

## GENERAL NOTES

1. WORK PROVIDED UNDER THIS DIVISION SHALL BE IN CONFORMANCE WITH THE APPLICABLE PORTION OF THE 2007 CBC, CMC, CFC, NEC, 2008 TITLE-24 ENERGY STANDARDS, AND THE CITY OF LIVERMORE AND THE COUNTY REQUIREMENTS.
2. PROVIDE U.L. 555 LISTED FIRE DAMPERS AT ALL DUCT PENETRATION THROUGH THE FIRE RATED ASSEMBLIES. PROVIDE U.L.-555S LISTED COMBINATION FIRE-SMOKE DAMPERS AT ALL THE OCCUPANCY SEPARATION WALLS AND DUCTS PENETRATING RATED CORRIDOR WALLS & SHAFT ASSEMBLIES IN ACCORDANCE WITH 2007 CBC SECTION 713.10/11. PROVIDE PROPER SLEEVE LENGTHS TO MATCH THE WALL DEPTH. MOUNT ACTUATORS, END SWITCHES, HEAT DETECTOR, SMOKE DETECTORS, ETC. ON ACCESSIBLE SIDE OF FSD.
3. FIRE AND FIRE-SMOKE DAMPERS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. THE MANUFACTURER'S SPECIFICATIONS SHALL BE MADE AVAILABLE TO THE INSPECTING AUTHORITY.
4. ALL PENETRATIONS AT WALLS, CEILINGS, FLOORS, ETC. BY THE DUCTWORK, PIPING, CONDUITS, ETC. SHALL BE SEALED WITH APPROVED U.L. LISTED FIRE STOPPING ASSEMBLIES TO MAINTAIN THE INTEGRITY OF THE FIRE RATING OF THOSE ASSEMBLIES. REFER TO ARCHITECTURAL FLOOR PLANS FOR WALL TYPES & LOCATIONS.
5. ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, CONDUITS, TANKS, PACKAGED EQUIPMENT, ETC. SHALL BE SEISMICALLY ANCHORED AND BRACED IN ACCORDANCE WITH CBC, SMACNA REQUIREMENTS.
6. DIVISION-15 CONTRACTOR SHALL COORDINATE THE POWER REQUIREMENT WITH THE DIVISION-16 WORK, INCLUDING THE VOLTAGE, PHASE, AMP REQUIREMENT, OVERLOAD PROTECTION REQUIREMENT, LOCATION OF STARTERS, DISCONNECTS, INTERLOCK WIRING, POWER WIRING TO FSD'S, WIRING TO SMOKE DETECTORS, ACTUATORS, ETC.
7. INSTALL FANS, FIRE DAMPERS & FIRE/SMOKE DAMPERS AND OTHER MECHANICAL COMPONENTS REQUIRING PERIODIC SERVICE & MAINTENANCE ACCESS TO BE COMPLETELY ACCESSIBLE FROM THE CEILING ACCESS PANELS. PROVIDE CODE MANDATED CLEARANCES AT ALL EQUIPMENT & ELECTRICAL PANELS.
8. DIVISION-15 CONTRACTOR SHALL COORDINATE THE LOCATION, SIZE & ELEVATION OF THE CONCRETE HOUSEKEEPING PADS WITH THE CONCRETE WORK BASED ON THE ACTUAL MECHANICAL EQUIPMENT PROPOSED FOR THE PROJECT. CONTRACTOR SHALL ALSO COORDINATE THE LOCATION, SIZE OF THE CONCRETE WALL AND SLAB PENETRATIONS WITH THE RESPECTIVE TRADE CONTRACTORS.
9. THIS DIVISION CONTRACTOR SHALL PROVIDE COMPLETE COOPERATION IN COMMISSIONING OF ALL THE MECHANICAL, ELECTRICAL, PLUMBING AND CONTROL SYSTEMS BY PROVIDING FULLY QUALIFIED PERSONNEL, EQUIPMENT, TESTING TOOLS, MANPOWER AS NECESSARY TO COMPLETE THE COMMISSIONING, TESTING & DOCUMENTATION TASKS AS NECESSARY LEED V2.2 FUNDAMENTAL COMMISSIONING REQUIREMENT.
10. ALL MATERIALS OF CONSTRUCTION INCLUDING SELANTS; WALL, ROOF, & CEILING ELEMENTS; INSULATION; WIRING & CABLES; DEVICES AND EQUIPMENTS; TUBING, ETC. THAT COMES IN CONTACT WITH SUPPLY AIR, OUTSIDE AIR AND RETURN AIR SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND SMOKE DEVELOPED RATING OF NOT MORE THAN 50.
11. FOR DUCTWORK, PIPING & CONDUIT PENETRATIONS THROUGH SOUND-RATED WALLS REFER TO DETAILS AND LOCATION OF SOUND-RATED WALLS REFER TO ARCHITECTURAL PLANS.
12. AIR-MOVING SYSTEMS SUPPLYING AIR IN EXCESS OF 2,000 CFM TO ENCLOSED SPACES WITHIN THE BUILDING SHALL BE EQUIPPED WITH AN AUTOMATIC SHUTOFF IN COMPLIANCE WITH UMC SECTION 609. THE AUTOMATIC SHUTOFF SHALL BE ACCOMPLISHED BY INTERRUPTING THE POWER SOURCE OF THE AIR-MOVING EQUIPMENT WHEN SMOKE IS DETECTED IN THE MAIN SUPPLY DUCT CONNECTED TO THE EQUIPMENT.
13. DIVISION-15 CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE T-24 MANDATORY POST-INSTALLATION TESTING AND COMPLIANCE VERIFICATION AND DOCUMENTING, THE ECONOMIZER OPERATION, OUTSIDE AIR MEASUREMENT FOR EACH EACH, DUCT LEAKAGE TESTING AND DOCUMENTATION AND CONTROL SYSTEM OPERATION PER THE 2008 T-24 REQUIREMENTS.
14. LEED COMPLIANCE REQUIREMENTS: COMPLY WITH THE MANDATORY REQUIREMENTS AND OPTIONAL LEED COMPLIANCE REQUIREMENTS AS OUTLINED BELOW FOR MECHANICAL AND PLUMBING SYSTEMS. REFER TO OTHER LEED COMPLIANCE REQUIREMENTS SPECIFIED IN THE LEED CHECKLIST TITLED "LEED FOR NEW CONSTRUCTION v2.2 WORKSHEET FOR HINDU COMMUNITY AND CULTURAL CENTER PHASE-1B BUILDING-C ADMINISTRATION BUILDING, ADDRESS:1232 ARROWHEAD AVENUE".

