

GENERAL CONDITIONS:

ALL WORK PERFORMED TO BE IN ACCORDANCE WITH THE STATE OF OHIO MECHANICAL CODE AND OTHER APPLICABLE REQUIREMENTS PER THE AUTHORITY HAVING JURISDICTION.

ALL EQUIPMENT TO BE INSTALLED PER MANUFACTURERS REQUIREMENTS AND RECOMMENDATIONS.

ALL MATERIALS AND EQUIPMENT PROVIDED TO BE WARRANTED FOR ONE YEAR FROM DATE OF OWNER ACCEPTANCE.

ALL MATERIALS INSTALLED TO BE NEW AND FREE OF DEFECTS.

ALL INSTALLATIONS TO BE COORDINATED WITH THE ARCHITECTURAL CONSTRAINTS AND OTHER TRADES INVOLVED LEAVING ACCESS FOR REPAIRS AND MAINTENANCE.

PROVIDE ACCESS PANELS FOR REPAIRABLE ITEMS INSTALLED IN INACCESSIBLE LOCATIONS.

PROVIDE SUBMITTALS FOR APPROVAL BY OWNER BEFORE PURCHASING ANY EQUIPMENT.

ALL EQUIPMENT AND SYSTEMS INDICATED ON SCHEDULE AND PLANS IS BASIS OF DESIGN. ANY DEVIATIONS OR SUBSTITUTIONS TO BE APPROVED BY ENGINEER AND OWNER.

INCLUDE COSTS FOR ALL PERMITS AND INSPECTIONS.

SHEET METAL SYSTEMS:

ALL SUPPLY, RETURN, EXHAUST, OUTSIDE AND COMBUSTION AIR DUCTWORK TO BE G-60 COATED GALVANIZED STEEL OF LOCKFORMING GRADE CONFORMING TO ASTM STANDARDS A653 AND A924. CONSTRUCTION TO BE PER SMACNA STANDARDS OF TABLE 1-1 FOR PRESSURE CLASSIFICATION AS LISTED ON DRAWINGS BY EITHER TOTAL FAN STATIC PRESSURE OR AS LISTED BY SYMBOLS AT SECTIONS OF DUCT (WHICH EVER IS GREATER). PROVIDE PAINT GRIP SURFACE ON ALL EXPOSED DUCT WITHIN FINISHED SPACES.

DUCTS SHALL BE SEALED PER REQUIREMENTS BY APPLICABLE STATIC PRESSURE CONSTRUCTION CLASS PER TABLE 1-2 OF SMACNA STANDARDS.

FLEXIBLE AIR DUCTWORK AND CONNECTORS SHALL BE LISTED AND LABELED TO THE REQUIREMENTS OF UL 181 FOR CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCTS LABELED AS SUCH AND SHALL BE LIMITED IN LENGTH TO 5 FEET. NO FLEXIBLE AIR DUCT SHALL PASS THROUGH WALLS, FLOORS OR CEILINGS.

PROVIDE SLEEVES FOR ALL PENETRATIONS THROUGH WALLS, FLOORS AND CEILINGS. INSTALL UL LISTED FIRESTOPPING SYSTEMS AT ALL RATED PENETRATIONS EQUAL TO THE "F" AND "T" RATING OF FLOOR WALL OR CEILING. REFER TO DETAIL DRAWINGS OF VARIOUS PENETRATIONS.

INSULATION SYSTEMS:

INSULATE ALL CONCEALED SUPPLY AND OUTSIDE AIR DUCTWORK WITH 1-1/2" FIBERGLASS FOIL FACE DUCT WRAP. SEAL ALL JOINTS LEAVING VAPOR TIGHT BARRIER.

INSULATE ALL EXPOSED SUPPLY AND OUTSIDE AIR DUCTWORK WITH 1-1/2" FIBERGLASS DUCT BOARD WITH ALL SERVICE JACKET FINISH. SEAL ALL JOINTS LEAVING VAPOR TIGHT BARRIER.

INSULATE ALL SUPPLY, RETURN, EXHAUST, COMBUSTION AIR, AND OUTSIDE AIR DUCTWORK LOCATED OUTSIDE OF CONDITIONED SPACE INSIDE THE BUILDING WITH 1-1/2" FIBERGLASS FOIL FACE DUCT WRAP. SEAL ALL JOINTS LEAVING VAPOR TIGHT BARRIER.

DO NOT INSTALL INSULATION AT FIRESTOPPING PENETRATIONS UNLESS INSULATION IS PART OF FIRESTOPPING SYSTEM.

