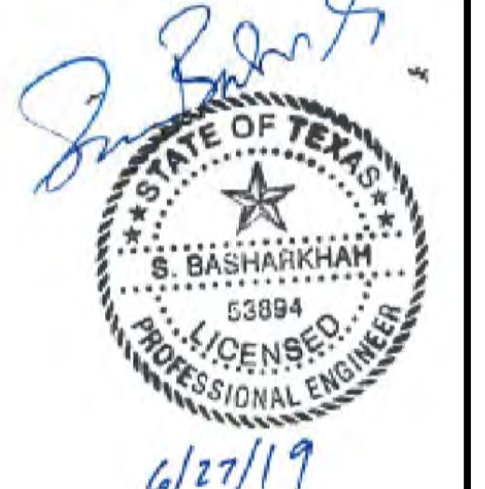


- GENERAL NOTES:**
- ALL DUCT SIZES SHOWN ARE CLEAR AIRSTREAM DIMENSIONS. ADJUST SIZES TO ACCOMMODATE INSULATION.
  - PROVIDE A FLEXIBLE CONNECTION AT THE INTAKE AND DISCHARGE OF ALL MOTOR DRIVEN AIR HANDLING EQUIPMENT.
  - FLEXIBLE BRANCH DUCTWORK SHALL HAVE A MAXIMUM LENGTH OF FIVE (5) FEET AND (1) RADIUS ELBOW (90 DEGREES).
  - CONTRACTOR SHALL REFER TO ARCHITECTURAL CEILING PLANS AND INTERIOR ELEVATIONS FOR EXACT LOCATION OF DIFFUSERS/GRILLES.
  - CEILING DIFFUSER DUCT SIZE SHALL BE SAME SIZE AS NECK SIZE INDICATED.
  - PROVIDE A TRANSITION FROM FULL SIZE OF RTU OPENING TO SIZE OF DUCTWORK SHOWN ON PLANS.
  - FIRE AND SMOKE DAMPERS SHALL COMPLY WITH THE REQUIREMENTS OF BOTH UL 555 AND UL 555S AND SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 116 OF IBC AND PER LISTED MANUFACTURER'S INSTALLATION INSTRUCTION. ACCESS FOR TESTING AND MAINTENANCE SHALL BE PROVIDED FOR ALL DAMPERS IN ACCORDANCE WITH IMC AND NFPA 90A. LABEL ALL AIR VOLUME DAMPERS ON OUTSIDE OF DUCT INSULATION WITH BRIGHT COLORED RIBBON AND TAPE LABEL ALL FIRE DAMPER ACCESS DOORS. PROVIDE EXTENDED LOCKING QUADRANTS.
  - ALL SIZES SHOWN ON PLANS ARE IN INCHES, UNLESS NOTED OTHERWISE.
  - CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT, EXACT ROUTING AND SIZE OF DUCTWORK WITH STRUCTURAL MEMBERS AND ARCHITECTURAL FEATURES.
  - ALL DUCTWORK SHALL COMPLY WITH LOCAL CODES AND SMACNA STANDARDS.
  - PROVIDE CONDENSATE DRAIN PIPING TO APPROVED TERMINATION POINT WHETHER SHOWN OR NOT.
  - ALL HVAC UNITS SHOULD BE MANUALLY SHUTDOWN PER SECTION 4-2, NFPA 90A FROM THIS LOCATION OR APPROVED LOCATION BY THE FIRE INSPECTOR.
  - NO FLEXIBLE DUCT IS ALLOWED IN EXPOSED-TO-VIEW AREAS.
  - AIR CONDITIONING SUPPLY AND RETURN SHALL BE GALVANIZED STEEL CONSTRUCTED AND SEALED TO SMACNA AND LOCAL CODES. ALL EXHAUST AIR DUCTS IN WET AREAS SHOULD BE ALUMINUM CONSTRUCTION AND INSTALLED IN ACCORDANCE WITH SMACNA AND LOCAL CODES. JOINTS SHALL BE SEALED WATER TIGHT WITH HARDCAST OR EQUAL.
  - ALL SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. ACCESS SHALL BE PROVIDED TO SMOKE DETECTORS FOR INSPECTION AND MAINTENANCE.