CREDIT#	POINTS	DESCRIPTION
- WeC3.1	1	WATER USE REDUCTION, 20% REDUCTION
- EAcP1	MANDATORY	FUNDAMENTAL COMMISSIONING OF THE BUILDING ENERGY SYSTEMS
- EAp2	MANDATORY	MINIMUM ENERGY PERFORMANCE (TITLE-24 COMPLIANCE)
- EAp3	MANDATORY	FUNDAMENTAL REFRIGERANT MANAGEMENT (NO CFC & HCFC)
- EAc1	2	OPTIMIZE ENERGY PERFORMANCE (14% BETTER THAN 2008 TITLE-24)
- EQp1	MANDATORY	MINIMUM IAQ PERFORMANCE. COMPLY WITH ASHRAE 62.1 FOR VENTILATION.
- EQc3.1	1	CONSTRUCTION IAQ MANAGEMENT PLAN, DURING CONSTRUCTION.
- EQc3.2	1	CONSTRUCTION IAQ MANAGEMENT PLAN, BEFORE OCCUPANCY.
- EQc5	1	INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL.

## DRAWING LIST - BUILDING "C"

DWG. NO.	DESCRIPTION
M10.0B	MECHANICAL LEGEND, DRAWING INDEX, GENERAL NOTES
M11.1B	MECHANICAL EQUIPMENT SCHEDULES
M11.2B	MECHANICAL EQUIPMENT SCHEDULES
M11.3B	SPECIFICATIONS
M11.4B	SPECIFICATIONS
M13.0B	MECHANICAL PLAN - BUILDING C
M14.0B	MECHANICAL ROOF PLAN - BUILDING C
M15.0B	MECHANICAL DETAILS - BUILDING C
T24.1	TITLE-24 COMPLIANCE FORMS - OUTDOOR LIGHTING ONLY
T24.1B	TITLE-24 COMPLIANCE FORMS
T24.2B	TITLE-24 COMPLIANCE FORMS
T24.3B	TITLE-24 COMPLIANCE FORMS
T24.4B	TITLE-24 COMPLIANCE FORMS
T24.5B	TITLE-24 COMPLIANCE FORMS
T24.6B	TITLE-24 COMPLIANCE FORMS
T24.7B	TITLE-24 COMPLIANCE FORMS

