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**MECHANICAL HVAC PLAN**

**M1.0**

**GENERAL NOTES:**

- A. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER INSTALLATION OF ALL HVAC SYSTEMS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS AND FITTINGS WHICH MAY BE REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER CONDITIONS. NOTIFY ENGINEER IMMEDIATELY SHOULD ANY CONFLICTS ARISE BETWEEN THE INFORMATION PRESENTED AND THE FIELD CONDITIONS.
- B. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF LOCAL CODES AND ORDINANCES.
- C. THE CONTRACTOR SHALL COORDINATE FLOOR, WALL AND ROOF PENETRATIONS WITH THE GENERAL CONTRACTOR AND THE OWNER.
- D. DUCTWORK SHALL NOT BE LOCATED OVER THE TOP OF ANY ELECTRICAL PANELS OR EQUIPMENT.
- E. CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH THE REQUIREMENTS OF ALL NOTES SHOWN ON CONTRACT DOCUMENTS PRIOR TO BID OF PROJECT. REFER TO DRAWINGS, SPECIFICATIONS AND DRAWINGS OF OTHER DISCIPLINES FOR ANY ADDITIONAL REQUIREMENTS.
- F. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING PROCESS AND FIELD VERIFY EXISTING CONDITIONS. CONTRACTOR SHALL TAKE ALL INTERFERENCES INTO CONSIDERATION.
- G. SPACE ABOVE CEILING IS INDICATED AS A RETURN AIR PLENUM. CONSTRUCTION MATERIALS ABOVE CEILING SHALL BE NONCOMBUSTIBLE MATERIAL, OR HAVE A MAXIMUM TEST (FLAME SPREAD/SMOKE DEVELOPMENT) FINISH RATING. LABEL ALL WIRING PLENUM RATED PER NFPA 70.
- H. MAINTAIN ALL MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES FOR ALL EQUIPMENT.
- I. CONTRACTOR SHALL COORDINATE AND PROVIDE ACCESS DOORS TO HARD CEILINGS FOR ALL EQUIPMENT WHICH REQUIRES ACCESS SUCH AS FANS AND SMOKE DAMPERS, SMOKE DETECTORS, BALANCE DAMPERS, ETC.
- J. COORDINATE THE LOCATION OF CEILING CHUTES, REGISTERS AND DIFFUSERS WITH THE ARCHITECT'S REFLECTED CEILING PLAN.
- K. ALL BRANCH DUCTWORK SERVING FILTERS/GRILLES SHALL BE SIZED TO MATCH NECK SIZE INDICATED UNLESS NOTED OTHERWISE.
- L. SUBMIT FINAL TEST AND AIR BALANCE REPORT TO LANDLORD FOR APPROVAL.
- M. GC TO CONFIRM AGE OF UNITS BEFORE REPLACING.

**LANDLORD COMMENTS:**

ROOF EQUIPMENT, INCLUDING BUT NOT LIMITED TO HVAC EQUIPMENT, KITCHEN EQUIPMENT, DUCTS, AND PIPING SHALL BE SHOWN ON A ROOF PLAN TO BE INCLUDED IN ENANT'S DRAWINGS SUBMISSION, SHALL NOT BE VISIBLE FROM THE OUTER ROAD OR FROM MALL SKYLIGHTS, LOCATED WITHIN THE ROOF AREA OF THE PREMISES AND MINIMUM OF 9'0" FROM THE VERTICAL PLANE OF ANY DEMISING PARTITION LOCATED, AND SHALL BE COORDINATE WITH THE MALL OPERATIONS TEAM PRIOR TO THE START OF ANY WORK. EQUIPMENT SCREENS OR SCREEN WALLS MAYBE REQUIRED AND SHALL BE APPROVED IN WRITING BY LANDLORD UNDER SEPARATE COVER.

