	2 / INTERLACED	2 / INTERLACED	1 / NA
HEATING CAPACITY (KW)	-	-	-
NO. OF HEATING STAGES	-	-	-
VOLTS/PHASE/HERTZ	480/3/60	208/3/60	208/3/60
MANUFACTURER	DAIKIN	DAIKIN	DAIKIN
MODEL NO.	CAH003GDCM	CAH009GDCM	CAH005GDCM
OPERATING WEIGHT (LBS.)	503	1008	532
UNIT CABINET DIMENSIONS, W x L x H (IN.)	38 x 64 x 26	38 x 70 x 60	46 x 64 x 28
NOTES	1,2,3,4,5,6	1,2,3,4,5,7	1,2,3,4,5,6

NOTES:

1. PROVIDE 2" DOUBLE WALL R-13 CHILLED WATER AHU WITH 2" MERV 13 FILTERS.
2. PROVIDE DX COIL WITH STAINLESS STEEL COIL CASING AND STAINLESS STEEL DRAIN PAN FOR R-410A.
3. PROVIDE 12" ACCESS DOOR BETWEEN COIL AND FAN SECTION.
4. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE LOSSES DUE TO COILS, FILTERS, AND CASING.
5. PROVIDE ECM FAN SECTION WITH LOOSE FAN CONTROLLER TO BE INSTALLED BY MECHANICAL CONTRACTOR BY ELECTRICAL CONTRACTOR TO THE FAN. FAN CONTROLLER TO RECEIVE 0-10 VDC SIGNAL FROM DDC
6. UNIT TO BE SUSPENDED FROM STRUCTURE.
7. PROVIDE 6" BASE RAIL.

AIR COOLED CONDENSING UNIT SCHEDULE

MARK	ACCU-17A, 17B	ACCU-21A, 21B	ACCU-22
SERVES	AHU-17	AHU-21	AHU-22
TOTAL COOLING CAPACITY (MBH)	41.3	77.9	59.4
AMBIENT TEMP. (°F)	105	105	105
STEPS OF CAPACITY	2	2	2
EER (SEER)	(16)	11.2	(15)
VOLTS/PHASE/HERTZ	480/3/60	208/3/60	208/3/60
MCA	9.1	37.0	22.4
MOCP	15.0	60.0	35.0
MANUFACTURER	Lennox	Lennox	Lennox
MODEL NUMBER	SSB048	ELS090S	SSB060
OPERATING WEIGHT (LBS.)	268	345	332
NOTES	ALL	ALL	ALL

NOTES:

1. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
2. REFRIGERANT LINES TO BE SIZED BY MANUFACTURER.
3. PROVIDE 5 YEAR COMPRESSOR PARTS WARRANTY.
4. PROVIDE WITH CONDENSER COIL HAIL GUARD.
5. PROVIDE WITH LOW AMBIENT HEAD PRESSURE CONTROL.
6. PROVIDE CONDENSER COIL COATING WITH MINIMUM 6000 HR ASTM B117 SALT SPRAY RATING.
7. PROVIDE SINGLE CIRCUIT, DUAL STAGE CONDENSING UNITS.

PACKAGED DX ROOF TOP UNIT SCHEDULE

MARK	RTU-19	RTU-20
SERVES	CAFETERIA	CAFETERIA
UNIT TYPE	SINGLE ZONE	SINGLE ZONE
DUCT CONFIGURATION	VERTICAL	VERTICAL
DESIGN SUPPLY AIR (CFM)	4,700	4,700
MINIMUM SUPPLY AIR (CFM)	2,025	2,025
DESIGN OUTDOOR AIR (CFM)	1,755	1,755
MINIMUM OUTDOOR AIR (CFM)	1,755	1,755
E.E.R. (AT AHRI CONDITIONS)	10.4	10.4
IEER (AT AHRI CONDITIONS)	19.4	19.4
EXT. S.P. (IN. W.G.)	1.00	1.00
FAN MOTOR HORSEPOWER	3.0	3.0
FAN TYPE	DIRECT	DIRECT
FAN DRIVE	VFD	VFD
COOLING DATA		
AMBIENT AIR (°F)	105.0	105.0
TOTAL COOLING CAPACITY (MBH)	230.3	230.3
TOTAL SENSIBLE CAPACITY (MBH)	165.2	165.2
EAT DB/WB (°F)	84.1/68.0	84.1/68.0
LAT DB/WB (°F)	52.0/51.9	52.0/51.9
HEATING DATA		
HEATING AIRFLOW (CFM)	2350	2350
HEATING CAPACITY (KW)	30.0	30.0
EAT DB/WB (°F)	44.6	44.6
LAT DB/WB (°F)	84.8	84.8
ELECTRICAL DATA		
VOLTS/PHASE/HERTZ	208/3/60	208/3/60
MCA	167.8	167.8
MOCP	175.0	175.0
MANUFACTURER	DAIKIN	DAIKIN
MODEL NO.	DPS020A	DPS020A
OPERATING WEIGHT (LBS)	3,700	3,700
NOTES	ALL	ALL

NOTES:

1. EXTERNAL STATIC PRESSURE DOES NOT ACCOUNT FOR LOSSES DUE TO COIL(S), FILTERS, HOUSING, NOR ACCESSORIES.
2. PROVIDE UNIT WITH OUTDOOR AIR INTAKE HOOD WITH MODULATING MOTORIZED DAMPER.
3. PROVIDE UNIT WITH SINGLE POINT ELECTRICAL CONNECTION.
4. PROVIDE FLOAT SWITCH IN PRIMARY DRAIN PAN TO DE-ENERGIZE THE UNIT WHEN PRIMARY DRAIN LINE BECOMES RESTRICTED.
5. PROVIDE UNITS WITH MINIMUM 2" MERV 8 + 4" MERV 13 FILTERS.
6. PROVIDE UNIT CONTROLLER BY MANUFACTURER. PROVIDE CONTROLLER WITH BACNET INTERFACE CARD FOR INTEGRATION WITH EMCS.
7. PROVIDE UNIT WITH MODULATING HOT GAS REHEAT FOR HUMIDITY CONTROL.
8. PROVIDE UNIT WITH CONDENSER HAIL GUARD AND 14" PREFABRICATED ROOF CURB.
9. PROVIDE UNIT WITH COMPARATIVE ENTHALPY ECONOMIZER AND BAROMETRIC RELIEF.
10. PROVIDE UNIT WITH 2" DOUBLE WALL CONSTRUCTION AND INVERTER COMPRESSOR FOR PRECISE LAT CONTROL AND UNLOADING CAPABILITY TO 15% CAPACITY.
11. PROVIDE UNIT WITH INTEGRAL NON-FUSED DISCONNECT SWITCH AND POWERED CONVENIENCE OUTLET. PROVIDE PHASE FAILURE MONITOR.
12. PROVIDE UNIT WITH DUCT MOUNTED SMOKE DETECTORS IN SUPPLY DUCTWORK FOR ALL UNITS DISCHARGING IN EXCESS OF 2,000 CFM.
13. PROVIDE FACTORY E-COATED CONDENSER COIL COATINGS WITH MINIMUM 6000 HR ASTM B117 SALT SPRAY RATING.

DBR
210.546.0200 v 210.546.0201 f
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS – HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE:

MECHANICAL SCHEDULES

SHEET NUMBER:

M5.01

DBR
9990 Richmond Avenue South Building, Suite 300
Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---

LOUVER SCHEDULE

MARK	SERVES	CFM	WIDTH (IN)	HEIGHT (IN)	MINIMUM FREE AREA (FT2)	MAX. PRESSURE DROP AT 750 FPM INTAKE (" w.g.)	MANUF. MODEL	NOTES
LVR-CUP-1	RMS PURGE INTAKE	1300	24	30	1.73	0.08	EVH-501D	ALL
LVR-CUP-2	RMS PURGE INTAKE	1300	24	30	1.73	0.08	EVH-501D	ALL
LVR-AHU-22	AHU-21 & AHU-22	615	24	16	0.82	0.08	EVH-501D	ALL

NOTES:
1. FINISH SHALL BE KYNAR 500 FINISH. PAINT COLOR BY ARCHITECT. COORDINATE FINAL ELEVATION WITH ARCHITECT.
2. LOUVER SHALL MEET AMCA 550 AND AMCA 540.

VARIABLE FREQUENCY DRIVE SCHEDULE

MARK	SERVES	EQUIP	HP	INPUT VOLT	OUTPUT VOLT	MOUNTING	ENCLOSURE	MANUF.	MODEL	NOTES
VFD-AHU-1+2-1	AHU-1+2 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-1+2-2	AHU-1+2 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-3-1	AHU-3 SUPPLY FAN	AHU	7.5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-3-2	AHU-3 SUPPLY FAN	AHU	7.5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-4+5-1	AHU-4+5 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-4+5-2	AHU-4+5 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-6+7-1	AHU-6+7 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-6+7-2	AHU-6+7 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-8-1	AHU-8 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-8-2	AHU-8 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-9	AHU-9 SUPPLY FAN	AHU	3	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-10-1	AHU-10 SUPPLY FAN	AHU	7.5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-10-2	AHU-10 SUPPLY FAN	AHU	7.5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-11	AHU-11 SUPPLY FAN	AHU	3	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-12-1	AHU-12 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-12-2	AHU-12 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-13-1	AHU-13 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-13-2	AHU-13 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-14	AHU-14 SUPPLY FAN	AHU	3	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-15	AHU-15 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-16	AHU-16 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-18-1	AHU-18 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-AHU-18-2	AHU-18 SUPPLY FAN	AHU	5	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-CHWP-1	CHWP-1	PUMP	30	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-CHWP-2	CHWP-2	PUMP	30	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL
VFD-CHWP-3	CHWP-3	PUMP	30	460/3	460/3	WALL	NEMA 12	DANFOSS	VLT HVAC	ALL

NOTES:
1. VFD SHALL BE PROVIDED AND MOUNTED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR.
2. PROVIDE WITH BACNET INTERFACE.
3. PROVIDE VFD WITH NON-FUSED DISCONNECT

PUMP SCHEDULE

MARK	CHWP-1	CHWP-2	CHWP-3
SERVICE	CHILLED WATER	CHILLED WATER	CHILLED WATER
TYPE	END SUCTION	END SUCTION	END SUCTION
DESIGN FLOW RATE (GPM)	528	528	528
MINIMUM FLOW RATE (GPM)	125.0	125.0	125.0
DYNAMIC HEAD-FT	130	130	130
MOTOR RPM	1800	1800	1800
MIN. PUMP EFF. (%)	74.7	74.7	74.7
NPSH MAX. REQUIRED	7.980	7.980	7.980
HORSEPOWER	30	30	30
VOLTS/PHASE/HERTZ	460/3/60	460/3/60	460/3/60
MANUFACTURER	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT
MODEL	e-1510 3GB	e-1510 3GB	e-1510 3GB
NOTES	ALL	ALL	ALL

NOTES:
1. PUMP SHALL BE NON-OVERLOADING ACROSS ENTIRE GPM RANGE.
2. PROVIDE WITH REMOTE MOUNTED VARIABLE FREQUENCY DRIVE.
3. PROVIDE WITH PREMIUM EFFICIENCY ODP MOTOR FOR OPERATION WITH VARIABLE FREQUENCY DRIVE.
4. PROVIDE WITH INDUCTIVE ABSORBERS

AIR SEPARATOR SCHEDULE

MARK	AS-1
SERVICE	CHILLED WATER SYSTEM
MAX FLOW (GPM)	1,056
INLET / OUTLET SIZE (INCHES)	10
SHIPPING WEIGHT (LBS)	311
FLOODED WEIGHT (LBS)	834
MANUFACTURER	Bell & Gossett
MODEL	CRSA-10F
NOTES	ALL

NOTES:
1. PROVIDE HIGH CAPACITY AIR VENT. AIR VENT SHALL BE PIPED OFFSET FROM SEPARATOR TO MINIMIZE CORROSION CAUSED BY WATER DRIPS.