## ABBREVIATIONS

ABBR	DESCRIPTION
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR (DUCT)
AFMD	AIR FLOW MEASURING DEVICE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL (WALL OR CEILING)
ARCH	ARCHITECTURAL
AS	AIR SEPARATOR
ASD	AUTOMATIC SMOKE DAMPER
AVD	AUTOMATIC VOLUME DAMPER
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BAS	BUILDING AUTOMATION SYSTEM
BTUH	BRITISH THERMAL UNITS PER HOUR
CBDD	COUNTER BALANCED BACKDRAFT DAMPER
CC	COOLING COIL
CFF	CAPPED FOR FUTURE
CFM	CUBIC FEET PER MINUTE
CU	OUTDOOR CONDENSER UNIT
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEFL	DEFLECTION
E	EXISTING
EA,OA	EXHAUST AIR, OUTSIDE AIR
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ET	EXPANSION TANK
FCU	FAN COIL UNIT
EWT	ENTERING WATER TEMPERATURE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FSG	FLOOR SUPPLY GRILLE
FT	FEET
GPM	GALLONS PER MINUTE
HW	HEATING HOT WATER
HC	HEATING COIL
HP	HORSE POWER
HWP	HEATING WATER PUMP
HV	HEATING & VENTILATING
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LEED	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (USGBC)
LRA	LOCKED ROTOR AMPS
LVL	LEVEL
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CONTROL PANEL
MFR	MANUFACTURER
NC	NORMALLY CLOSED OR NOISE CRITERIA
NO	NORMALLY OPEN
OBP	OPPOSED BLADE DAMPER
OPER WT	OPERATING WEIGHT
OPP	OPPOSITE
PCD	PRIMARY CONDENSATE DRAIN
PD	PRESSURE DROP
PH	PHASE
PRESS	PRESSURE
PSIG	POUNDS PER SQUARE INCH
RA,SA	RETURN AIR, SUPPLY AIR
REF	REFERENCE
RF	RETURN FAN
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
SAD	SEE ARCHITECTURAL DRAWINGS
SCD	SECONDARY CONDENSATE DRAIN
SF	SUPPLY FAN
S.F.	SQUARE FEET
SN	SHEET NOTES
SP	STATIC PRESSURE
ST	SOUND TRAP
STR	STRAINER
TCV	TEMPERATURE CONTROL VALVE
TCP	TEMPERATURE CONTROL PANEL
TD	TEMPERATURE DIFFERENCE
TEF	TOILET EXHAUST FAN
TEMP	TEMPERATURE
TDH	TOTAL DYNAMIC HEAD
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VAV TERMINAL OR VOLT
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VIB	VIBRATION ISOLATOR
WB	WET BULB
WG	WATER GAUGE
WMS	WIRE MESH SCREEN
XFMR	TRANSFORMER
OA	OUTSIDE AIR
SD	DUCT SMOKE DETECTOR

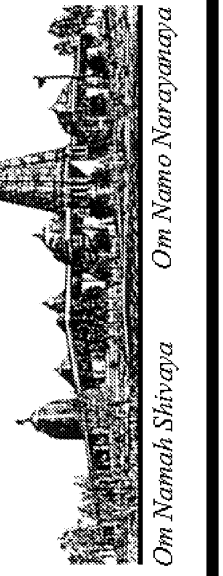
## LEGEND

SYMBOL	ABBR	DESCRIPTION
		DETAIL NUMBER DRAWING NUMBER
		SECTION NUMBER DRAWING NUMBER
		EQUIPMENT IDENTIFICATION EQUIPMENT NUMBER
(E)		EXISTING
(N)		NEW
	CSD/CMS	CEILING SUPPLY DIFFUSER
	CER (G)	CEILING EXHAUST REGISTER (GRILLE)
	CRR/CMR (G)	CEILING RETURN REGISTER (GRILLE)
	WSR	WALL SUPPLY REGISTER
	WER (G)	WALL EXHAUST REGISTER (GRILLE)
	WRR (G)	WALL RETURN REGISTER (GRILLE)
		SECTION THRU SUPPLY OR OUTSIDE AIR DUCT
		SECTION THRU RETURN DUCT
		SECTION THRU EXHAUST DUCT
		AIR OUTLET DESIGNATION CODE (SEE SCHEDULE)
	FSR	FLOOR SUPPLY REGISTER
		AIR OUTLET DESIGNATION
		EXHAUST/RETURN OUTLET
		LINEAR DIFFUSER DESIGNATION