- TENANT SHALL PROVIDE A STRUCTURAL ENGINEER EVALUATION OF THE EXISTING CONSTRUCTION / STRUCTURE AND DETERMINES THAT IT IS SUFFICIENT FOR THE ADDITIONAL LOADS OF ALL NEW ROOF TOP EQUIPMENT IN ACCORDANCE WITH THE BUILDING CODE THAT HAS BEEN ADOPTED BY THE AUTHORITIES HAVING JURISDICTION (AHJ) AT TENANT'S SOLE EXPENSE. STRUCTURAL DETAILS ARE TO INCLUDE REFERENCE OF APPLICABLE BUILDING CODE(S), EXISTING BUILDING LOADS, AND ADDITIONAL LOADS THAT WILL BE ADDED TO THE STRUCTURE AND ANY REINFORCING THAT IS REQUIRED. STRUCTURAL DETAILS ARE TO BE SIGNED, SEALED, AND SUBMIT TO THE LANDLORD FOR THEIR RECORDS BY A LICENSED STRUCTURAL ENGINEER WITH LEGALLY ACTIVE REGISTRATION IN THE STATE IN WHICH THE PROJECT IS LOCATED. LANDLORD RESERVE THE RIGHT TO HAVE A 3RD PARTY ENGINEER REVIEW TENANT'S DESIGN AND MAY REQUIRE TENANT TO PROVIDE DOCUMENTATION BY A 3RD PARTY INSPECTOR TO VERIFY THAT STRUCTURAL INSTALLATION HAS BEEN INSTALLED CORRECTLY.
- ROOF EQUIPMENT REQUIRING DECK PENETRATION SHALL BE SET ON A FACTORY SUPPLIED, 12" MINIMUM CURB. REUSE OF EXISTING CURBS OR THE USE OF CURB ADAPTERS IS STRICTLY PROHIBITED. TENANT SHALL RESLOPE ROOF TO MAIN PROPER DRAINAGE AND PROVIDE ROOFING, FLASHING, AND WATERPROOFING FOR INSTALLATION OF NEW CURB PER LANDLORD'S CRITERIA. TENANT'S SOLE EXPENSE.
- ALL CONDENSATION, ELECTRICAL, AND DUCTWORK SHALL BE SET INSIDE THE PERIMETER OF THE CURB. CONDENSATE SHALL DRAIN INTO AN INTERIOR FLOOR DRAIN OR MOP SINK WITHIN THE PREMISES. DAYLIGHTING CONDENSATE LINES DIRECTLY ONTO THE ROOF, DOWNSPOUT OR ROOF DRAIN IS STRICTLY PROHIBITED.
- TENANT SHALL PROVIDE "ROOF TRAFFIC / WALKWAY PADS" AROUND ALL ROOF TOP EQUIPMENT AND SHALL INDICATE LOCATION OF PADS ON A ROOF PLAN TO BE INCLUDED IN TENANT'S DRAWINGS SUBMISSION. COORDINATE FINAL LOCATION, MATERIAL, AND INSTALLATION OF PADS WITH THE MALL OPERATIONS TEAM PRIOR TO THE START OF ANY WORK.
- TENANT SHALL LABEL ALL ROOF TOP EQUIPMENT INDICATING: TENANT NAME, SPACE NUMBER, AND EQUIPMENT IDENTIFICATION (RTU1, EF1) PER LANDLORD'S DESIGN CRITERIA.
- EQUIPMENT THAT UTILIZES CONDENSER COILS SHALL BE EQUIPPED WITH HALL GUARDS.