ANY INSULATION EXPOSED WITHIN AN AIR PLENUM TO BE LABELED BY MANUFACTURER TO HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE SPREAD RATING OF NOT MORE THAN 50.

CONTROL SYSTEMS:

ALL TEMPERATURE CONTROLS TO BE PROVIDED BY HVAC CONTRACTOR, INCLUDING LINE VOLTAGE WIRING FOR DAMPERS AND OTHER ACCESSORIES AS REQUIRED. ALL LINE VOLTAGE AND EXPOSED LOW VOLTAGE WIRING TO BE INSTALLED IN CONDUIT. INSTALL PER THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE.

ALL AIR SYSTEMS UTILIZED FOR VENTILATION ARE TO HAVE THEIR FANS RUN CONTINUOUSLY DURING HOURS OF BUILDING OCCUPATION. NO THERMOSTATS OR CONTROLS WITH FAN CYCLING WILL BE PERMITTED.

MOTOR OPERATED DAMPER ON OUTSIDE AIR DUCTS SERVING FURNACES TO BE CLOSED DURING UNOCCUPIED HOURS CONTROLLED FROM PROGRAMMABLE THERMOSTAT.

SYSTEM BALANCE AND COMMISSIONING:

ALL HVAC SYSTEMS TO BE AIR BALANCED TO VALUES INDICATED ON DRAWINGS OR SCHEDULES TO WITHIN +/- 3%. AFTER COMPLETION OF BALANCING, ENTIRE HVAC SYSTEMS TO BE COMMISSIONED FOR PROPER OPERATION VERIFYING ALL SAFETY AND COMFORT CONTROLS. PROVIDE COMPLETE REPORT TO OWNER AND ENGINEER FOR REVIEW.

CONDUCT OWNER TRAINING FOR ALL EQUIPMENT. PROVIDE 3-COPIES OF OPERATION AND MAINTENANCE MANUALS, 2 COPIES FOR OWNER, 1-COPY FOR ENGINEER.

CODE COMPLIANCE CALCULATIONS:

OUTSIDE AIR REQUIREMENTS:

FURNACE (F-1) = 255 CFM OUTSIDE AIR.

WAITING - 576 SQ. FT. @ 60 PEOPLE/1000 SQ. FT. = 34 PEOPLE @ 15 CFM/PERSON = 510. ROOM WILL BE OCCUPIED FOR 3 HOURS AT A TIME. A REDUCTION OF 50% = 255 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-2) = 350 CFM OUTSIDE AIR.

LOUNGE - 442 SQ. FT. @ 50 PEOPLE/1000 SQ. FT. = 22 PEOPLE @ 20 CFM/PERSON = 440 CFM. ROOM WILL BE OCCUPIED FOR 3 HOURS AT A TIME. A REDUCTION OF 50% = 220 CFM SUPPLIED THROUGH FURNACE.

FILES - 869 SQ. FT. @ 0.15 CFM/SQ. FT. = 130 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-4) = 140 CFM OUTSIDE AIR.

OFFICES - 978 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 7 PEOPLE @ 20 CFM/PERSON = 140 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-6) = 40 CFM OUTSIDE AIR.

LAB - 135 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 2 PEOPLE @ 20 CFM/PERSON = 40 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-7) = 100 CFM OUTSIDE AIR.

OFFICES - 770 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 5 PEOPLE @ 20 CFM/PERSON = 100 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-8) = 140 CFM OUTSIDE AIR.

EXAM - 496 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 7 PEOPLE @ 20 CFM/PERSON = 140 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-9) = 200 CFM OUTSIDE AIR.

EXAM - 454 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 7 PEOPLE @ 20 CFM/PERSON = 140 CFM SUPPLIED THROUGH FURNACE.

WORK AREA - 343 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 3 PEOPLE @ 20 CFM/PERSON = 60 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-12) = 365 CFM OUTSIDE AIR.

WAITING - 778 SQ. FT. @ 60 PEOPLE/1000 SQ. FT. = 46 PEOPLE @ 15 CFM/PERSON = 690. ROOM WILL BE OCCUPIED FOR 3 HOURS AT A TIME. A REDUCTION OF 50% = 345 CFM SUPPLIED THROUGH FURNACE.

OFFICES - 131 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 1 PERSON @ 20 CFM/PERSON = 20 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-13) = 160 CFM OUTSIDE AIR.

EXAM - 576 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 8 PEOPLE @ 20 CFM/PERSON = 160 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-16) = 80 CFM OUTSIDE AIR.

WORK AREA - 593 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 4 PEOPLE @ 20 CFM/PERSON = 80 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-17) = 80 CFM OUTSIDE AIR.