## LEGEND

SYMBOL	ABBR	DESCRIPTION
	R (D)	DUCT RISE OR DROP
	AL(PL)	ACOUSTICAL LINING (PLENUM LINING)
		DUCT ENCLOSED IN GYP. BOARD ENCLOSURE (SEE ARCHITECTURAL DWGS)
		DIRECTION OF AIRFLOW
	FC	FLEXIBLE DUCT CONNECTION
		FLEXIBLE DUCT FOR SUPPLY (FLEXIBLE DUCT CONNECTION FOR EXHAUST)
	AVD	AUTOMATIC VOLUME DAMPER
	ASD(SD)	AUTOMATIC SMOKE DAMPER
	CBDD	COUNTER BALANCED BACK DRAFT DAMPER
	FD	FIRE DAMPER
	BDD	BACK DRAFT DAMPER
	FSD	COMBINATION FIRE/SMOKE DAMPER WITH ACTUATOR
	VD	VOLUME DAMPER
	VD	VOLUME DAMPER WITH REMOTE REGULATOR
	TV	TURNING VANES
	BP	BEAM PENETRATION
		ACCESS PANEL
		SQUARE TO ROUND DUCT
		REDUCING TRANSITION
		REDUCING TRANSITION
		UNDERCUT DOOR - SEE ARCH. DWGS.
		THERMOSTAT
		TEMPERATURE SENSOR
	SD	DUCT SMOKE DETECTOR
		LINE CONTINUED
	CFF	CAPPED FOR FUTURE
	UP	PIPING UP
	DN	PIPING DOWN
	SL	REFRIGERANT SUCTION LINE
	LL	REFRIGERANT LIQUID LINE
	CD	CONDENSATE DRAIN
	G	NATURAL GAS
	D	DRAIN
	TF	TEST FITTING
		UNION
	PG	PRESSURE GAUGE
	TH	THERMOMETER
	GV	GATE VALVE
	BV	BUTTERFLY (2 1/2" OR LARGER), (BALL VALVE 2" OR SMALLER)

REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDPC
09-22-10	BPC
10-07-10	HCCC

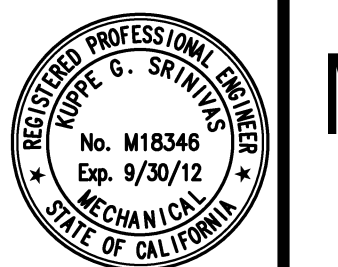


NEW BUILDING "C" - PHASE 1B  
HINDU COMMUNITY and CULTURAL CENTER  
1200 ARROWHEAD AVE. LIVERMORE, CA 94551

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MECHANICAL LEGEND  
DWG INDEX, GEN. NOTES  
PHASE 1-B

DATE	05/28/10
SCALE:	AS NOTED
DRAWN BY:	
PROJECT:	ARROWHEAD



# M10.0B

PAKAGED ROOFTOP AIR CONDITIONING UNIT SCHEDULE

MANUFACTURER: Trane, Carrier or Approved Equal

CODE	MODEL	COOLING CAPACITY			COOLING COIL				GAS HEATING CAPACITY		SUPPLY FAN						FILTERS					POWER EXHAUST FAN					UNIT ELECTRICAL			EER/AFUE	OPER. WEIGHT LBS.	REMARKS	
		TONS	SENS MBH	TOTAL MBH	EAT DB	EAT WB	LAT DB	LAT WB	INPUT (MBH)	OUTPUT (MBH)	CFM	ESP (in.W.G.)	RPM	BHP	HP	MIN. OA CFM	TYPE	QTY	PD		EFF/MERV	TYPE & MODEL NO.	CFM	SP (in.W.G.)	BHP	HP	RPM	MCA	MOCP				V/PH/HZ
																			CLEAN	DIRTY													
AC-C-1	YHC-048-E3	4	37.28	49.45	80	67	60	57.6	60	48	1,600	0.8	837	0.42	0.31 kW	300	2"	-	0.35	1"	85/MERV-13	TRANE	1,600	0.375	0.42	0.31 kW	28.30	-	208/3PH/60	15 / 81	1,200	① THRU ⑫	
AC-C-2	YHC-048-E3	4	37.28	49.45	80	67	60	57.6	60	48	1,600	0.8	837	0.42	0.31 kW	270	2"	-	0.35	1"	85/MERV-13	TRANE	1,600	0.375	0.42	0.31 kW	28.30	-	208/3PH/60	15 / 81	1,200		
AC-C-3	YHC-036-E3	3	27.8	37.15	80	67	59.95	57.54	60	48	1,200	0.5	832	0.32	0.24 kW	240	2"	-	0.35	1"	85/MERV-13	TRANE	1,200	0.375	0.32	0.24 kW	21.90	-	208/3PH/60	15 / 81	1,000		
AC-C-4	YHC-036-E3	3	27.8	37.15	80	67	59.95	57.54	60	48	1,200	0.5	832	0.32	0.24 kW	440	2"	-	0.35	1"	85/MERV-13	TRANE	1,200	0.375	0.32	0.24 kW	21.90	-	208/3PH/60	15 / 81	1,000		
AC-C-5	YHC-036-E3	3	27.8	37.15	80	67	59.95	57.54	60	48	1,200	0.5	832	0.32	0.24 kW	240	2"	-	0.35	1"	85/MERV-13	TRANE	1,200	0.375	0.32	0.24 kW	21.90	-	208/3PH/60	15 / 81	1,000		
AC-C-6	YHC-036-E3	3	27.8	37.15	80	67	59.95	57.54	60	48	1,200	0.5	832	0.32	0.24 kW	240	2"	-	0.35	1"	85/MERV-13	TRANE	1,200	0.375	0.32	0.24 kW	21.90	-	208/3PH/60	15 / 81	1,000		