**LANDLORD COMMENTS:**

- ANY CHANGES AND/OR UPGRADES TO TENANT'S EXISTING MECHANICAL SYSTEMS SHALL COMPLY WITH ALL CODES AND MALL CRITERIA. EXISTING SYSTEMS SHALL POSSESS THE CAPACITY TO HANDLE ANY AND ALL CHANGES IN LOAD.
- NO PITCH POCKETS ARE PERMITTED ON THE ROOF FOR ANY CONDENSATE DRAINS, REFRIGERANT PIPING, POWER OR CONTROL WIRING. ALL CONNECTIONS ARE TO BE MADE INSIDE THE EQUIPMENT CURB OR THROUGH PREMANUFACTURED PIPING CURB.
- NOTHING IS PERMITTED TO BE ATTACHED TO, SUSPENDED FROM, OR PENETRATE LANDLORD'S STRUCTURE, FLOOR DECK, OR ROOF DECK. YOU MAY ATTACH NONSTRUCTURELTY TO OR SUSPEND FROM THE TOP CHORD OF THE JOIST OR THE STRUCTURAL STEEL WHICH EXISTS ABOVE THE TENANT SPACE. WHEN ATTACHING TO LANDLORD'S STRUCTURE, DO NOT DRILL, WELD, SCREW, OR SHOOT INTO STRUCTURE. ALTERNATIVE METHODS OF ATTACHMENT ONLY, NOTHING TO DAMAGE LANDLORD'S BASE BUILDING STRUCTURE. TENANT SHALL PROVIDE SIGNED AND SEALED STRUCTURAL DRAWINGS, BY A STRUCTURAL ENGINEER WITH LEGALLY ACTIVE REGISTRATION AS INDICATED BY ALL JURISDICTIONAL REQUIREMENTS, FOR ALL STRUCTURAL MODIFICATIONS FOR LANDLORD RECORDS.
- ALL PENETRATIONS TO ROOF MUST BE APPROVED BY LANDLORD. ALL RELATED ROOF WORK MUST BE DONE BY MALL'S DESIGNATED ROOFING CONTRACTOR, AT TENANT'S EXPENSE. COORDINATE ALL WORK WITH PROPERTY MANAGEMENT ON SITE.
- TENANT MUST REMOVE ALL ABANDONED ROOFTOP AND/OR MECHANICAL EQUIPMENT ABOVE THE LEASED PREMISES AND WITHIN THE LEASED PREMISES, AT TENANT EXPENSE. PATCH AND REPAIR ROOF AS NEEDED.
- TENANT'S GC TO LABEL ALL ROOF TOP EQUIPMENT WITH TENANT NAME SPACE NUMBER AND EQUIPMENT IDENTIFICATION (RTU1, EF1), PER MALL SPECIFICATIONS / STANDARDS.
- ALL PIPING ON ROOF SHALL BE SUPPORTED ON PREMANUFACTURED PIPE SUPPORTS INSTALLED ON CARRY TREAD, SPACED PROPERLY TO SUPPORT PIPING. TREATED WOOD SUPPORTS ARE NOT PERMITTED.
- ALL UNEXPOSED SUPPLY AIR AND OUTSIDE AIR DUCTWORK SHALL BE EXTERNALLY INSULATED WITH 1 1/2" THICK FOIL FACE INSULATION. INTERNALLY LINED DUCTWORK MAY BE USED FOR ACOUSTIC PURPOSES ONLY, NOT AS A SUBSTITUTE FOR EXTERNAL INSULATION.
- ALL DUCTWORK SHALL BE SHEET METAL. FLEX DUCT MAY ONLY BE USED IN RUNS OF 5'0" OR LESS.
- AT CONCLUSION OF PROJECT, HVAC SYSTEM MUST BE TESTED AND BALANCED BY A LICENSED CONTRACTOR. COPY OF BALANCE REPORT MUST BE PROVIDED TO PROPERTY MANAGEMENT OFFICE ON SITE.