EXPANSION TANK SCHEDULE

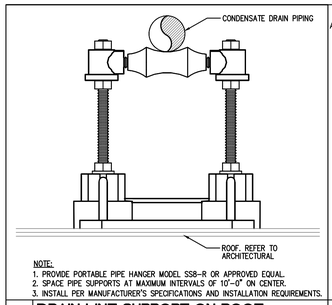
MARK	ET-1
SERVICE	CHILLED WATER
TANK VOLUME (GALLONS)	80
MAX. ACCEPTANCE	27
MIN. OPERATING PRESSURE (PSI)	60.0
MAX. OPERATING PRESSURE (PSI)	80
TYPE	BLADDER
MANUFACTURER	BELL AND GOSSETT
MODEL NO.	B-300LA
NOTES	1

NOTES:
1. PROVIDE AUTOMATIC AIR VENT.

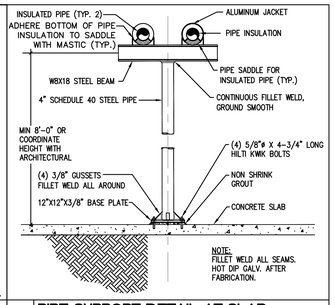
SINGLE INLET VAV BOX WITH REHEAT SCHEDULE

MARK	COOLING CFM MAX.	COOLING CFM MIN.	HEATING CFM MAX.	HEATING CFM MIN.	REHEAT KW	INLET SIZE	VOLTS/PHASE/HZ	MANUFACTURER	MODEL
VAV-1-01	840	255	420	255	5	10"Ø	277/1/60	PRICE	SDV
VAV-1-02	840	255	420	255	5	10"Ø	277/1/60	PRICE	SDV
VAV-1-03	840	255	420	255	5	10"Ø	277/1/60	PRICE	SDV
VAV-1-04	960	290	480	290	6	10"Ø	480/3/60	PRICE	SDV
VAV-1-05	1,750	525	875	525	10	14"Ø	480/3/60	PRICE	SDV
VAV-1-06	980	295	490	295	6	10"Ø	480/3/60	PRICE	SDV
VAV-1-07	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-1-08	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-1-09	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-1-10	740	225	370	225	5	10"Ø	277/1/60	PRICE	SDV
VAV-2-01	470	145	235	145	3	8"Ø	277/1/60	PRICE	SDV
VAV-2-02	2,100	630	1050	630	12	16"Ø	480/3/60	PRICE	SDV
VAV-2-03	600	180	300	180	4	8"Ø	277/1/60	PRICE	SDV
VAV-3-01	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-3-02	1,000	300	500	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-3-03	1,000	300	500	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-3-04	1,550	465	775	465	9	12"Ø	480/3/60	PRICE	SDV
VAV-3-05	850	255	425	255	5	10"Ø	277/1/60	PRICE	SDV
VAV-3-06	850	255	425	255	5	10"Ø	277/1/60	PRICE	SDV
VAV-3-07	850	255	425	255	5	10"Ø	277/1/60	PRICE	SDV
VAV-3-08	890	270	445	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-3-09	850	255	425	255	5	10"Ø	277/1/60	PRICE	SDV
VAV-3-10	860	260	430	260	5	10"Ø	277/1/60	PRICE	SDV
VAV-4-01	500	150	250	150	3	8"Ø	277/1/60	PRICE	SDV
VAV-4-02	500	150	250	150	3	8"Ø	277/1/60	PRICE	SDV
VAV-4-03	1,000	300	500	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-4-04	1,500	450	750	450	9	12"Ø	480/3/60	PRICE	SDV
VAV-4-05	1,000	300	500	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-4-06	500	150	250	150	3	8"Ø	277/1/60	PRICE	SDV
VAV-5-01	3,020	910	1510	910	17	16"Ø	480/3/60	PRICE	SDV
VAV-6-01	2,730	820	1365	820	16	16"Ø	480/3/60	PRICE	SDV
VAV-7-01	875	265	440	265	5	10"Ø	277/1/60	PRICE	SDV
VAV-7-02	875	265	440	265	5	10"Ø	277/1/60	PRICE	SDV
VAV-7-03	875	265	440	265	5	10"Ø	277/1/60	PRICE	SDV
VAV-7-04	875	265	440	265	5	10"Ø	277/1/60	PRICE	SDV
VAV-7-05	960	290	480	290	6	10"Ø	480/3/60	PRICE	SDV
VAV-7-06	1,880	565	940	565	11	14"Ø	480/3/60	PRICE	SDV
VAV-7-07	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-7-08	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-7-09	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-7-10	960	290	480	290	6	10"Ø	480/3/60	PRICE	SDV
VAV-8-01	1,940	585	970	585	11	14"Ø	480/3/60	PRICE	SDV
VAV-8-02	2,000	600	1000	600	12	14"Ø	480/3/60	PRICE	SDV
VAV-8-03	1,100	330	550	330	7	12"Ø	480/3/60	PRICE	SDV
VAV-8-04	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-8-05	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-8-06	960	290	480	290	6	10"Ø	480/3/60	PRICE	SDV
VAV-8-07	2,200	660	1100	660	13	16"Ø	480/3/60	PRICE	SDV
VAV-8-08	2,000	600	1000	600	12	14"Ø	480/3/60	PRICE	SDV
VAV-9-01	1,050	315	525	315	6	10"Ø	480/3/60	PRICE	SDV
VAV-9-02	1,000	300	500	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-9-03	1,450	435	725	435	9	12"Ø	480/3/60	PRICE	SDV
VAV-9-04	500	150	250	150	3	8"Ø	277/1/60	PRICE	SDV
VAV-10-01	1,135	345	570	345	7	12"Ø	480/3/60	PRICE	SDV
VAV-10-02	1,250	375	625	375	7	12"Ø	480/3/60	PRICE	SDV
VAV-10-03	1,100	330	550	330	7	12"Ø	480/3/60	PRICE	SDV
VAV-10-04	1,250	375	625	375	7	12"Ø	480/3/60	PRICE	SDV
VAV-10-05	1,330	400	665	400	8	12"Ø	480/3/60	PRICE	SDV
VAV-10-06	1,630	490	815	490	10	14"Ø	480/3/60	PRICE	SDV
VAV-10-07	1,250	375	625	375	7	12"Ø	480/3/60	PRICE	SDV
VAV-10-08	1,250	375	625	375	7	12"Ø	480/3/60	PRICE	SDV
VAV-11-01	1,100	330	550	330	7	12"Ø	480/3/60	PRICE	SDV
VAV-11-02	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-11-03	1,100	330	550	330	7	12"Ø	480/3/60	PRICE	SDV
VAV-11-04	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-11-05	500	150	250	150	3	8"Ø	277/1/60	PRICE	SDV
VAV-12-01	2,100	630	1050	630	12	16"Ø	480/3/60	PRICE	SDV
VAV-12-02	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-12-03	1,000	300	500	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-12-04	2,175	655	1090	655	13	16"Ø	480/3/60	PRICE	SDV
VAV-12-05	1,250	375	625	375	7	12"Ø	480/3/60	PRICE	SDV
VAV-13-01	950	285	475	285	6	10"Ø	480/3/60	PRICE	SDV
VAV-13-02	1,710	515	855	515	10	14"Ø	480/3/60	PRICE	SDV
VAV-13-03	1,750	525	875	525	10	14"Ø	480/3/60	PRICE	SDV
VAV-13-04	1,000	300	500	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-13-05	1,075	325	540	325	6	10"Ø	480/3/60	PRICE	SDV
VAV-13-06	925	280	465	280	6	10"Ø	480/3/60	PRICE	SDV
VAV-13-07	2,090	630	1045	630	12	14"Ø	480/3/60	PRICE	SDV
VAV-16-01	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-16-02	885	270	445	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-16-03	990	300	495	300	6	10"Ø	480/3/60	PRICE	SDV
VAV-16-04	900	270	450	270	5	10"Ø	277/1/60	PRICE	SDV
VAV-16-05	825	250	415	250	5	10"Ø	277/1/60	PRICE	SDV
VAV-18-01	1,200	360	600	360	7	12"Ø	480/3/60	PRICE	SDV
VAV-18-02	1,475	445	740	445	9	12"Ø	480/3/60	PRICE	SDV
VAV-18-03	1,310	395	655	395	8	12"Ø	480/3/60	PRICE	SDV
VAV-18-04	2,015	605	1010	605	12	14"Ø	480/3/60	PRICE	SDV

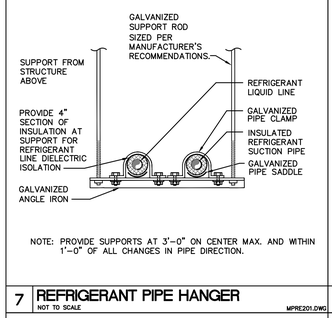
NOTES:
1. PROVIDE AEROCROSS MULTI-POINT CENTER AVERAGING VELOCITY SENSOR IN AIR INLET.
2. PROVIDE TERMINAL UNIT CASING WITH 1/2" INTERNALLY LINED FIBERGLASS FREE INSULATION.
3. PROVIDE TERMINAL UNIT WITH INTEGRAL DISCONNECT SWITCH.
4. PROVIDE ELECTRIC REHEAT COIL WITH 0-10V SCR MODULATING CAPACITY CONTROL.