NOTES:

- ① UNIT LOCATED ON MAIN ROOF ON 14" ROOF CURB.
- ② UNIT WITH R-410A REFRIGERANT, AI/CU COND & EVAP COILS
- ③ SEER LISTED AT STANDARD CONDITIONS.
- ④ UNIT SELECTION BASED ON 95 F AMBEINT.
- ⑤ BOTTOM SUPPLY AND RETURN DISCHARGE.
- ⑥ FACTORY INSTALLED OSA ECONOMIZER CONTROL & POWER EXHAUST & SINGLE-POINT POWER SUPPLY.
- ⑦ PROVIDE 14" TALL WELDED STEEL CURB, 2007 CBC COMPLIANT, MICROMETL CORP. SERIES OR EQUAL TO MATCH THE AC UNIT SIZE.
- ⑧ PROVIDE HINGED AND INSULATED ACCESS DOOR AND 2-INCH THICK MERV 13 FILTERS.
- ⑨ PROVIDE MATCHING ELECTRONIC PROGRAMMABLE, T-24 COMPLIANT 7-DAY WALL THERMOSTAT.
- ⑩ PROVIDE FACTORY FURNISHED OUTSIDE AIR HOOD AND EXHAUST AIR HOOD AT AC UNIT AIR INLET AND EXHAUST (TYP).
- ⑪ PROVIDE GAS PRESSURE REGULATOR IF REQUIRED.
- ⑫ AC UNITS SHALL BE PROVIDED WITH DEMAND CONTROL VENTILATION OPTIONAL PACKAGE AND ROOM CO2 SENSOR TO MODULATE OPEN THE OUTSIDE AIR DAMPER BETWEEN MINIMUM AND MAX SETTINGS (ADJUSTABLE) TO LIMIT THE AMOUNT OF CO2 LEVEL IN THE OCCUPIED SPACE PER T-24.

EXHAUST FAN SCHEDULE

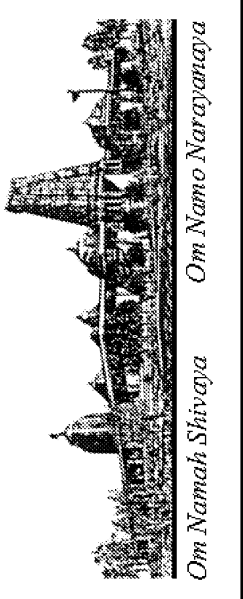
MFR: GREENHECK

CODE	SYSTEM	SERVICE	LOCATION	CFM	TOTAL SP IN. WC	RPM	BHP	MODEL NO./SIZE	TYPE	ROOF CURB THROAT SIZE LXWXH	POWER REQUIREMENT			OPER. WT LBS	SOUND CRITERIA (SONE)	REMARKS	
											MTR HP	VFD	V/PH/HZ				
EF-C-1		BLDG-C, MENS TOILET ROOM EXH.	ROOF	800	0.5	1411	0.12	G-101-A	MUSHROOM	14X14	1/4		NO	120V/1Ø	80	12	① ② ③
EF-C-2		BLDG-C, WOMENS TOILET ROOM EXH.	ROOF	700	0.5	1380	0.12	G-101-A	MUSHROOM	14X14	1/4		NO	120V/1Ø	80	12	① ② ③
EF-C-3		BLDG-C, COPIER ROOM EXH.	ROOF	300	0.5	1180	0.10	G-101-A	MUSHROOM	14X14	1/4		NO	120V/1Ø	80	10	① ② ③