  - BY DETECTION OF SMOKE, SMOKE DETECTORS SHALL SHUT DOWN ALL OPERATIONAL CAPABILITIES OF AIR DISTRIBUTION SYSTEM IN ACCORDANCE WITH THE LISTING AND LABELING OF APPLIANCES USED IN THE SYSTEM. AIR DISTRIBUTION SYSTEMS THAT ARE PART OF A SMOKE CONTROL SYSTEM SHALL SWITCH TO THE SMOKE CONTROL MODE UPON ACTIVATION OF A DETECTOR.
  - ALL FLEXIBLE DUCTS SHALL CONFORM TO THE REQUIREMENT OF UL 181. SUCH DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCTS AND SHALL BE INSTALLED IN ACCORDANCE WITH IMC REQUIREMENT.
  - ALL JOINTS IN DUCT SYSTEM MUST BE TIGHT IN ORDER TO ENSURE PROPER AIR DISTRIBUTION AND STRUCTURAL INTEGRITY. DUCT SUPPORTS SHALL NOT EXCEED 10 FEET.
  - ALL AIR INTAKE AND EXHAUST LOUVERS SHALL BE EQUAL TO RUSKIN 375X DRAIN ABLE STATIONARY LOUVER AND SHALL BE CORROSION RESISTANT AND SHALL BE SIZED PER IMC TABLE 401S.
  - ALL FLEXIBLE DUCTS SHALL BE PROTECTED BY SELF-CLOSING FIRE RESISTANCE RATED DEVICES IN ACCORDANCE WITH SECTION 1 OF INTERNATIONAL BUILDING CODE FOR ENCLOSURE WALL OPENING PROTECTION AND LOCAL CODE.
  - WHERE DRAWING OR SPECIFICATIONS CONFLICT OR ARE UNCLEAR, ADVISE OWNER'S REPRESENTATIVE IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, INTERPRETATIONS OF CONTRACT DOCUMENTS BY THE OWNER'S REPRESENTATIVE SHALL BE FINAL. NO ADDITIONAL COMPENSATIONS SHALL BE PERMITTED DUE TO DISCREPANCIES OR INCONSISTENCIES IN THE DOCUMENTS REVOLVED ACCORDING TO THE OWNER'S REPRESENTATIVE'S INTERPRETATION.
  - SHOULD THERE BE CONFLICTS IN CONTRACT DOCUMENTS, PROVIDE THE GREATER QUALITY, THE HIGHER QUALITY AND THE MORE RESTRICTIVE OF EQUIPMENT AND WORK.
  - WATER HEATER SHALL BE PROVIDED WITH D-2 POWER VENT. FLUE PIPE SHALL BE 4" STAINLESS STEEL AS REQUIRED FOR INSTALLATION OF CATEGORY III APPLIANCE AND PER RAYPAK POOL WATER HEATER CONTRACTOR SHALL COORDINATE WITH POOL WATER HEATER MANUFACTURER FOR EXACT SIZE AND MATERIAL OF WATER HEATERS FLUE PIPES FOR ANY OTHER BRANDS.
  - INSTALL VENT PIPES IN ACCORDANCE WITH LOCAL CODES AND PROVISIONS, NATIONAL FUEL GAS CODE, ANSI Z223.1 AND THE VENT MANUFACTURER'S RECOMMENDATIONS. FLUE VENT SHALL BE TERMINATED ABOVE THE ROOF MINIMUM 3'-0" ABOVE THE POINT OF EXIT OR AT LEAST 2'-0" ABOVE THE PARAPET WALL, OR ABOVE ANY SURFACE EQUIPMENT ON ROOF, AND MINIMUM 3'-0" ABOVE ANY FORCED AIR WITHIN 10'-0" OF THE TERMINATION.