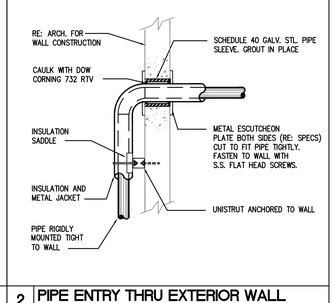
6 DRAIN LINE SUPPORT ON ROOF
NOT TO SCALE



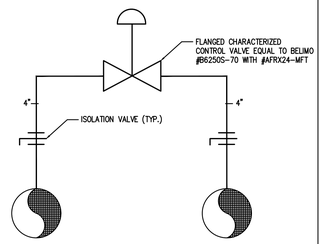
1 PIPE SUPPORT DETAIL AT SLAB
NOT TO SCALE MPHS200.DWG



7 REFRIGERANT PIPE HANGER
NOT TO SCALE MPRE201.DWG

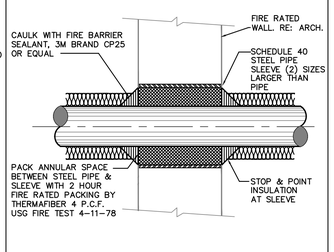


2 PIPE ENTRY THRU EXTERIOR WALL
NOT TO SCALE MPPE302.DWG

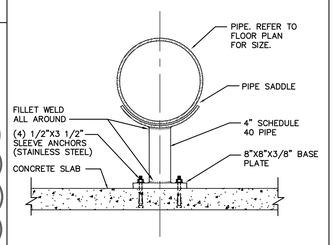


8 BYPASS VALVE
NOT TO SCALE

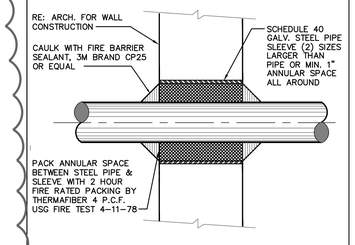
2



3 FIRE WALL INSULATED PIPE PENETRATION
NOT TO SCALE MPPE102.DWG



4 PIPE SUPPORT DETAIL
NOT TO SCALE MPHS203.DWG



5 FIRE WALL PIPE PENETRATION
NOT TO SCALE MPPE300.DWG

DBR
210.546.0200 v 210.546.0201 f
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

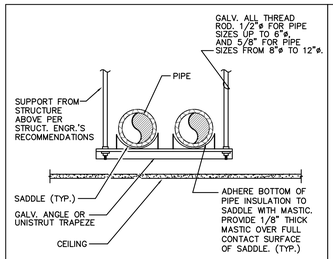
EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: MECHANICAL SCHEDULES
SHEET NUMBER: M5.02

DBR
9990 Richmond Avenue South Building, Suite 300
Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

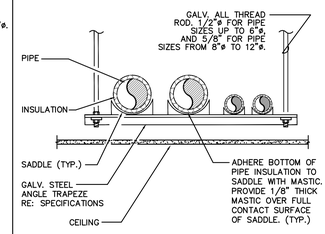
HA	JA	JB	---	---



NOTE: CONTRACTOR SHALL SECURE STRUCT. ENGR. APPROVAL FOR ANY AND ALL PIPE MOUNTING DETAILS TO CONCRETE OR STEEL STRUCTURE.

25 PIPE HANGER DETAIL

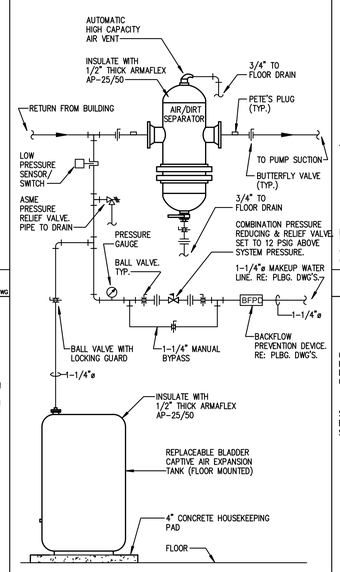
NOT TO SCALE — MPHS103.DWG



NOTE: CONTRACTOR SHALL SECURE STRUCT. ENG. APPROVAL FOR ANY AND ALL PIPE MOUNTING DETAILS AT CONCRETE OR STEEL STRUCTURE.

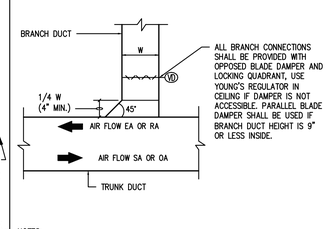
20 PIPE HANGER DETAIL (4-PIPE)

NOT TO SCALE — MPHS101.DWG



16 EXPANSION TANK/ MAKE-UP WATER PIPING DETAIL

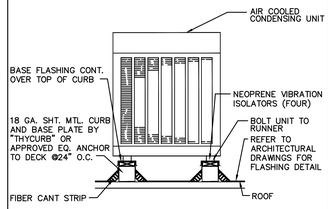
NOT TO SCALE — MEWA100.DWG



NOTES:
THIS CONNECTION SHALL BE TYPICAL FOR ALL RECTANGULAR BRANCH DUCT CONNECTIONS TO RECTANGULAR TRUNK DUCTS, INCLUDING SUPPLY, RETURN, OUTSIDE AIR AND EXHAUST DUCTS.

11 RECTANGULAR BRANCH DUCT TAP

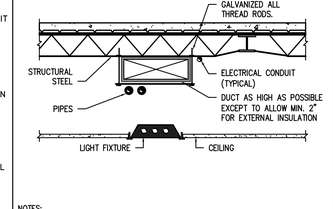
NOT TO SCALE — MAS-06



NOTE: 1. PROVIDE CLEARANCE AROUND UNIT FOR AIRFLOW AND SERVICE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

6 CONDENSING UNIT ROOF MOUNTED

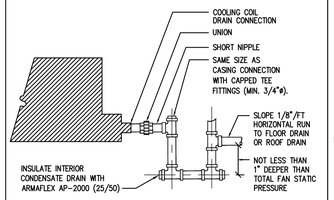
NOT TO SCALE — MECU101.DWG



NOTES:
1. PIPES (INCLUDING SPRINKLER PIPING) AND ELECTRICAL CONDUIT CAN BE ROUTED BETWEEN JOISTS OR THROUGH JOIST WEB SPACE AS REQUIRED. DUCT SHALL BE LOCATED AS HIGH AS POSSIBLE.
2. U.L. DESIGN ASSEMBLY NUMBERS ARE SHOWN ON ARCHITECTURAL PLANS WHEN REQUIRED.
3. INSTALLATION OF ALL SERVICES MUST BE COORDINATED BY THE CONTRACTOR.

1 TYP. MEP INSTALLATION DETAIL

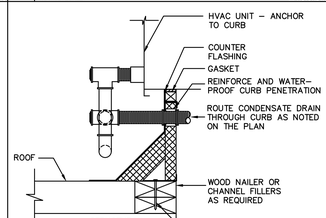
NOT TO SCALE — MAS-02



NOTE:
1. MAINTAIN MINIMUM 1" AIR GAP AT FLOOR DRAIN OR ROOF DRAIN.
2. ALL CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 GALVANIZED STEEL WITH MALLEABLE IRON SCREWED FITTINGS.

26 COOLING COIL CONDENSATE DRAIN

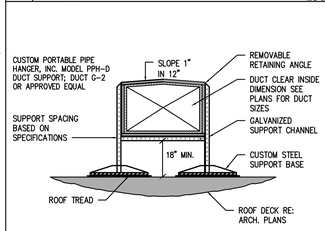
NOT TO SCALE — MPCE300.DWG



NOTE:
1. COORDINATE WITH APPROVED ROOFING CONTRACTOR. ROOF PENETRATION AND LOCATION SHALL BE COORDINATED AND APPROVED BY ROOFING CONTRACTOR.
2. ALL CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 GALVANIZED STEEL WITH MALLEABLE IRON SCREWED FITTINGS.

21 CONDENSATE DRAIN THRU CURB

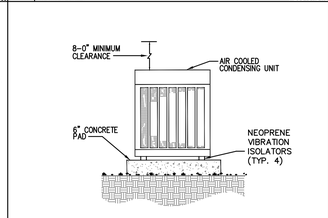
NOT TO SCALE



NOTES:
1. ANGLE STEEL FRAME TO BE WELDED AT ALL CORNERS AND BASE PLATE.
2. PROVIDE 12" WIDE 18 GAUGE GALVANIZED STEEL INSULATION SADDLE, FULL WIDTH AND HEIGHT OF DUCT

12 EXPOSED RECT. DUCT ON ROOF

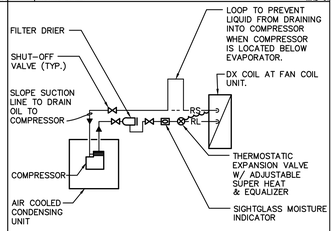
NOT TO SCALE — MAS-05



NOTE: PROVIDE CLEARANCE AROUND UNIT FOR AIR FLOW AND SERVICE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

7 CONDENSING UNIT MOUNTING ON GRADE

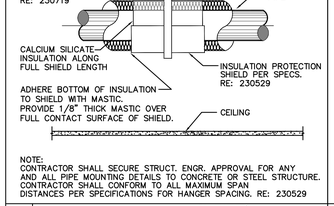
NOT TO SCALE — MECU100.DWG



NOTES:
1. COMPLY WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.
2. TYPICAL FOR EACH SEPARATE REFRIGERANT CIRCUIT.
3. PROVIDE FILTER DRIER ON ALL SYSTEMS.
4. USE "ACR" HARD DRAWN COPPER REFRIGERANT PIPE.

2 REFRIGERANT PIPING SCHEMATIC

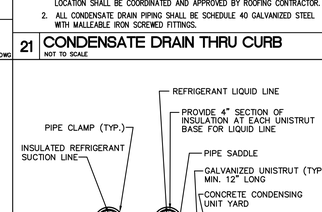
NOT TO SCALE — MPRE100.DWG



NOTE:
CONTRACTOR SHALL SECURE STRUCT. ENGR. APPROVAL FOR ANY AND ALL PIPE MOUNTING DETAILS TO CONCRETE OR STEEL STRUCTURE. CONTRACTOR SHALL CONFORM TO ALL MAXIMUM SPAN DISTANCES PER SPECIFICATIONS FOR HANGER SPACING. RE: 230529

27 PIPE HANGER DETAIL (1-PIPE)

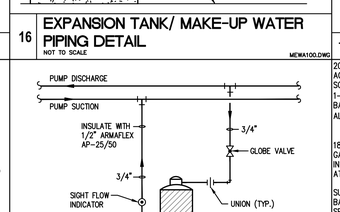
NOT TO SCALE — MPHS102.DWG



NOTE: PROVIDE SUPPORTS AT 3'-0" ON CENTER AND WITHIN 1'-0" OF ALL CHANGES IN PIPE DIRECTION.