OFFICES - 572 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 4 PEOPLE @ 20 CFM/PERSON = 80 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-18) = 140 CFM OUTSIDE AIR.

EXAM - 360 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 5 PEOPLE @ 20 CFM/PERSON = 100 CFM SUPPLIED THROUGH FURNACE.

OFFICES - 156 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 2 PEOPLE @ 20 CFM/PERSON = 40 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-20) = 563 CFM OUTSIDE AIR.

WAITING - 1259 SQ. FT. @ 60 PEOPLE/1000 SQ. FT. = 75 PEOPLE @ 15 CFM/PERSON = 1125. ROOM WILL BE OCCUPIED FOR 3 HOURS AT A TIME. A REDUCTION OF 50% = 563 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-21) = 220 CFM OUTSIDE AIR.

EXAM - 629 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 9 PEOPLE @ 20 CFM/PERSON = 180 CFM SUPPLIED THROUGH FURNACE.

WORK AREA - 221 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 2 PEOPLE @ 20 CFM/PERSON = 40 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-24) = 240 CFM OUTSIDE AIR.

TREATMENT - 799 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 12 PEOPLE @ 20 CFM/PERSON = 240 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-25) = 120 CFM OUTSIDE AIR.

TREATMENT - 411 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 6 PEOPLE @ 20 CFM/PERSON = 120 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-26) = 125 CFM OUTSIDE AIR.

WORK AREA - 576 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 4 PEOPLE @ 20 CFM/PERSON = 80 CFM SUPPLIED THROUGH FURNACE.

STORAGE - 281 SQ. FT. @ 0.15 CFM/SQ. FT. = 45 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-27) = 80 CFM OUTSIDE AIR.

WORK AREA - 486 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 4 PEOPLE @ 20 CFM/PERSON = 80 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-28) = 100 CFM OUTSIDE AIR.

EXAM - 351 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 5 PEOPLE @ 20 CFM/PERSON = 100 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-29) = 300 CFM OUTSIDE AIR.

TREATMENT - 1047 SQ. FT. @ 15 PEOPLE/1000 SQ. FT. = 15 PEOPLE @ 20 CFM/PERSON = 300 CFM SUPPLIED THROUGH FURNACE.

FURNACE (F-30) = 80 CFM OUTSIDE AIR.

WORK AREA - 235 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 2 PEOPLE @ 20 CFM/PERSON = 40 CFM SUPPLIED THROUGH FURNACE.

OFFICES - 275 SQ. FT. @ 7 PEOPLE/1000 SQ. FT. = 2 PEOPLE @ 20 CFM/PERSON = 40 CFM SUPPLIED THROUGH FURNACE.

HVAC EQUIPMENT:

AC-1 DUCTLESS SPLIT AIR CONDITIONING SYSTEM. MITSUBISHI; INDOOR UNIT - MODEL MS12WA, OUTDOOR UNIT - MU12WA, 12.0 MBH COOLING CAPACITY, 13 SEER, 115 VOLT/1-PH, 1.2 MCA, 15 AMP MOCOP INDOOR UNIT, 16 MCA, 20 AMP MOCOP OUTDOOR UNIT, CONTROL AND POWER WIRING FROM CONDENSING UNIT. PROVIDE WITH LOW AMBIANT CONTROLS, CONDENSING UNIT STAND, AND REMOTE CONTROLLER.

EE-1 EXISTING RELOCATED EXHAUST FAN REBALANCED TO 75 CFM.

EE-2 RELOCATED LAB EXHAUST HOOD. COORDINATE EXACT LOCATION AND REQUIREMENTS FOR INSTALLATION WITH OWNER.