**NOTES BY SYMBOL**

- 20"x20" COMBUSTION AIR DUCT UP TO ROOF GOOSENECK. IT IS THE MINIMUM SIZE REQUIRED BASED ON MECHANICAL CODE. FOLLOW MANUFACTURER RECOMMENDATION FOR ANY SIZE LARGER THAN REQUIRED BY CODE. ONE DUCT SHALL BE WITHIN 12" FROM THE CEILING AND THE OTHER 12" FROM THE FLOOR. PROVIDE OT, STL, SCREEN.
- PROVIDE RAYPAK D2 POWER VENT 406A (120V) 4" VENT THRU EXTERIOR WALL. CONTRACTOR SHALL COORDINATE WITH WATER HEATER MANUFACTURER ON THE RECOMMENDED INSTALLATION PROCEDURE. TURN UP 3' ABOVE ADJACENT LOUVER.
- MOUNT TOUCH CONTROLLERS @ 5'-0" AFF. PROVIDE COMBINATION BOXES WHERE MULTIPLE SENSORS ARE USED. TOUCH CONTROLLERS ARE DESIGNED TO BE ACCESSED VIA WEB PORTAL TO GIVE AUTHORIZED FACILITIES PERSONNEL ACCESS TO MANAGE THEIR FACILITY REMOTELY VIA WEB PORTAL INTERFACE. THESE DEVICES ARE FULLY LOCKED OUT FROM PUBLIC USE WITH PASSCODE PROTECTION. ADA REQUIREMENTS ARE NOT APPLICABLE.
- COVER DUCT OPENING WITH 1/2" GALV. HARDWARE CLOTH.
- SALINA CONTRACTOR SHALL PROVIDE HIGH AND LOW LOUVERS FOR SALINA ROOM.
- PROVIDE TWO (2)-3" PVC PIPES FOR EACH WATER HEATER COMBUSTION INTAKE AND FLUE VERTICALLY TO VENT TERMINATION KIT PER MANUFACTURER INSTALLATION MANUAL. CONTRACTOR SHALL COORDINATE WITH WATER HEATER MANUFACTURER FOR EXACT SIZE AND MATERIAL OF WATER HEATERS FLUE PIPES AND RECOMMENDED INSTALLATION PROCEDURE.
- TRANSFER DUCT AND GRILLES. SIZE AS SHOWN ON THE PLAN.
- MOUNT TOUCH TEMPERATURE/HUMIDITY CONTROLLER AT 6'-6" AFF.
- COORDINATE WALL REGISTER/GRILLE LOCATIONS WITH ARCHITECTURAL ELEVATIONS. LOCATE AS HIGH AS POSSIBLE. (NO EXCEPTIONS)
- EXHAUST GRILLES TO BE CENTERED IN SHOWERS. (NO EXCEPTIONS)
- 6" E/A DUCT UP TO ROOF GAP 1/4" BIRDSCREEN AND BACKDRAFT DAMPER 36" ABOVE ROOF.
- MOUNT CO2 SENSOR AT 6'-0" AFF. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL CO2 SENSOR.
- MOUNT TOUCH CONTROLLER AT 8'-0" AFF.
- REMOTE PANEL TO BE PROVIDED BY SERESCO AND INSTALLED BY MECHANICAL CONTRACTOR. CONTRACTOR TO RUN CAT-5 CABLES FROM SERESCO UNIT ON ROOF TO REMOTE PANEL LOCATED IN STEAM GENERATOR ROOM.
- MOUNT CO2 AND REMOTE TEMPERATURE SENSOR AT 8'-6" AFF. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL CO2 SENSOR.
- MOUNT REMOTE TEMPERATURE/HUMIDITY SENSOR AT 6'-6" AFF.
- SEE RETAIL MANUFACTURER FILTER EXHAUST SYSTEM.
- MOUNT TOUCH TEMPERATURE/HUMIDITY CONTROLLER @ 5'-0" AFF.
- TRANSITION TO 24" DUCT BEFORE PENETRATING WALL.