REMARKS:

- ① PROVIDE FACTORY MATCHED 8" ROOF CURB, FLASHING AND COUNTERFLASHING. SECURE CURB TO THE ROOF STRUCTURE WITH GALV. STEEL ANCHOR BOLTS.
- ② EXHAUST FANS SHALL BE FACTORY FURNISHED WITH BACKDRAFT DAMPER. FACTORY WIRED SPEED CONTROLLER.
- ③ EXHAUST FANS SHALL BE CONTROLLED FROM A CENTRALLY LOCATED ELECTRONIC PROGRAMMABLE TIME CLOCK.

REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDPG
09-22-10	BPC
10-07-10	HCCC



NEW BUILDING "C" - PHASE 1B  
 HINDU COMMUNITY and CULTURAL CENTER  
 1200 ARROWHEAD AVE. LIVERMORE, CA 94551

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 121 California St., Suite 2025  
 San Francisco, California 94111  
 PH (415) 543-9544 FAX (415) 543-0870  
 E-mail: Map@ajpncd.com 09021

MECHANICAL  
 EQUIPMENT SCHEDULES  
 PHASE 1-B

DATE  
 05/28/10  
 SCALE:  
 AS NOTED  
 DRAWN BY:  
 PROJECT:  
 ARROWHEAD



M11.1B

FIRE SMOKE DAMPERS SCHEDULE			MFR: RUSKIN
CODE	MODEL NO.	DESCRIPTION	
FSD-1	FSD-60	COMBINATION FIRE/SMOKE DAMPER UL 555S CLASSIFIED AND CLASS I LEAKAGE RATED AND TESTED. PROVIDE 120V ELECTRIC MOTOR ACTUATOR TS 150 FIRESTAT AND MOUNTING ANGLES. FSD TO HAVE PRIMARY HEAT SENSING DEVICE SET AT 165°F AND SECONDARY HEAT SENSING DEVICE SET AT 350°F. POWER OPEN, FAIL CLOSE TYPE. CALIFORNIA STATE FIRE MARSHAL LISTING NUMBER 3225-245-102. FSD SHALL INCLUDE REMOTE POSITION INDICATOR LIGHT PLATE AFFIXED TO THE CEILING TILE.	

VIBRATION ISOLATOR SCHEDULE										MANUF: MASON OR APPROVED EQUAL
EQUIPMENT	TYPE	SERVICE	LOCATION	ISOLATOR		BASE		SEISMIC RESTRAINTS	MODEL NO. ISOLATOR/SEISMIC	REMARKS
				CODE	S.D.	CODE	WT#			
AC-C-1	ROOFTOP ACU	BUILDING C	ROOF	N-1	1/4"	-	-	ANCHOR BOLTS	-	①②③④
AC-C-2	ROOFTOP ACU	BUILDING C	ROOF	N-1						
AC-C-3	ROOFTOP ACU	BUILDING C	ROOF	N-1						
AC-C-4	ROOFTOP ACU	BUILDING C	ROOF	N-1						
AC-C-5	ROOFTOP ACU	BUILDING C	ROOF	N-1						
AC-C-6	ROOFTOP ACU	BUILDING C	ROOF	N-1						
EF-C-1	MUSHROOM	TOILET EXH	ROOF	N-1	1/8"	-	-	ANCHOR BOLTS		①②③④
EF-C-2	MUSHROOM	TOILET EXH	ROOF	N-1	1/8"	-	-	ANCHOR BOLTS		①②③④
EF-C-3	MUSHROOM	COPY ROOM EXH	ROOF	N-1	1/8"	-	-	ANCHOR BOLTS		①②③④⑤