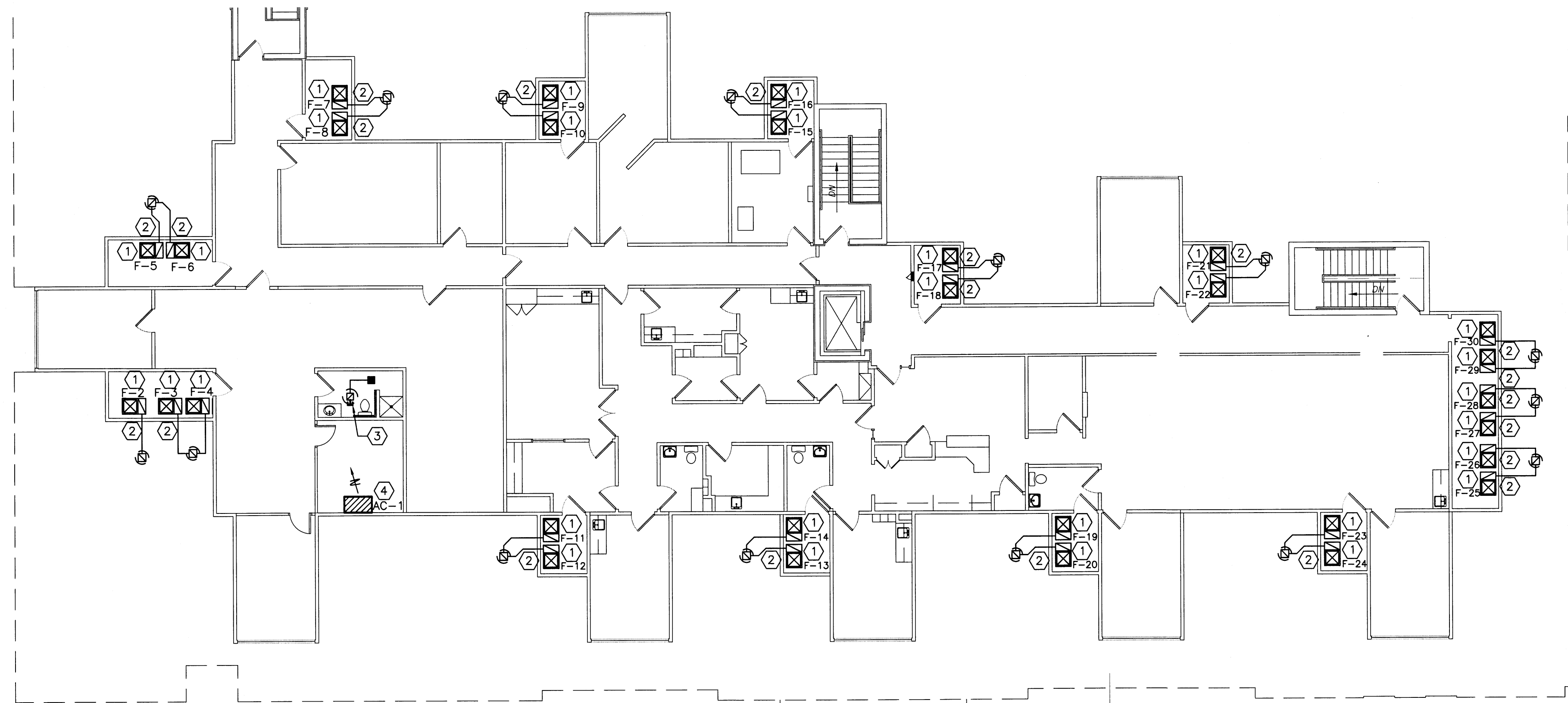
EE-E EXISTING EXHAUST FAN.

SD-1 SUPPLY DIFFUSER EQUAL TO "TITUS" TMS. 24" x 24" DIFFUSER. STEEL CONSTRUCTION, LAY-IN TYPE WITH ROUND NECK. REFER TO DRAWING FOR NECK SIZE.

SD-2 SUPPLY DIFFUSER EQUAL TO "TITUS" TMS. 24" x 24" FACE, 12" x 12" DIFFUSER. STEEL CONSTRUCTION, LAY-IN TYPE WITH ROUND NECK. REFER TO DRAWING FOR NECK SIZE.

SR-1 SUPPLY REGISTER EQUAL TO "TITUS" 300RS. STEEL, SURFACE MOUNT, DOUBLE DEFLECTION, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO SHORT DIMENSION, FULLY ADJUSTABLE BLADES. PROVIDE WITH OPPOSED BLADE DAMPER. REFER TO DRAWINGS FOR SIZES.

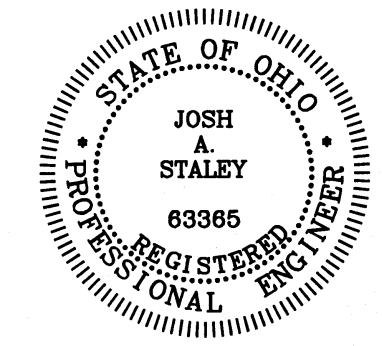
RG-1 RETURN GRILLE EQUAL TO "TITUS" MODEL 355RL. STEEL CONSTRUCTION, SURFACE MOUNT, 1/2" BLADE SPACING PARALLEL TO LONG DIMENSION, 3" FIXED DEFLECTION. PROVIDE WITH OPPOSED BLADE DAMPER. REFER TO DRAWINGS FOR SIZES.