**FLOOR PLAN - HVAC**  
SCALE: 1/8" = 1'-0"



**boei**  
1 BASHIRAHAM  
2 ENGINEERING  
3 INCORPORATED  
Texas Registered Engineering Firm  
F-1026  
13101 Preston Road  
Suite 601  
Dallas, Texas 75240  
(214) 659-0000  
BEI Job # 18195

**ISSUE DATES**

6-28-19
10-18-19

TITLE  
FLOOR PLAN -  
HVAC

M2.1

DATE	ISSUE
09-14-2021	PROGRESS SET
10-01-2021	PERMIT REVIEW SET
10-05-2021	BID SET
11-09-2021	PERMIT RESPONSE
01-18-2022	PERMIT REVISIONS
01-27-2022	REV 2 CLARIFICATION

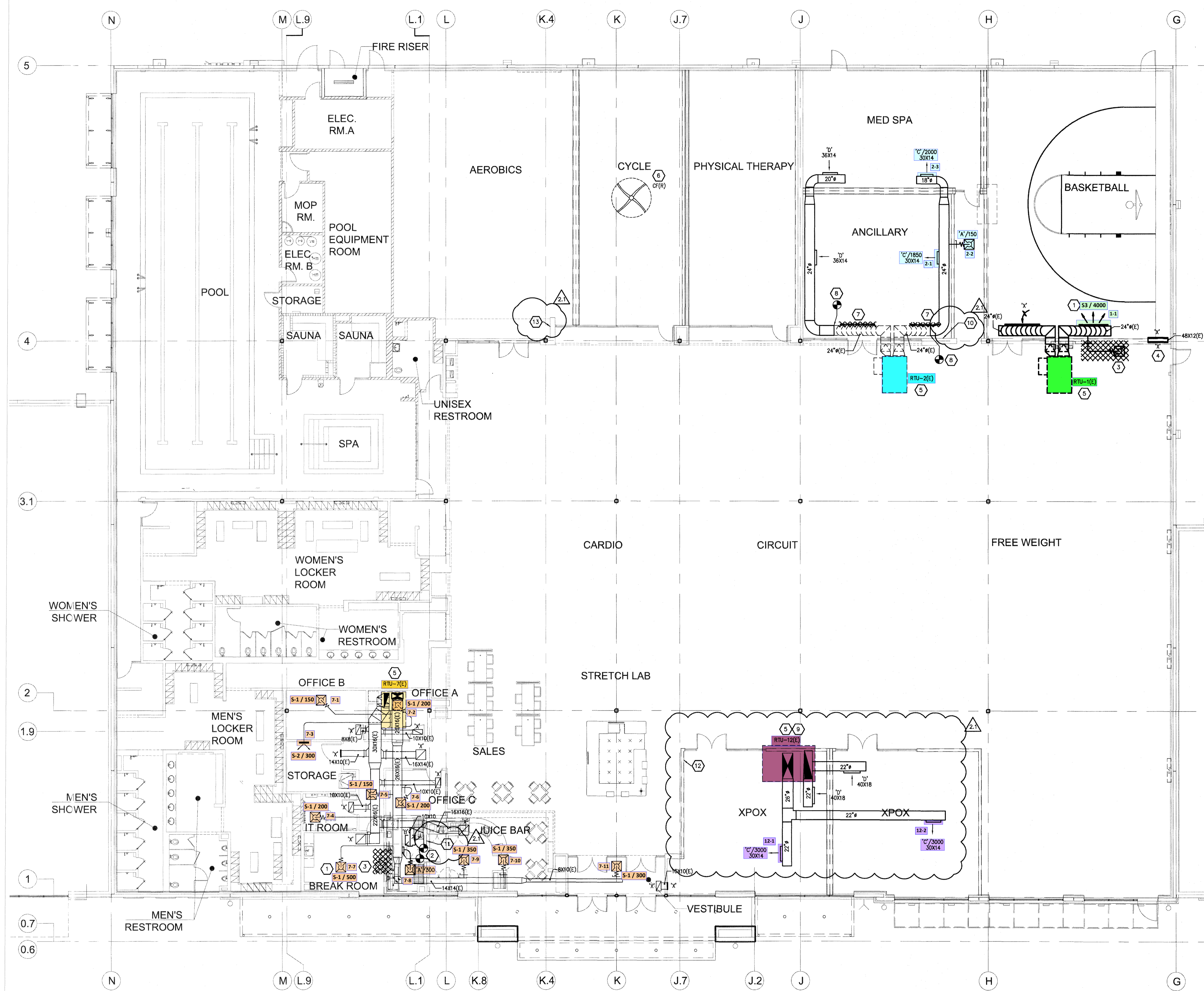
CONTRACTOR SHALL COORDINATE ALL DUCTWORK SIZES AND ROUTING WITH STRUCTURE AND OTHER DISCIPLINES PRIOR TO PURCHASING, CONSTRUCTING, OR INSTALLING ANY DUCTWORK. CONTRACTOR SHALL PROVIDE DUCTWORK SHOP DRAWINGS TO ENGINEER/ ARCHITECT FOR APPROVAL PRIOR TO CONSTRUCTION. ALL DUCTWORK SPECIFIED AS ALUMINUM AND INSTALLED AS GALVANIZED STEEL WILL BE RIPPED OUT AND REPLACED AT CONTRACTOR'S EXPENSE. ANY CHANGES MADE TO DUCTWORK AFTER COORDINATION WILL BE MADE AT CONTRACTOR'S EXPENSE. UNLESS SHOP DRAWINGS ARE SUBMITTED, CONTRACTOR ASSUMES ALL RESPONSIBILITY AND COST FOR ANY NECESSARY REWORK.