**CODED NOTES:**

1. NEW SMOKE DETECTOR LOCATED IN SUPPLY AIR DUCT TO SHUT DOWN UNIT UNDER ALARM. DETECTORS SHALL BE FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR, INSTALLED BY MECHANICAL. ALL WIRING SHALL BE IN CONDUIT PER N.E.C. ENSURE DUCT DETECTORS ARE INSTALLED ON UNITS AND TIED TO WALL PANEL AS NEEDED.
2. MOUNT THERMOSTAT AT 48" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH TENANT PRIOR TO ROUGH-IN. LOCK OUT THERMOSTAT TO 70°F.
3. DASHED LINE INDICATES 1" ACOUSTIC LINING INSTALLED PER SPECS. DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS.
4. SUPPLY AND RETURN AIR DUCT CONNECTIONS TO RTU SHALL BE MADE FULL SIZE OF EQUIPMENT OPENINGS WITH FLEXIBLE DUCT CONNECTIONS AT UNITS.
5. MOUNT RETURN GRILLE AS HIGH AS POSSIBLE ABOVE CEILING.
6. GC TO CONFIRM THE AGE OF UNIT PRIOR TO REPLACING.
7. UPRIGHT SPRINKLER HEAD IN OPEN CEILING.
8. SEMI-RECESSED SPRINKLER HEAD IN MANAGERS OFFICE AND CORRIDOR.
9. FULLY CONCEALED SPRINKLER HEAD MOUNTED IN SALES, TOILET ROOM AND STUDIO. PROVIDE WHITE COVER, UNLESS NOTED OTHERWISE ON PLAN.
10. MODIFY EXISTING SPRINKLER SYSTEM AS REQUIRED FOR NEW SPRINKLER LOCATIONS PER NFPA AND ALL LOCAL CODES. REFER TO SPECIFICATIONS.
11. PROVIDE NEW EXHAUST FAN AS SCHEDULED. EXTEND 6" DUCT FROM THE EXHAUST FAN AND CONNECT TO EXISTING TOILET EXHAUST DUCT IN SPACE. FIELD VERIFY EXACT SIZE AND LOCATION PRIOR TO ROUGH-IN.
12. MOUNT NEW CONDENSING UNIT ON ROOF PER MANUFACTURER'S RECOMMENDATION. VERIFY EXACT LOCATION WITH LANDLORD'S REPRESENTATIVE PRIOR TO ROUGH-IN.
13. ROUTE NEW OUTSIDE AIR DUCT THRU ROOF AS REQUIRED. PROVIDE 24x20" ON ROOF. COORDINATE ROUTING WITH LANDLORD'S REPRESENTATIVE.
14. ROUTE CONDENSATE TO TAIL PIECE OF LAV AS REQUIRED.
15. ROUTE NEW REFRIGERANT PIPING FROM AC-1 TO CU-1 AS REQUIRED. SIZE PER MANUFACTURER RECOMMENDATIONS. COORDINATE EXACT ROUTING WITH LANDLORD'S REPRESENTATIVE PRIOR TO ROUGH IN.
16. INSTALL NEW 12.5 TON ROOFTOP UNIT ON ROOF. LOCATION OF EXISTING ROOFTOP UNIT AS REQUIRED. CONTRACTOR SHALL CONFIRM EXACT LOCATION OF UNIT ON ROOF WITH LANDLORD.
17. INSTALL 1 1/2" HIGH VENT GRILLES ACROSS REAR OF LED DISPLAY RECESS AS REQUIRED FOR VENTILATION PER LEASING VENDOR REQUIREMENTS.
18. REFER TO CEILING TRANSFER AIR DETAIL DRAWING M1.0 FOR DUCTWORK BOOT AND ORIENTATION OF GRILLE.

**ROOFTOP AIR CONDITIONING UNIT SCHEDULE (ELECTRIC)**

MARK	RTU-1
NOMINAL TONS	12.5
MANUFACTURER	CARRIER
MODEL No.	50HCAE14
SUPPLY AIR CFM	4500
MIN. OUTDOOR AIR CFM	800
ESP (W/C)	1.0
TSP (W/C)	1.07
BHP	2.09
HP	3
HEATING CAPACITY (KW)	12.5
HEATING EXHAUST (°F)	70/79.1
No. OF STAGES	1
TOTAL COOLING CAPACITY (MBH)	150.83
SENSIBLE COOLING CAPACITY (MBH)	105.48
REFRIGERANT TYPE	R410
EEER	12.4
LAT DRWS (°F)	80/87
EAT DRWS (°F)	57.3/66.2
FILTER EFF (%)	30
MCA	59
MOCP	70
ELECTRICAL (VOLTPH)	208/3
OPERATING WEIGHT (LBS)	1850
REMARKS	1-7