22 FLOOR MOUNTED REFR. PIPE

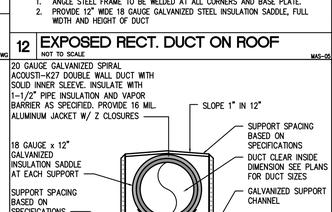
NOT TO SCALE — MPRE200.DWG



NOTE: INSULATE FILTER FEEDER AND ALL ASSOCIATED PIPING WITH 1/2" ARMAFLEX AP-25/50

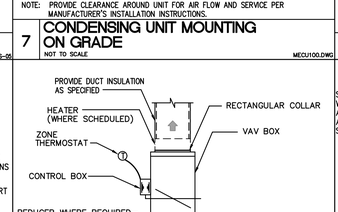
17 CHEMICAL FILTER FEEDER DETAIL

NOT TO SCALE — MEWA301.DWG



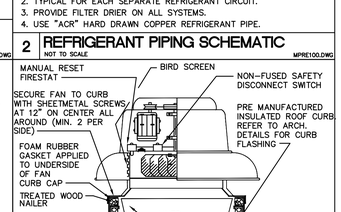
13 DUCT SUPPORT ON ROOF

NOT TO SCALE — MAS-04



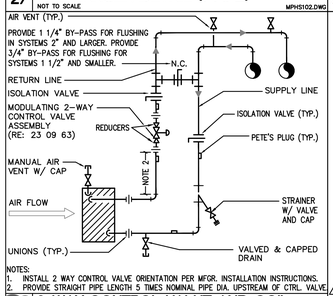
8 INTERIOR VAV TERMINAL UNIT

NOT TO SCALE — MEQ-92



3 CENTRIFUGAL ROOF EXHAUST FAN

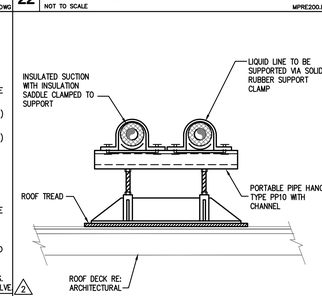
NOT TO SCALE — MEFA100.DWG



NOTES:
1. INSTALL 2 WAY CONTROL VALVE ORIENTATION PER MFGR. INSTALLATION INSTRUCTIONS.
2. PROVIDE STRAIGHT PIPE LENGTH 5 TIMES NOMINAL PIPE DIA. UPSTREAM OF CTRL. VALVE

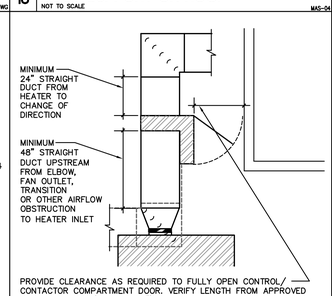
2 2-WAY CONTROL VALVE AND COIL PIPING

NOT TO SCALE — MP-01



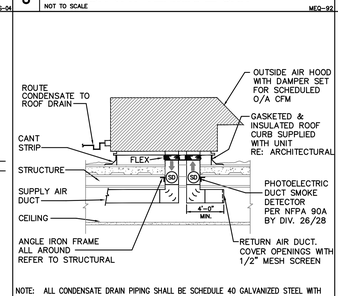
23 ROOF MTD. REFR. PIPE SUPPORT

NOT TO SCALE



18 AIR SEPARATOR MOUNTING

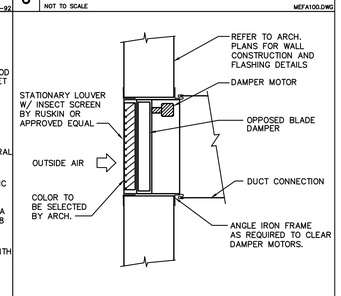
NOT TO SCALE — MEWA400.DWG



PROVIDE CLEARANCE AS REQUIRED TO FULLY OPEN CONTROL/ CONTACTOR COMPARTMENT DOOR. VERIFY LENGTH FROM APPROVED SHOP DRAWINGS (MINIMUM 24")

14 ELECTRIC DUCT HEATER

NOT TO SCALE — MEHE200.DWG



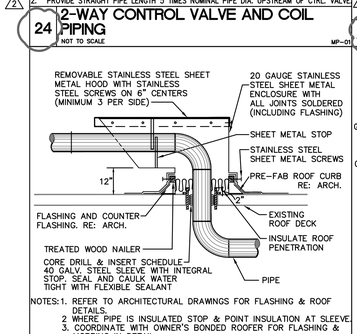
NOTE: ALL CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 GALVANIZED STEEL WITH MALLEABLE IRON SCREWED FITTINGS.

9 ROOF TOP UNIT MOUNTING DETAIL

NOT TO SCALE — MERT100.DWG

4 INTAKE LOUVER MOUNTING

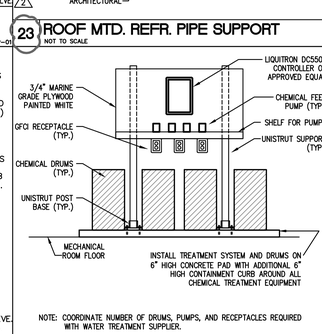
NOT TO SCALE



NOTES: 1. REFER TO ARCHITECTURAL DRAWINGS FOR FLASHING & ROOF DETAILS.
2 WHERE PIPE IS INSULATED STOP & POINT INSULATION AT SLEEVE.
3. COORDINATE WITH OWNER'S BONDED ROOFER FOR FLASHING & MOPPING IN DETAIL.

29 EXISTING ROOF PIPE PENETRATION

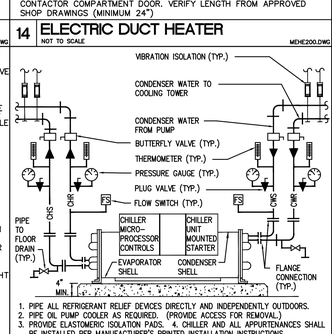
NOT TO SCALE — MPPE201.DWG



NOTE: COORDINATE NUMBER OF DRUMS, PUMPS, AND RECEPTACLES REQUIRED WITH WATER TREATMENT SUPPLIER.

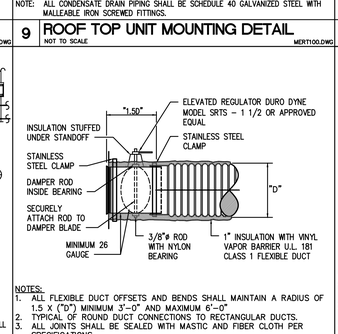
24 CONDENSER WATER TREATMENT

NOT TO SCALE — MEWA301.DWG



19 END SUCTION PUMP PIPING

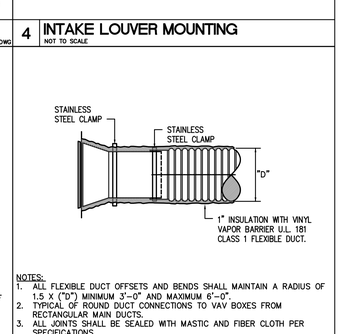
NOT TO SCALE — MEPU100.DWG



1. PIPE ALL REFRIGERANT RELIEF DEVICES DIRECTLY AND INDEPENDENTLY OUTDOORS.
2. PIPE OIL PUMP COOLER AS REQUIRED. (PROVIDE ACCESS FOR REMOVAL.)
3. PROVIDE ELASTOMERIC ISOLATION PADS. 4. CHILLER AND ALL APPURTENANCES SHALL BE INSTALLED PER MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

15 WATER COOLED CHILLER

NOT TO SCALE — MECH101.DWG



NOTES:
1. ALL FLEXIBLE DUCT OFFSETS AND BENDS SHALL MAINTAIN A RADIUS OF 1.5 X ("D") MINIMUM 3'-0" AND MAXIMUM 6'-0"
2. TYPICAL OF ROUND DUCT CONNECTIONS TO RECTANGULAR DUCTS.
3. ALL JOINTS SHALL BE SEALED WITH MASTIC AND FIBER CLOTH PER SPECIFICATIONS.

10 SPIN-IN DETAIL

NOT TO SCALE — MAS-09

NOTES:
1. ALL FLEXIBLE DUCT OFFSETS AND BENDS SHALL MAINTAIN A RADIUS OF 1.5 X ("D") MINIMUM 3'-0" AND MAXIMUM 6'-0"
2. TYPICAL OF ROUND DUCT CONNECTIONS TO VAV BOXES FROM RECTANGULAR MAIN DUCTS.
3. ALL JOINTS SHALL BE SEALED WITH MASTIC AND FIBER CLOTH PER SPECIFICATIONS.

5 CONICAL SPIN-IN DETAIL

NOT TO SCALE — MAS-010

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TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS — ROBERTO H. TIJERINA — 121946 — LICENSED PROFESSIONAL ENGINEER — 4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS – HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: MECHANICAL DETAILS
SHEET NUMBER: M6.01

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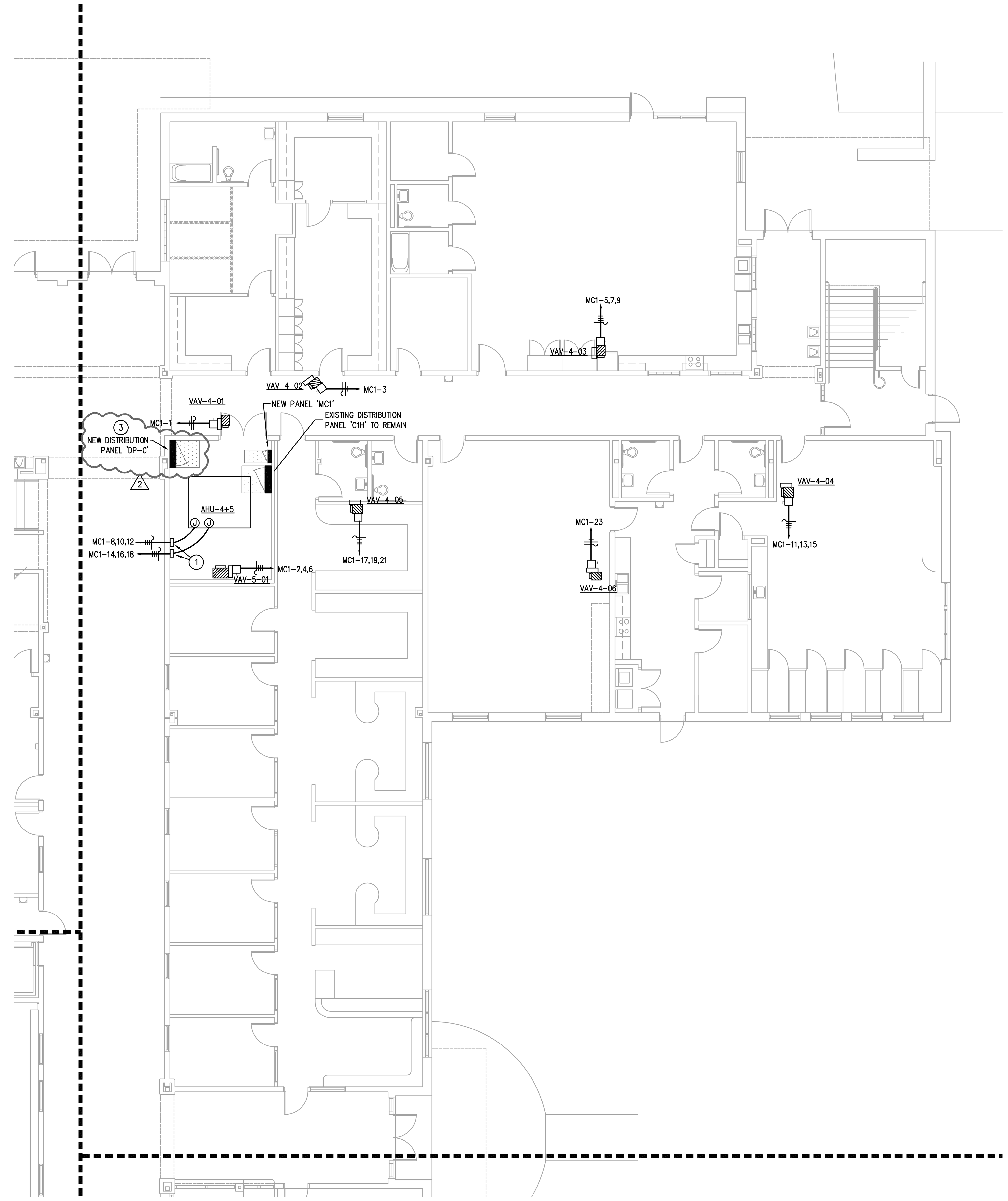
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---



1 EP2.11C **LEVEL 1 ELECTRICAL POWER PLAN - C**
1/8" = 1'-0"

GENERAL ELECTRICAL NOTES:

A. CONTRACTOR SHALL VERIFY MECHANICAL EQUIPMENT CONNECTION LOCATION WITH FURNISHED EQUIPMENT.

B. CONTRACTOR SHALL PROVIDE HANDLE TIES MANUFACTURED BY THE SWITCH GEAR SUPPLIER ON ALL MULTI-WIRE CIRCUITS TO MEET THE REQUIREMENTS OF ARTICLE 210.4(B) OF THE 2014 NEC. AT THE CONTRACTOR'S OPTION, TWO AND THREE POLE BREAKERS MAY BE USED.