**GENERAL MECHANICAL NOTES:**

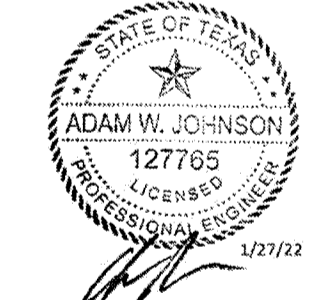
- ALL CONSTRUCTION TO BE ON BUILDING LINES.
- SEE EMS SHEETS FOR LOCATIONS OF CONTROL DEVICES.
- G.C. SHALL ENSURE THAT ALL LIGHTS, SPRINKLER HEADS, DIFFUSERS AND OTHER CEILING ITEMS, ARE CENTERED, IF THIS CONFLICTS WITH THE DRAWINGS, PLEASE NOTIFY THE ARCHITECT.
- THERE SHALL BE NO MEP DEVICES LOCATED INSIDE GRAPHICS OR MIRRORS. REFER TO ID DRAWINGS.
- ALL SUPPLY, RETURN AND EXHAUST DUCTWORK TO BE EXTERNALLY INSULATED, NO EXCEPTIONS. CONTRACTOR IS TO PROVIDE FIELD FABRICATED DUCTWORK SHEET METAL SLEEVE AROUND EXTERNAL INSULATION ON ALL EXPOSED DUCTWORK. ALL EXPOSED DUCTWORK IS TO BE PAINTED BLACK OR OTHER OWNER SPECIFIED COLOR.
- ALL RETURN AND EXHAUST DUCTWORK TO BE RIGID. NO FLEX DUCT ALLOWED.
- INSULATE ALL DIFFUSERS TO PREVENT CONDENSATION DRIP.
- NO EXPOSED DUCTWORK OR DIFFUSER IN SPRINKLERED AREA TO BE LARGER THAN 4" x 9" IN ANY DIRECTION AS TO NOT CONFLICT WITH THE REQUIREMENTS OF NFPA 72.