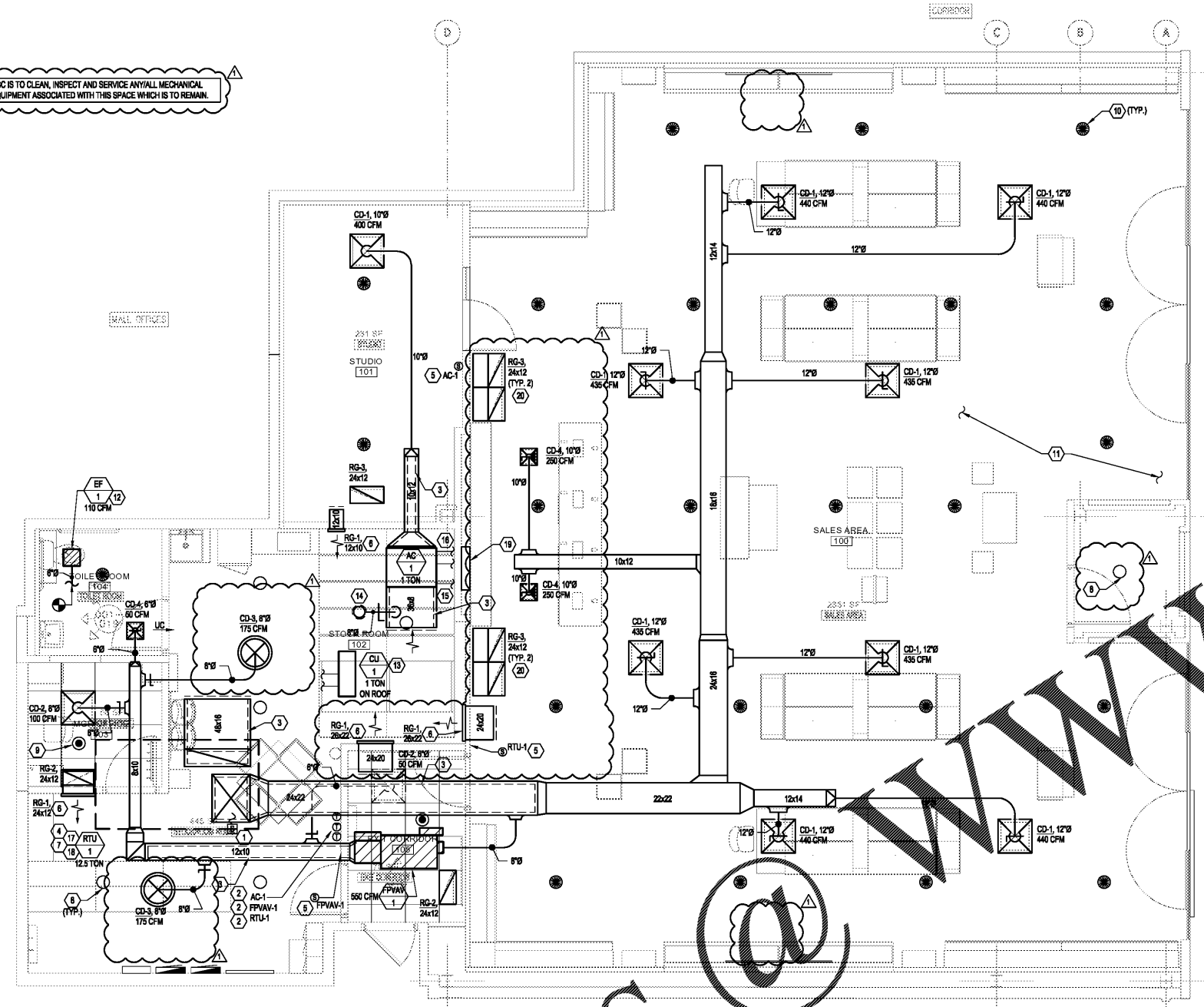
- REMARKS:**
1. PROVIDE WITH SINGLE POINT POWER CONNECTION, CONVENIENCE.
  2. PROVIDE WITH ECONOMIZER WITH POWER EXHAUST.
  3. PROVIDE WITH CONDENSER HALL GUARD.
  4. PROVIDE WITH MINIMUM 1/4" HIGH INSULATED ROOF CURB.
  5. PROVIDE WITH NON-FUSED DISCONNECT.
  6. PROVIDE WITH HOT GAS REHEAT.
  7. PROVIDE WITH CURB ADAPTER AS REQUIRED.