C. ALL VAV BOXES ARE SUPPLIED WITH INTEGRAL DISCONNECT SWITCH. VERIFY EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL.

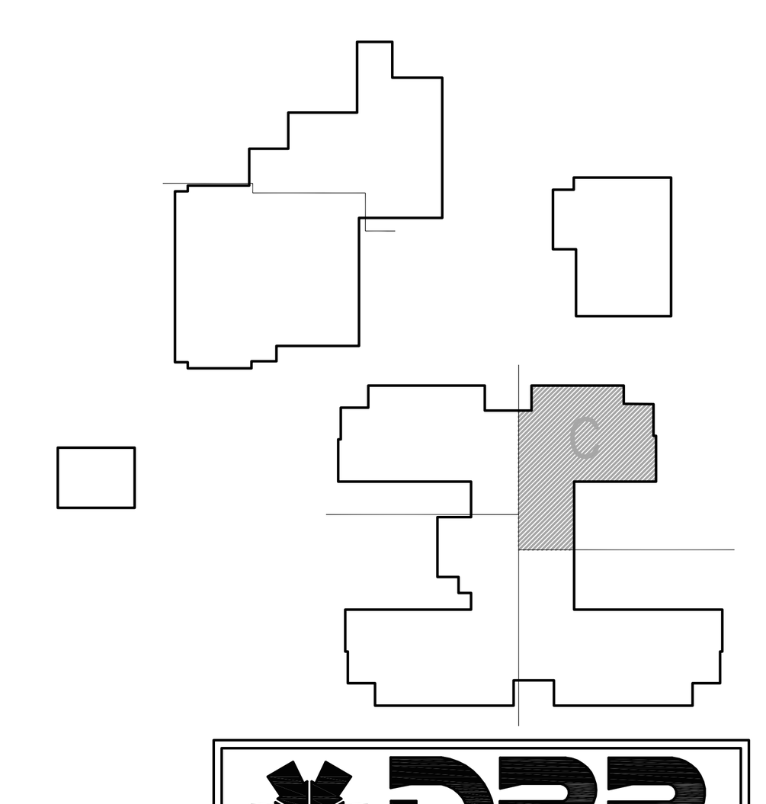
D. CONTRACTOR SHALL NOTE THAT ALL MATERIALS BEING USED WITHIN THE CEILING PLENUM MUST BE PLENUM RATED.

ELECTRICAL KEYED NOTES

(1) VFD. VERIFY EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL. VFD SHALL BE PROVIDED AND INSTALLED BY MECHANICAL, WIRED BY ELECTRICAL. VFD SHALL SERVE AS DISCONNECTING MEANS.

(2) DISCONNECT SWITCH PROVIDED WITH EQUIPMENT. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL.

(3) FIELD COORDINATE EXACT LOCATION TO PROVIDE CODE REQUIRED CLEARANCE.



TRUE NORTH

PLAN NORTH

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TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---

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9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022

DRAWN BY: DBR

CHECKED BY: DBR

PROJECT NUMBER: 218007.002

SHEET TITLE: LEVEL 1 ELECTRICAL POWER PLAN - C

SHEET NUMBER: EP2.11C

Plotted: Apr 7, 2022, 3:38 PM by user: jbeltz - Saved: 4/6/2022 by user: jbeltz
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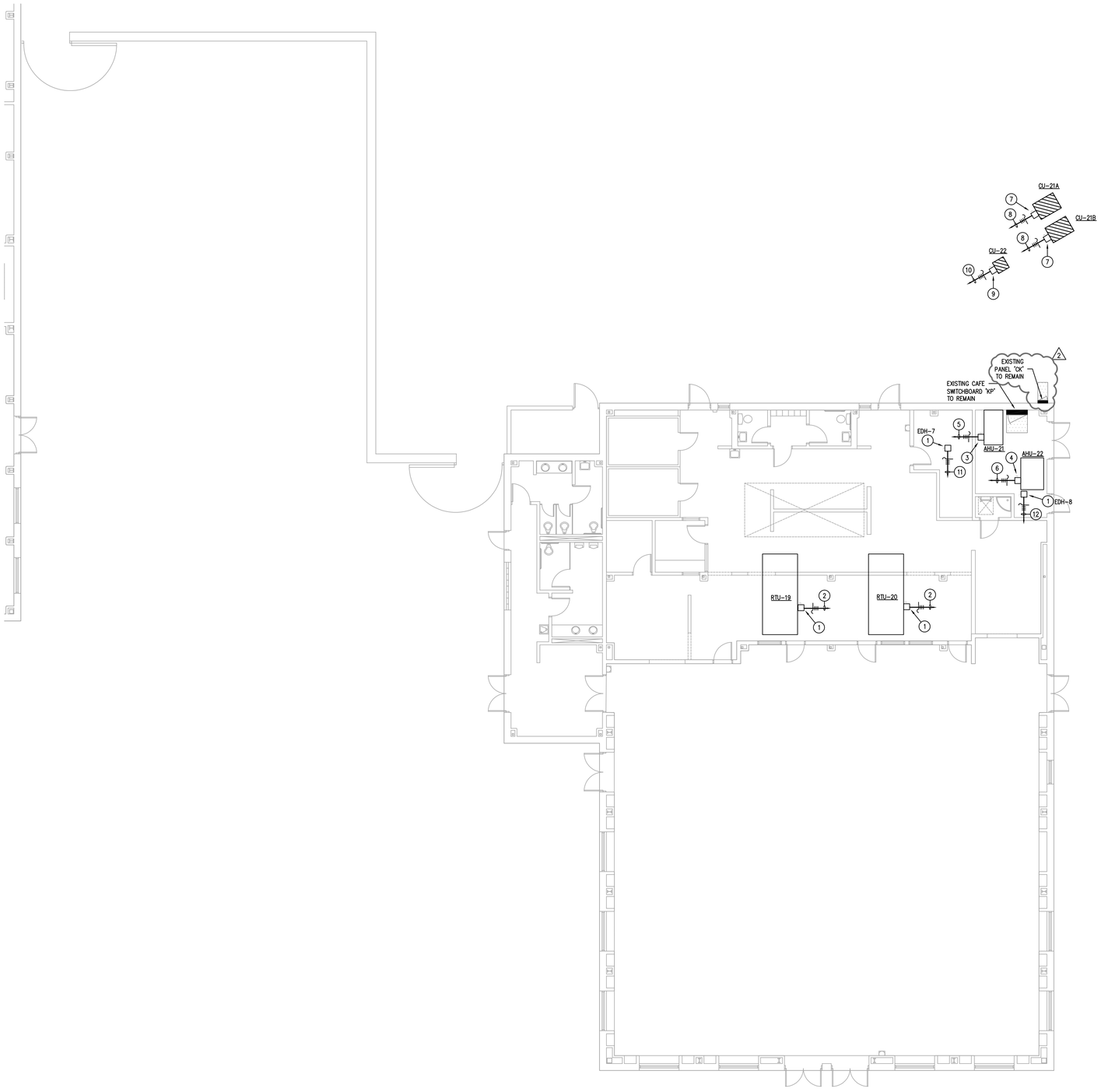


GENERAL ELECTRICAL NOTES:

A. CONTRACTOR SHALL VERIFY MECHANICAL EQUIPMENT CONNECTION LOCATION WITH FURNISHED EQUIPMENT.

B. CONTRACTOR SHALL PROVIDE HANDLE TIES MANUFACTURED BY THE SWITCH GEAR SUPPLIER ON ALL MULTI-WIRE CIRCUITS TO MEET THE REQUIREMENTS OF ARTICLE 210.4(B) OF THE 2014 NEC. AT THE CONTRACTOR'S OPTION, TWO AND THREE POLE BREAKERS MAY BE USED.

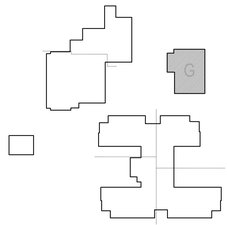
C. ALL VAV BOXES ARE SUPPLIED WITH INTEGRAL DISCONNECT SWITCH. VERIFY EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL.

D. CONTRACTOR SHALL NOTE THAT ALL MATERIALS BEING USED WITHIN THE CEILING PLENUM MUST BE PLENUM RATED.

ELECTRICAL KEYED NOTES

1. INTERNALLY MOUNTED DISCONNECT SWITCH PROVIDED WITH EQUIPMENT. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH FURNISHED EQUIPMENT.
2. 3#2/0, #6GND, 2"C TO EXISTING CAFETERIA SWITCHBOARD-'KP'. PROVIDE NEW 175A/3P BREAKER IN SWITCHBOARD-'KP'.
3. 30A/3P/25AF/N1 DISCONNECT SWITCH. PROVIDE CODE REQUIRED MOUNTING AND CLEARANCE. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL.
4. 30A/3P/15AF/N1 DISCONNECT SWITCH. PROVIDE CODE REQUIRED MOUNTING AND CLEARANCE. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL.
5. 3#10, #10GND, 3/4"C TO EXISTING CAFETERIA SWITCHBOARD-'KP'. PROVIDE NEW 25A/3P BREAKER IN SWITCHBOARD-'KP'.
6. 3#12, #12GND, 3/4"C TO EXISTING CAFETERIA SWITCHBOARD-'KP'. PROVIDE NEW 15A/3P BREAKER IN SWITCHBOARD-'KP'.
7. 60A/3P/60AF/N3R DISCONNECT SWITCH. PROVIDE CODE REQUIRED MOUNTING AND CLEARANCE. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL.
8. 3#6, #10GND, 1"C TO EXISTING PANEL-'CK'. REPLACE EXISTING BREAKER WITH NEW 60A/3P BREAKER IN EXISTING PANEL-'CK'.
9. 60A/3P/35AF/N3R DISCONNECT SWITCH. PROVIDE CODE REQUIRED MOUNTING AND CLEARANCE. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL.
10. 3#8, #10GND, 1"C TO EXISTING PANEL-'CK'. REUSE EXISTING 35A/3P BREAKER IN EXISTING PANEL-'CK'.
11. 3#6, #10GND, 1"C TO EXISTING SWITCHBOARD 'KP'. PROVIDE NEW 60A/3P BREAKER IN EXISTING SWITCHBOARD 'KP'.
12. 3#8, #10GND, 1"C TO EXISTING SWITCHBOARD 'KP'. PROVIDE NEW 50A/3P BREAKER IN EXISTING SWITCHBOARD 'KP'.