**MECHANICAL NOTES BY SYMBOL "X"**

- EXISTING DIFFUSER TO BE REBALANCED TO SHOW CFM.
- CONNECT NEW DUCT RUNOUT TO EXISTING TRUNK DUCT.
- EXISTING DIFFUSER AND ASSOCIATED RUNOUT TO BE DEMOED. PATCH TRUNK DUCT AS REQUIRED.
- RELOCATE EXISTING SIDEWALL GRILLE TO LOCATION SHOWN AND DEMO BACK ASSOCIATED DUCT AS REQUIRED.
- PROVIDE ALL REQUIRED MAINTENANCE FOR PROPER FUNCTIONING OF UNIT. CLEAN COILS, REPLACE BELTS AND FILTERS, AND LUBRICATE MOVING PARTS ETC.
- EXISTING FAN TO BE RELOCATED TO THIS SPACE.
- EXISTING SIDEWALL DIFFUSER/GRILLE TO BE DEMOED. PATCH TRUNK DUCT AS REQUIRED.
- CONNECT NEW DOUBLE WALL SPIRAL TRUNK DUCT TO EXISTING TRUNK DUCT AS SHOWN. IF EXISTING EXPOSED TRUNK DUCT IS NOT DOUBLE WALL SPIRAL CONTRACTOR IS TO REPLACE WITH NEW. DEMO EXISTING DUCT EXTENDING BEYOND SHOWN CONNECTION POINT.
- DEMO EXISTING DUCT WORK AND DRUM LOUVER AND INSTALL NEW AS SHOWN. PROVIDE NEW R/A DUCT DROP AS REQUIRED TO AVOID EXISTING DUCT DROP INTERFERENCE WITH NEW WALL.
- EXISTING CO2 SENSOR AND TEMPERATURE/HUMIDITY SENSOR FOR RTU-2(E) AT THIS LOCATION TO REMAIN.
- EXISTING UNIT CONTROLLER FOR RTU-7(E) TO BE RELOCATED TO THIS LOCATION.
- EXISTING CO2 SENSOR AND TEMPERATURE/HUMIDITY SENSOR FOR RTU-12(E) AT THIS LOCATION TO REMAIN.
- EXISTING CO2 SENSOR AND TEMPERATURE/HUMIDITY SENSOR FOR RTU-14(E) TO BE RELOCATED TO THIS LOCATION. PROVIDE NEW AVERAGING TEMPERATURE SENSOR IN AEROBICS ROOMS TO AVERAGE THE TEMPERATURE OF AEROBICS AND CYCLE.



**JFTE** James F. Turner  
Engineers, L.P.  
Consulting Engineers  
8540 Meadow Rd., Suite 160  
Houston, Texas 77057  
Tel: 281-462-7200  
Fax: 281-462-7201  
www.jfjte.com  
# 47876  
DRAWN/DESIGN: CAD/AWJ | QC/APP: NPP/AWJ



**Heights Venture**  
ARCHITECTURE + DESIGN  
HOUSTON: 1111 North Loop West, Suite 600  
Houston, Texas 77008  
713 889 1103 v  
DALLAS: 5741 Legacy Drive, Suite 300  
Plano, Texas 75024  
972 450 7202 v

**INTERIOR DECOR  
REMODEL**

9026 SIENNA CROSSING DR.  
MISSOURI CITY, TX. 77459  
Project Number: Phase  
21162-001 30x42  
Date/Time Project:  
JANUARY 27, 2022  
Drawn By:  
ET/JZ  
Checked By:  
ET/MK  
Project Name:  
PERMIT/BID REVIEW SET

**MECHANICAL  
FLOOR PLAN**

1 MECHANICAL FLOOR PLAN  
M2.0 SCALE: 1/8" = 1'-0"

RECEIVED  
MAY 20 2022  
Missouri City TX