**GRILLE AND DIFFUSER SCHEDULE**

MARK	CD-1	CD-2	CD-3	CD-4	RG-1	RG-2	RG-3
MANUFACTURER	TITLUS	TITLUS	TITLUS	TITLUS	TITLUS	TITLUS	TITLUS
MODEL No.	OMNI	OMNI	TMRA	OMNI	350RL	350RL	350RL
MOUNTING	SURFACE	LAY-IN	DUCT MOUNT	SURFACE	SURFACE	LAY-IN	SURFACE
MODULE SIZE	24x24	24x24	-	12x12	SEE PLAN	24x12	24x12
FINISH	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
REMARKS / ACCESSORIES	1,3	1	1	1,3	1,2	1,2	1,2

- REMARKS / ACCESSORIES:**
1. SEE PLANS FOR NECK SIZE
  2. OPPOSED BLADE DAMPER ACCESSIBLE FROM FACE OF REGISTER
  3. RAPID MOUNT FRAME

TGC IS TO CLEAN, INSPECT AND SERVICE ANY/ALL MECHANICAL EQUIPMENT ASSOCIATED WITH THIS SPACE WHICH IS TO REMAIN.



**DUCTLESS SPLIT SYSTEM A/C UNIT SCHEDULE (HEAT PUMP)**

MARK	AC-1
UNIT	INDOOR UNIT
NOMINAL TONS	1.0
MANUFACTURER	MITSUBISHI
MODEL No.	PEAD-A12AA7
FAN CFM HIGH/LOW	353/484
ESP	0.80
OUTDOOR AIR CFM	150
TOTAL COOLING CAPACITY (MBH)	12
SENSIBLE COOLING CAPACITY (MBH)	8.98
REFRIGERANT	R410A
TOTAL HEAT PUMP HEATING CAPACITY (KW) @ 47 DEG F	22
ODP	3.98 @ 47 DEG F
SEER	19.9
ELECTRICAL (VOLTPH)	208/1
MOCP	11/28
WEIGHT (LBS)	58
REMARKS	1

- REMARKS:**
1. INDOOR UNIT RECEIVES POWER FROM OUTDOOR UNIT THROUGH FIELD-SUPPLIED INTERCONNECTED WIRING.
  2. PROVIDE WITH PATE CURB AND WIND BAFFLE AS REQUIRED.

**MECHANICAL HVAC PLAN**

**FAN POWERED VAV BOX WITH ELECTRIC REHEAT SCHEDULE**

MARK	FPVAV-1
MANUFACTURER	TRANE
MODEL No.	VSEF0800R
CFM RANGE	105/600
MIN. CFM SETTING	105
INLET DUCT SIZE (IN)	8
FAN CFM	550
ESP	0.20
HP	0.333
HEATING CAPACITY (KW)	3.0
No. OF STEPS	1
ELECTRICAL (VOLTPH)	208/3
REMARKS	1

- REMARKS:**
1. ACCEPTABLE MANUFACTURERS; ANEMOSTAT, CARRIER, KRUEGER, PRICE, TRANE, TITLUS.

**EXHAUST FAN SCHEDULE**

UNIT TAG	EF-1
AREA SERVED	TOILET ROOM
MANUFACTURER	GREENHECK
MODEL NUMBER	SPA-125
DRIVE (BELT, DIRECT)	DIRECT
CFM	110
ESP	0.25
POWER	53 WATTS
VOLTAGE/PHASE	115/1/60
DISCONNECT	DIV. 16
WEIGHT (LBS)	15
REMARKS	1,2

- REMARKS:**
1. PROVIDE WITH BACKDRAFT DAMPER
  2. INTERLOCK WITH TOILET ROOM LIGHTS