1 EP2.12G — LEVEL 1 ELECTRICAL POWER PLAN - G
1/8" = 1'-0"



TRUE NORTH

PLAN NORTH

DBR
9990 Richmond Avenue South Building, Suite 300
Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---

DBR
210.546.0200 v 210.546.0201 f
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022

DRAWN BY: DBR

CHECKED BY: DBR

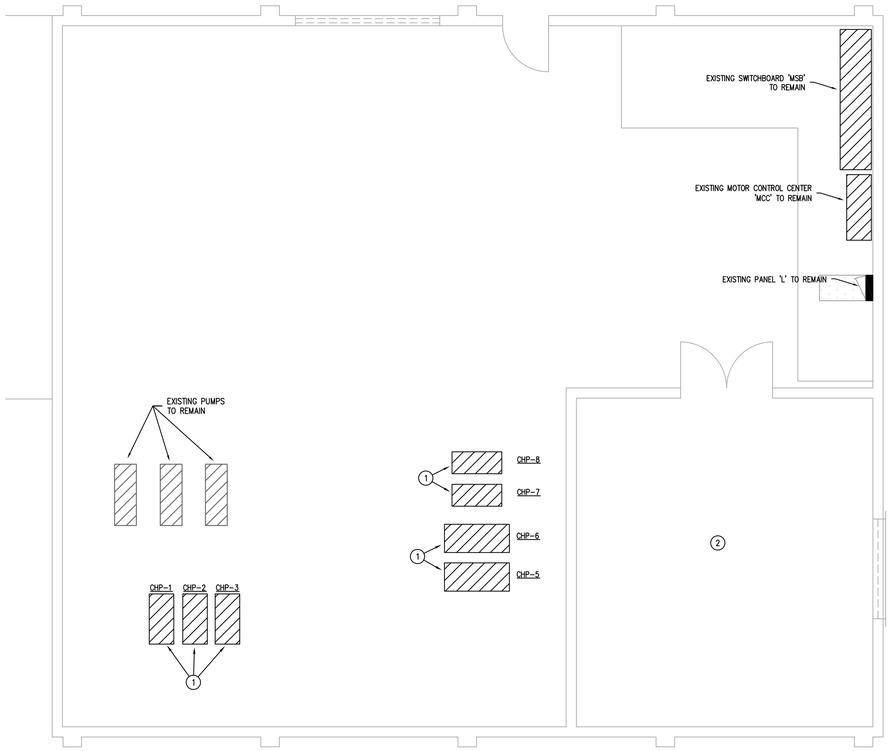
PROJECT NUMBER: 218007.002

SHEET TITLE: LEVEL 1 ELECTRICAL POWER PLAN - G

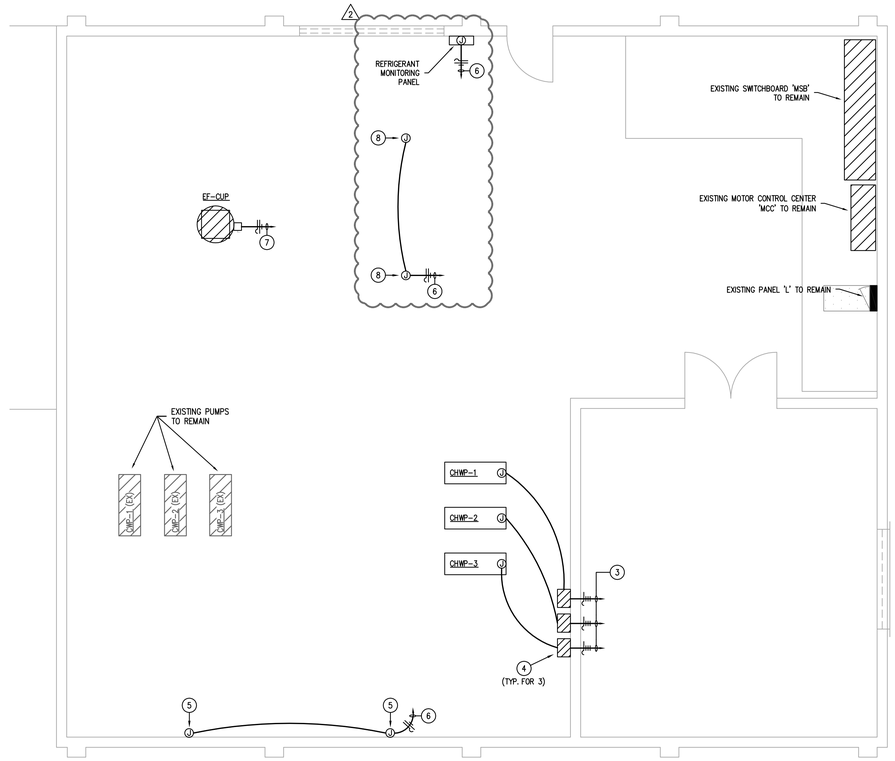
SHEET NUMBER: EP2.12G

ELECTRICAL KEYED NOTES

1. CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL ASSOCIATED WITH EXISTING EQUIPMENT TO BE REMOVED. DISCONNECT AND REMOVE EXISTING CONDUIT AND WIRE BACK TO SOURCE.
2. CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL ASSOCIATED WITH EXISTING BOILER EQUIPMENT TO BE REMOVED. DISCONNECT AND REMOVE ALL EXISTING CONDUIT AND WIRE.
3. HOMERUN TO MAIN SWITCHBOARD 'MSB'. SEE ONE-LINE DIAGRAM FOR CIRCUIT INFORMATION.
4. VFD PROVIDED AND INSTALLED BY MECHANICAL. WIRED BY ELECTRICAL. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.
5. MOTORIZED DAMPER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR.
6. 2#12, #12G, 3/4"C TO PANEL 'L'. PROVIDE 20A/1P BREAKER.
7. 2#10, #10G, 3/4"C TO PANEL 'L'. PROVIDE 25A/1P BREAKER.
8. NEW MOTORIZED VALVE AT EXISTING CHILLER. COORDINATE EXACT LOCATION WITH MECHANICAL.



1 E3.01 CENTRAL PLANT ENLARGED DEMOLITION POWER PLAN
1/4" = 1'-0"



2 E3.01 CENTRAL PLANT ENLARGED POWER PLAN
1/4" = 1'-0"

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TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: ELECTRICAL ENLARGED POWER PLANS
SHEET NUMBER: E3.01

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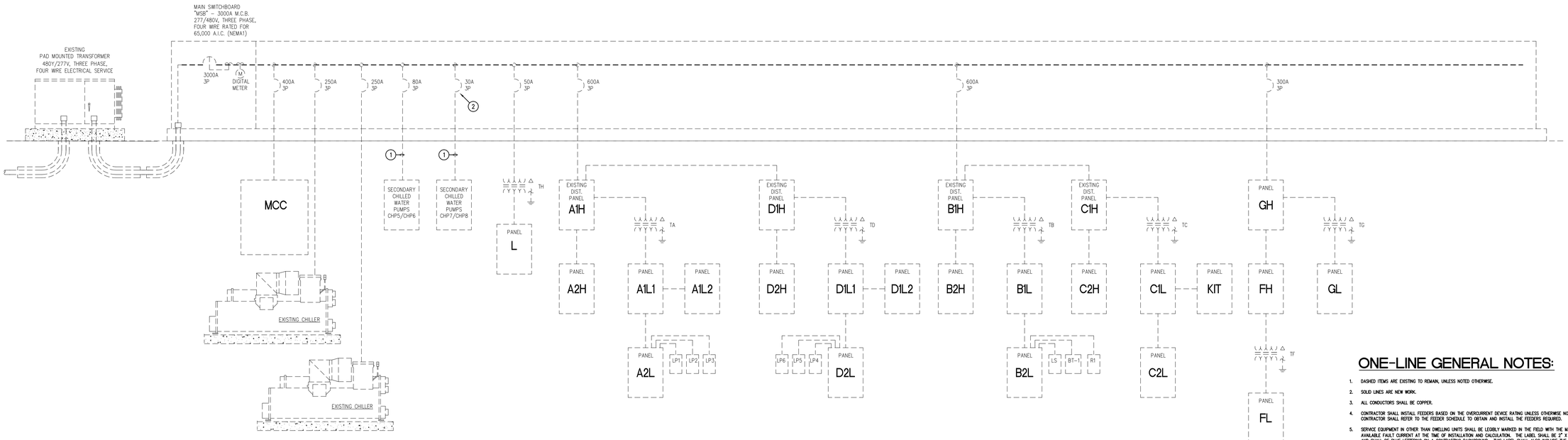
DBR Project Number 218007.002

HA	JA	JB	---	---

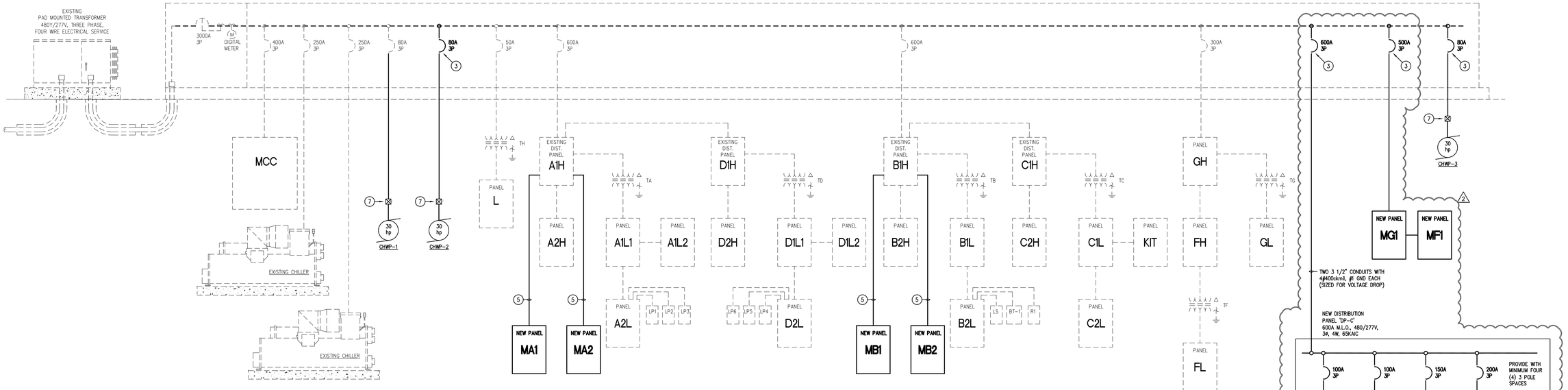


1 / E4.01 ONE-LINE DIAGRAM - SWITCHBOARD 'MSB' - EXISTING CONDITIONS

N.T.S.