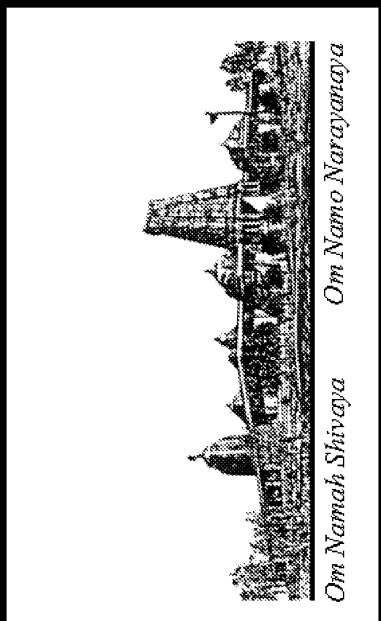
- NOTES:**
- FANS LOCATED INSIDE THE EQUIPMENT SHALL BE INTERNALLY ISOLATED.
  - ANCHOR BOLTS AND ISOLATORS EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED OR PROTECTED WITH EXTERIOR GRADE ENAMEL PAINT.
  - NEOPRENE SUPER-W PAD ISOLATORS SHALL BE LOCATED BETWEEN THE ROOF CURB AND THE UNIT BASE TO SEAL AND ISOLATE. INSTALL PER MANUFACTURERS' GUIDELINES.
  - UNITS WITH FACTORY FURNISHED MATCHING ROOF CURB. SEE EQUIPMENT SCHEDULE.
  - PROVIDE WALL MOUNTED LOCAL EXHAUST SWITCH. WIRED BY DIVISION-16.

AIR OUTLET SCHEDULE			MFR: TITUS U.O.N.
CODE	MODEL ②	DESCRIPTION ①③④	
CSD1	PSS	PERFORATED FACE, MODULAR CORE CEILING SUPPLY DIFFUSER, 24"x24" FACE, STEEL CONSTRUCTION. BORDER TYPE TO MATCH CEILING TYPE. PROVIDE OBD WHERE REQUIRED FOR BALANCING AND AS INDICATED ON DRAWINGS. PROVIDE SQUARE TO ROUND TRANSITION FOR CONNECTION TO ROUND DUCT.	
CSD2	PSS	SAME AS CSD1 EXCEPT 12"x12" FACE.	
CER1, CEG1 CRR1, CRG1	PAR	PERFORATED FACE EXHAUST OR RETURN REGISTER OR GRILLE, 24"x24" FACE, STEEL CONSTRUCTION. BORDER TYPE TO MATCH CEILING TYPE. PROVIDE OBD FOR REGISTERS. PROVIDE LINED PLENUM WITH TOP OR SIDE OUTLET FOR DUCT CONNECTION. PROVIDE ACOUSTICAL BOOT WITH VOLUME DAMPER WHERE SHOWN.	
CER2, CEG2 CRR2, CRG2	PAR	SAME AS CER1, CEG1, CRR1, CRG1, EXCEPT 12"x12" OR 18"x18" FACE.	

**NOTES:**

- FINISHES AS SELECTED BY AND APPROVED BY ARCHITECT.
- SUFFIX "-A" DESIGNATES ALUMINUM CONSTRUCTION.
- ALL AIR OUTLETS SHALL BE SELECTED FOR NC-25, UNLESS MENTIONED OTHERWISE.
- ALL BRANCH DUCT INLET CONNECTION SIZES SHALL BE THE SAME SIZE AS THE AIR OUTLET DUCT CONNECTION SIZES UNLESS OTHERWISE NOTED. PROVIDE SQUARE TO ROUND DUCT TRANSITION AS REQUIRED.

REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDPC
09-22-10	BPC
10-07-10	HCCC



NEW BUILDING "C" - PHASE 1B  
**HINDU COMMUNITY and CULTURAL CENTER**  
 1200 ARROWHEAD AVE. LIVERMORE, CA 94551  
 Ajmani & Parnidi Inc.  
 Mechanical & Electrical Engineers  
 131 California St., Suite 2025  
 San Francisco, California 94111  
 Ph (415) 543-9544 Fax (415) 543-0870  
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MECHANICAL  
 EQUIPMENT SCHEDULES  
 PHASE 1-B