SECOND FLOOR HVAC PLAN

SCALE: 3/32" = 1' - 0"

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GENERAL NOTES

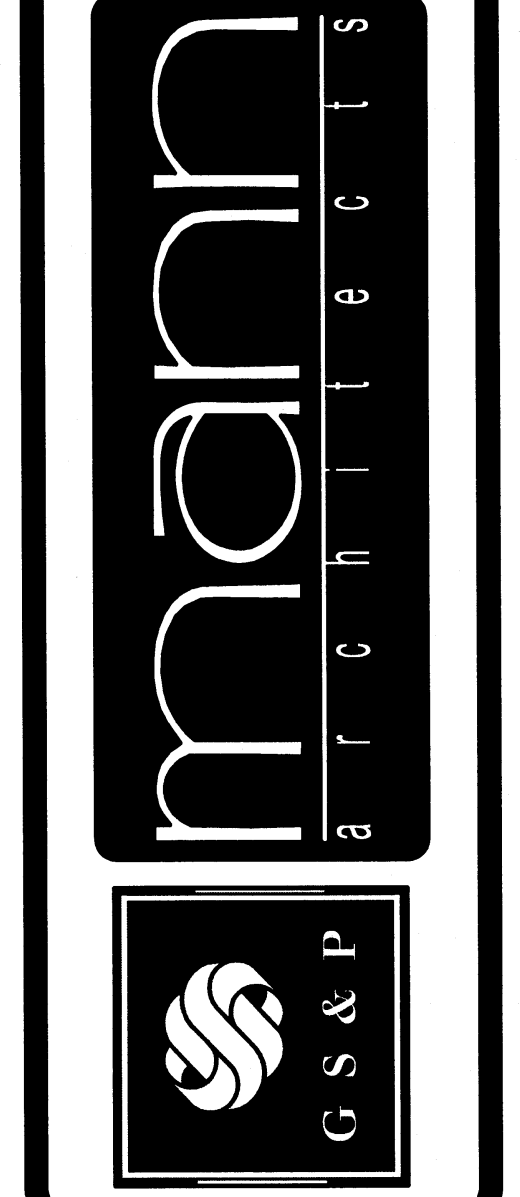
- SEE ARCHITECTURAL DETAILS FOR EXACT LOCATIONS AND DIMENSIONS OF EQUIPMENT, FIXTURES, OPENINGS AND OUTLETS. COMMUNICATE WITH ARCHITECT ANY DISCREPANCIES.
- THIS CONTRACTOR TO PROVIDE ALL OPENINGS IN EXISTING STRUCTURE AS REQUIRED FOR NEW WORK INCLUDING FLASHINGS AND REPAIRS FOR ROOF OPENINGS AND CAULKING AND SEALING FOR WALL OPENINGS LEAVING A WEATHER-PROOF CONDITION.
- THIS CONTRACTOR TO PATCH ANY UNUSED OPENINGS LEFT FROM DEMOLITION WORK LEAVING A LIKE NEW CONDITION. SEAL ANY ROOF OR WALL OPENINGS WEATHER-PROOF.
- COORDINATE ALL INSTALLATIONS OF MATERIAL AND EQUIPMENT WHICH IS EXPOSED TO VIEW INSIDE AND OUTSIDE OF STRUCTURE WITH OWNER AND ARCHITECT BEFORE PURCHASE. ALL MUST BE REVIEWED AND APPROVED BEFOREHAND.
- THIS CONTRACTOR IS TO COORDINATE ELECTRICAL CHARACTERISTICS OF EQUIPMENT WITH ELECTRICAL CONTRACTOR BEFORE ORDERING ANY EQUIPMENT.

CODED NOTES

- VACUUM CLEAN INSIDE OF EXISTING FURNACE AND REPLACE FILTERS AFTER CONSTRUCTION IS COMPLETE.
- BALANCE OUTSIDE AIR DAMPERS TO EXISTING FURNACES TO VALUES INDICATED ON OUTSIDE AIR SCHEDULE.
- CAP EXISTING DUCT BRANCH AT MAIN OR END OF DUCT MAIN WITH SHEET METAL PATCH OR CAP AND SEAL AIR TIGHT.
- SECURE AIR CONDITIONING UNIT TO CEILING. EXTEND REFRIGERATION PIPE TO CONDENSING UNIT. EXTEND CONDENSATE DRAIN AND EMERGENCY DRAIN LINES TO NEAREST FLOOR DRAIN.

revisions

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drawing
HVAC SCHEDULES/DETAILS
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date OCTOBER 23, 2007
scale AS NOTED
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