ONE-LINE GENERAL NOTES:

1. DASHED ITEMS ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE.
2. SOLID LINES ARE NEW WORK.
3. ALL CONDUCTORS SHALL BE COPPER.
4. CONTRACTOR SHALL INSTALL FEEDERS BASED ON THE OVERCURRENT DEVICE RATING UNLESS OTHERWISE NOTED. CONTRACTOR SHALL REFER TO THE FEEDER SCHEDULE TO OBTAIN AND INSTALL THE FEEDERS REQUIRED.
5. SERVICE EQUIPMENT IN OTHER THAN DWELLING UNITS SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT AT THE TIME OF INSTALLATION AND CALCULATION. THE LABEL SHALL BE 2" X 3" IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND. THIS LABEL SHALL ALSO INCLUDE THE DATE OF THE CALCULATION.
6. A PERMANENTLY AFFIXED LABEL SHALL BE APPLIED WITH THE AVAILABLE FAULT CURRENT AT THE TIME OF INSTALLATION AND CALCULATION. THE LABEL SHALL BE 2 X 3 IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND. THIS LABEL SHALL ALSO INCLUDE THE DATE OF THE CALCULATION.
7. NEW BREAKERS SHALL BE OF THE SAME MANUFACTURER AS THE EXISTING SWITCHBOARD OR PANEL IN WHICH THEY ARE INSTALLED.
8. SEE SHEET E4.02 FOR FEEDER SCHEDULE.



2 / E4.01 ONE-LINE DIAGRAM - SWITCHBOARD 'MSB' - NEW CONDITIONS

N.T.S.

ONE-LINE KEYED NOTES

1. EXISTING CONDUIT AND WIRE TO BE DISCONNECTED AND REMOVED.
2. EXISTING BREAKER TO BE REPLACED.
3. PROVIDE NEW BREAKER, SIZE AS SHOWN.
4. NEW 100A FEEDER, PROVIDE NEW 100A/3P BREAKER IN EXISTING PANEL. SEE FEEDER SCHEDULE FOR FEEDER SIZE.
5. NEW 150A FEEDER, PROVIDE NEW 150A/3P BREAKER IN EXISTING PANEL. SEE FEEDER SCHEDULE FOR FEEDER SIZE
6. NEW 200A FEEDER, PROVIDE NEW 200A/3P BREAKER IN EXISTING PANEL. SEE FEEDER SCHEDULE FOR FEEDER SIZE
7. NEW VFD PROVIDED AND INSTALLED BY MECHANICAL, WIRED BY ELECTRICAL.

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San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:

STATE OF TEXAS
ROBERTO H. TIJERINA
121946
LICENSED
PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: ELECTRICAL ONE-LINE DIAGRAM
SHEET NUMBER: E4.01

DBR
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Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

HA	JA	JB	---	---

Panelboard MA1

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | X MLO 225 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	5000	VAV-1-01	H	10	25/1	1	A	2	20/1	12	H	VAV-02-01	3000	
	5000	VAV-1-02	H	10	25/1	3	B	4			H		4000	
	5000	VAV-1-03	H	10	25/1	5	C	6	20/3	12	H	VAV-02-02	4000	
	2000		H			7	A	8			H		4000	
	2000	VAV-01-04	H	12	20/3	9	B	10	20/1	12	H	VAV-02-03	4000	
	2000		H			11	C	12			F		1856	
	3333		H			13	A	14	15/3	12	F	AHU-1+2 (CIRCUIT #1)	1856	
	3333	VAV-01-05	H	12	20/3	15	B	16			F		1856	
	3333		H			17	C	18			F		1856	
	2000		H			19	A	20	15/3	12	F	AHU-1+2 (CIRCUIT #2)	1856	
	2000	VAV-01-06	H	12	20/3	21	B	22			F		1856	
	2000		H			23	C	24				SPACE		
	5000	VAV-01-07	H	10	25/1	25	A	26				SPACE		
	5000	VAV-01-08	H	10	25/1	27	B	28				SPACE		
	5000	VAV-01-09	H	10	25/1	29	C	30				SPACE		
	5000	VAV-01-10	H	10	25/1	31	A	32				SPACE		
		SPACE				33	B	34				SPACE		
		SPACE				35	C	36				SPACE		
		SPACE				37	A	38				SPACE		
		SPACE				39	B	40				SPACE		
		SPACE				41	C	42				SPACE		
	56,999	Subtotal										Subtotal	30,136	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	75,999	100%	75,999		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	11,136	100%	11,136	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 87,135 VA = 104.9 AMPS
Total Load (Diversified)= 87,135 VA = 104.9 AMPS
Location of Panel:

Panelboard MB1

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | X MLO 225 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	5000	VAV-3-01	H	10	25/1	1	A	2	25/1	10	H	VAV-3-05	5000	
	2000		H			3	B	4	25/1	10	H	VAV-3-06	5000	
	2000	VAV-3-02	H	12	20/3	5	C	6	25/1	10	H	VAV-3-07	5000	
	2000		H			7	A	8	25/1	10	H	VAV-3-08	5000	
	2000		H			9	B	10	25/1	10	H	VAV-3-09	5000	
	2000	VAV-3-03	H	12	20/3	11	C	12	25/1	10	H	VAV-3-10	5000	
	2000		H			13	A	14			F		2493	
	3000		H			15	B	16	20/3	12	F	AHU-3 (CIRCUIT #1)	2493	
	3000	VAV-3-04	H	12	20/3	17	C	18			F		2493	
	3000		H			19	A	20			F		2493	
						21	B	22	20/3	12	F	AHU-3 (CIRCUIT #2)	2493	
						23	C	24			F		2493	
						25	A	26						
						27	B	28						
						29	C	30						
						31	A	32						
						33	B	34						
						35	C	36						
						37	A	38						
						39	B	40						
						41	C	42						
	26,000	Subtotal										Subtotal	44,958	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	56,000	100%	56,000		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	14,958	100%	14,958	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 70,958 VA = 85.4 AMPS
Total Load (Diversified)= 70,958 VA = 85.4 AMPS
Location of Panel:

Panelboard MC1

2

0 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | X MLO 125 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	3000	VAV-4-01	H	12	20/1	1	A	2			H		5666	
	3000	VAV-4-02	H	12	20/1	3	B	4	30/3	10	H	VAV-5-01	5666	
	2000		H			5	C	6			H		5666	
	2000	VAV-4-03	H	12	20/3	7	A	8			F		1634	
	2000		H			9	B	10	15/3	12	F	AHU-4+5 (CIRCUIT #1)	1634	
	3000		H			11	C	12			F		1634	
	3000	VAV-4-04	H	12	20/3	13	A	14			F		1634	
	3000		H			15	B	16	15/3	12	F	AHU-4+5 (CIRCUIT #2)	1634	
	2000		H			17	C	18			F		1634	
	2000	VAV-4-05	H	12	20/3	19	A	20				SPACE		
	2000		H			21	B	22				SPACE		
	3000	VAV-4-06	H	12	20/1	23	C	24				SPACE		
		SPACE				25	A	26				SPACE		
		SPACE				27	B	28				SPACE		
		SPACE				29	C	30				SPACE		
		SPACE				31	A	32				SPACE		
		SPACE				33	B	34				SPACE		
		SPACE				35	C	36				SPACE		
		SPACE				37	A	38						
		SPACE				39	B	40	20/3	12		SPARE		
		SPACE				41	C	42						
	30,000	Subtotal										Subtotal	26,802	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	46,998	100%	46,998		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	9,804	100%	9,804	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 56,802 VA = 68.4 AMPS
Total Load (Diversified)= 56,802 VA = 68.4 AMPS
Location of Panel:

Panelboard MD1

2

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | MLO 225 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	5000	VAV-7-01	H	10	25/1	1	A	2	25/2	10	H	VAV-7-07	5000	
	5000	VAV-7-02	H	10	25/1	3	B	4	25/2	10	H	VAV-7-08	5000	
	5000	VAV-7-03	H	10	25/1	5	C	6	25/2	10	H	VAV-7-09	5000	
	5000	VAV-7-04	H	10	25/1	7	A	8			H		2000	
	2000		H			9	B	10	20/3	12	H	VAV-7-10	2000	
	2000	VAV-7-05	H	12	20/3	11	C	12			H		2000	
	2000		H			13	A	14			F		1856	
	3666		H			15	B	16	15/3	12	F	AHU-6+7 (CIRCUIT #1)	1856	
	3666	VAV-7-06	H	12	20/3	17	C	18			F		1856	
	3666		H			19	A	20			F		1856	
	5333		H			21	B	22	15/3	12	F	AHU-6+7 (CIRCUIT #2)	1856	
	5333	VAV-6-01	H	10	25/3	23	C	24			F		1856	
	5333		H			25	A	26				SPACE		
		SPACE				27	B	28				SPACE		
		SPACE				29	C	30				SPACE		
		SPACE				31	A	32				SPACE		
		SPACE				33	B	34				SPACE		
		SPACE				35	C	36				SPACE		
		SPACE				37	A	38						
		SPACE				39	B	40	20/3			SPARE		
		SPACE				41	C	42						
	52,997	Subtotal										Subtotal	32,136	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	73,997	100%	73,997		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	11,136	100%	11,136	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 85,133 VA = 102.4 AMPS
Total Load (Diversified)= 85,133 VA = 102.4 AMPS
Location of Panel:

Panelboard MA2

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | X MLO 225 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	3666		H			1	A	2			H		2000	
	3666	VAV-8-01	H	12	20/3	3	B	4	20/3	12	H	VAV-8-06	2000	
	3666		H			5	C	6			H		2000	
	4000		H			7	A	8			H		4333	
	4000	VAV-8-02	H	12	20/3	9	B	10	20/3	12	H	VAV-8-07	4333	
	4000		H			11	C	12			H		4333	
	2333		H			13	A	14			H		4000	
	2333	VAV-8-03	H	12	20/3	15	B	16	20/3	12	H	VAV-8-08	4000	
	2333		H			17	C	18			H		4000	
	5000	VAV-8-04	H	10	25/1	19	A	20			F		1856	
	5000	VAV-8-05	H	10	25/1	21	B	22	15/3	12	F	AHU-8 (CIRCUIT #1)	1856	
						23	C	24			F		1856	
						25	A	26			F		1856	
						27	B	28	15/3	12	F	AHU-8 (CIRCUIT #2)	1856	
						29	C	30			F		1856	
						31	A	32						
						33	B	34						
						35	C	36						
						37	A	38						
						39	B	40						
						41	C	42						
	39,997	Subtotal										Subtotal	42,135	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	70,996	100%	70,996		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	11,136	100%	11,136	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 82,132 VA = 98.8 AMPS
Total Load (Diversified)= 82,132 VA = 98.8 AMPS
Location of Panel:

Panelboard MB2

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | X MLO 225 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	2000		H			1	A	2			H		3333	
	2000	VAV-9-01	H	12	20/3	3	B	4	20/3	12	H	VAV-10-01	3333	
	2000		H			5	C	6			H		3333	
	2000		H			7	A	8			H		2666	
	2000	VAV-9-02	H	12	20/3	9	B	10	20/3	12	H	VAV-10-05	2666	
	2000		H			11	C	12			H		2666	
	3000		H			13	A	14			H		3333	
	3000	VAV-9-03	H	12	20/3	15	B	16	20/3	12	H	VAV-10-06	3333	
	3000		H			17	C	18			H		3333	
	3000	VAV-9-04	H	12	20/1	19	A	20			H		3333	
	1163		F			21	B	22	20/3	12	H	VAV-10-07	3333	
	1163	AHU-9	F	12	15/3	23	C	24			H		3333	
	1163		F			25	A	26			H		3333	
		SPACE				27	B	28	20/3	12	H	VAV-10-08	3333	
		SPACE				29	C	30			H		3333	
		SPACE				31	A	32			F		2493	
		SPACE				33	B	34	15/3	12	F	AHU-10 (CIRCUIT #1)	2493	
		SPACE				35	C	36			F		2493	
		SPACE				37	A	38			F		2493	
		SPACE				39	B	40	15/3	12	F	AHU-10 (CIRCUIT #2)	2493	
		SPACE				41	C	42			F		2493	
	27,489	Subtotal										Subtotal	62,952	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	71,994	100%	71,994		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	18,447	100%	18,447	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 90,441 VA = 108.8 AMPS
Total Load (Diversified)= 90,441 VA = 108.8 AMPS
Location of Panel:

Panelboard MC2

0 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | X MLO 125 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	3333		H			1	A	2			H		3333	
	3333	VAV-10-02	H	12	20/3	3	B	4	20/3	12	H	VAV-11-01	3333	
	3333		H			5	C	6			H		3333	
	3333		H			7	A	8	25/1	10	H	VAV-11-02	5000	
	3333	VAV-10-03	H	12	20/3	9	B	10			H		3333	
	3333		H			11	C	12	20/3	12	H	VAV-11-03	3333	
	3333		H			13	A	14			H		3333	
	3333	VAV-10-04	H	12	20/3	15	B	16	25/1	10	H	VAV-11-04	5000	
	3333		H			17	C	18	20/1	12	H	VAV-11-05	3000	
		SPACE				19	A	20			F		1163	
		SPACE				21	B	22	15/3	12	F	AHU-11	1163	
		SPACE				23	C	24			F		1163	
		SPACE				25	A	26				SPACE		
		SPACE				27	B	28				SPACE		
		SPACE				29	C	30				SPACE		
		SPACE				31	A	32				SPACE		
		SPACE				33	B	34				SPACE		
		SPACE				35	C	36				SPACE		
		SPACE				37	A	38				SPACE		
		SPACE				39	B	40				SPACE		
		SPACE				41	C	42				SPACE		
	29,997	Subtotal										Subtotal	36,487	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	62,995	100%	62,995		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	3,489	100%	3,489	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 66,484 VA = 80.0 AMPS
Total Load (Diversified)= 66,484 VA = 80.0 AMPS
Location of Panel:

Panelboard MD2

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire | 1 Section | 1 -Nema Rating
MCB 0 AMP MCB | X MLO 225 AMP BUS (Copper)
X Single | Double | Feed - Thru
Mounting | X Surface | Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	4000		H			1	A	2			H		2000	
	4000	VAV-12-01	H	12	20/3	3	B	4	20/3	12	H	VAV-13-04	2000	
	4000		H			5	C	6			H		2000	
	5000	VAV-12-02	H	10	25/1	7	A	8			H		2000	
	2000		H			9	B	10	20/3	12	H	VAV-13-05	2000	
	2000	VAV-12-03	H	12	20/3	11	C	12			H		2000	
	2000		H			13	A	14			H		2000	
	4000		H			15	B	16	20/3	12	H	VAV-13-06	2000	
	4000	VAV-12-04	H	12	20/3	17	C	18			H		2000	
	4000		H			19	A	20			H		4000	
	2333		H			21	B	22	20/3	12	H	VAV-13-07	4000	
	2333	VAV-12-05	H	12	20/3	23	C	24			H		4000	
	2333		H			25	A	26			F		1634	
	2000		H			27	B	28	15/3	12	F	AHU-12 (CIRCUIT #1)	1634	
	2000	VAV-13-01	H	12	20/3	29	C	30			F		1634	
	2000		H			31	A	32			F		1634	
	3333		H			33	B	34	15/3	12	F	AHU-12 (CIRCUIT #2)	1634	
	3333	VAV-13-02	H	12	20/3	35	C	36			F		1634	
	3333		H			37	A	38			F		1634	
	3333		H			39	B	40	15/3	12	F	AHU-13 (CIRCUIT #1)	1634	
	3333	VAV-13-03	H	12	20/3	41	C	42			F		1634	
	3333		H			43	A	44			F		1634	
		SPACE				45	B	46	15/3	12	F	AHU-13 (CIRCUIT #2)	1634	
		SPACE				47	C	48			F		1634	
		SPACE				49	A	50				SPACE		
		SPACE				51	B	52				SPACE		
		SPACE				53	C	54				SPACE		
		SPACE				55	A	56				SPACE		
		SPACE				57	B	58				SPACE		
		SPACE				59	C	60				SPACE		
	67,997	Subtotal										Subtotal	49,608	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	97,997	100%	97,997		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	19,608	100%	19,608	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 117,605 VA = 141.5 AMPS
Total Load (Diversified)= 117,605 VA = 141.5 AMPS
Location of Panel:

DBR
210.546.0200 v 210.546.0201 f
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:
STATE OF TEXAS
ROBERTO H. TUERINA
121946
LICENSED PROFESSIONAL ENGINEER
4/7/2022

EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS - HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE: 4/7/2022
DRAWN BY: DBR
CHECKED BY: DBR
PROJECT NUMBER: 218007.002
SHEET TITLE: ELECTRICAL SCHEDULES

DBR
9990 Richmond Avenue South Building, Suite 300
Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002
HA | JA | JB | --- | ---

SHEET NUMBER: E5.01

Panelboard MG1

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire
1 Section
1 -Nema Rating

X MLO | MCB 0 AMP MCB 600 AMP BUS (Copper)

X Single Double Feed - Thru

Mounting
X Surface
Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
						1	A	2						
		SPARE		12	20/3	3	B	4	30/3	10		SPARE		
						5	C	6						
	997		F			7	A	8			F		1634	
	997	AHU-14	F	12	15/3	9	B	10	15/3	12	F	AHU-15	1634	
	997		F			11	C	12			F		1634	
	12666		H			13	A	14			H		12000	
	12666	EDH-1	H	6	60/3	15	B	16	60/3	6	H	EDH-4	12000	
	12666		H			17	C	18			H		12000	
	12666		H			19	A	20			H		12000	
	12666	EDH-2	H	6	60/3	21	B	22	60/3	6	H	EDH-5	12000	
	12666		H			23	C	24			H		12000	
	12666		H			25	A	26			SP		39051	
	12666	EDH-3	H	6	60/3	27	B	28	150/3	1/0	SP	PANEL 'MF1'	34051	
	12666		H			29	C	30			SP		34051	
	116,985	Subtotal										Subtotal	184,055	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	0	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	185,994	100%	185,994		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	7,893	100%	7,893	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	107,153	100%	107,153
	(M) Misc.	0	100%	0					

Total Connected Load = 301,040 VA = 362.3 AMPS
Total Load (Diversified)= 301,040 VA = 362.3 AMPS

Location of Panel:

Panelboard MF1

65,000 AIC Rating
Existing
X New

277/480 Volt,3-Phase,4-Wire
1 Section
1 -Nema Rating

X MLO | MCB 0 225 AMP MCB AMP BUS (Copper)

X Single Double Feed - Thru

Mounting
X Surface
Flush

Notes	Load (VA)	Description	Type	Wire	CB	CKT #	PH	CKT #	CB	Wire	Type	Description	Load (VA)	Notes
	5000	VAV-16-01	H	10	25/1	1	A	2			H		2333	
	5000	VAV-16-02	H	10	25/1	3	B	4	20/3	12	H	VAV-18-01	2333	
	2000		H			5	C	6			H		2333	
	2000	VAV-16-03	H	12	20/3	7	A	8			H		3000	
	2000		H			9	B	10	20/3	12	H	VAV-18-02	3000	
	5000	VAV-16-04	H	10	25/1	11	C	12			H		3000	
	5000	VAV-16-05	H	10	25/1	13	A	14			H		2666	
	1634		F			15	B	16	20/3	12	H	VAV-18-03	2666	
	1634	AHU-16	F	12	15/3	17	C	18			H		2666	
	1634		F			19	A	20			H		4000	
	1108		F			21	B	22	20/3	12	H	VAV-18-04	4000	
	1108	AHU-17	F	12	15/3	23	C	24			H		4000	
	1108		F			25	A	26			F		1634	
	2521		C			27	B	28	15/3	12	F	AHU-18 (CIRCUIT #1)	1634	
	2521	ACCU-17A	C	12	15/3	29	C	30			F		1634	
	2521		C			31	A	32			F		1634	
	2521		C			33	B	34	15/3	12	F	AHU-18 (CIRCUIT #2)	1634	
	2521	ACCU-17B	C	12	15/3	35	C	36			F		1634	
	2521		C			37	A	38					4000	
		SPACE				39	B	40	20/3	12		EDH-6	4000	
		SPACE				41	C	42					4000	
	49,352	Subtotal										Subtotal	57,801	

N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity	N.E.C. (2011)	Load Type	Conn.	Fct.	Diversity
220.44	(R) Recept.	0		0	220.12	(L) Lighting	0	125%	0
220.56	(K) Kitchen	0	100%	0	220.12	(EL) Ext. Ltg.	0	125%	0
220.60	(C) Cooling	15,126	0%	0	620.14	(E) Elevators	0	100%	0
220.60	(H) Heating	61,997	100%	61,997		(WH) Water Ht.	0	100%	0
220.60	(F) Fans	18,030	100%	18,030	220.5	(MT) Lrg. Mot.	0	125%	0
630.11	(W) Welders	0		0		(SP) Sub Panel	0	100%	0
	(M) Misc.	0	100%	0					

Total Connected Load = 95,153 VA = 114.5 AMPS
Total Load (Diversified)= 80,027 VA = 96.3 AMPS

Location of Panel:

DBR
9990 Richmond Avenue South Building, Suite 300
Houston, Texas 77042
713.914.0888 p 713.914.0886 f
TBPE Firm Registration No. 2234

DBR Project Number 218007.002

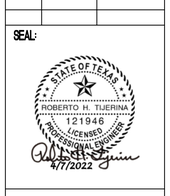
HA	JA	JB	---	---

DBR
210.546.0200 v 210.546.0201 f
9601 McAllister Freeway, Suite 410
San Antonio, Texas 78216
TBPE Firm Registration NO. 2234

REVISION:

No.	DATE	DESCRIPTION
01	3/23/2022	ADDENDUM #1
02	4/7/2022	ADDENDUM #2

SEAL:



EDINBURG CONSOLIDATED INDEPENDENT SCHOOL DISTRICT
MEMORIAL MS – HVAC IMPROVEMENTS
3105 N DOOLITTLE RD, EDINBURG, TX 78542

DATE:
4/7/2022

DRAWN BY:
DBR

CHECKED BY:
DBR

PROJECT NUMBER:
218007.002

SHEET TITLE:
ELECTRICAL SCHEDULES

SHEET NUMBER:
E5.02