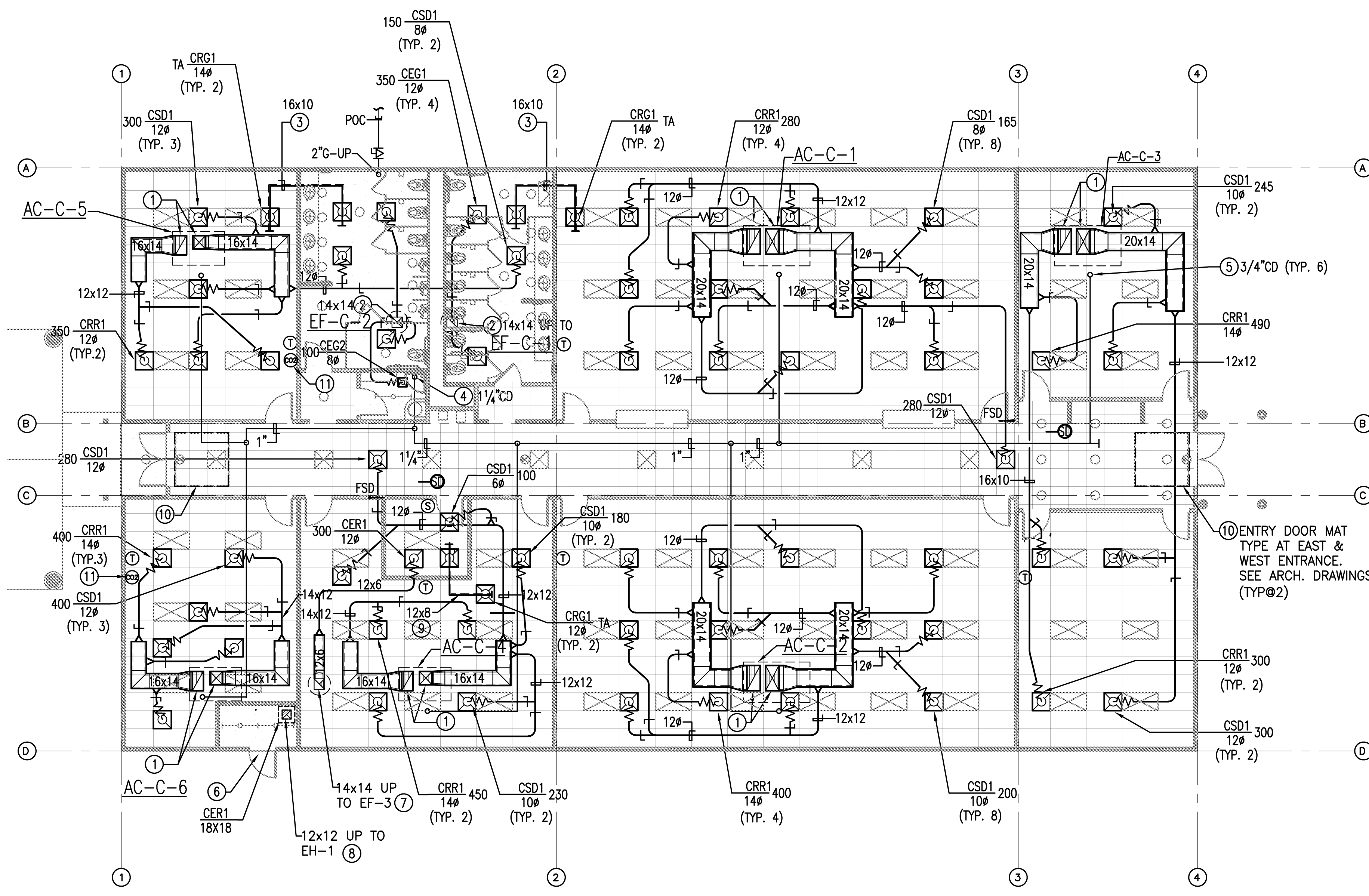
DATE  
 05/28/10  
 SCALE:  
 AS NOTED  
 DRAWN BY:  
 PROJECT:  
 ARROWHEAD



**M11.2B**







**BUILDING C - PHASE 1-B**  
MECHANICAL PLAN

TOTAL 7800 SQ. FT.  
SCALE: 1/8" = 1'-0"  
GRAPHIC SCALES: 1/8" = 1'-0"

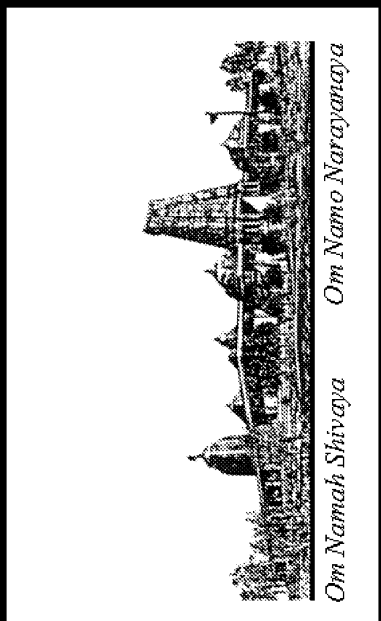
**GENERAL NOTES**

- A. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR THE CEILING HEIGHT AND STRUCTURAL CLEARANCES AVAILABLE FOR ROUTING THE DUCTWORK. THE AVAILABLE CLEARANCE BETWEEN BOTTOM OF STRUCTURAL JOISTS AND FINISHED CEILING IS 18". COORDINATE WITH ALL TRADE WORK INCLUDING PLUMBING, FIRE PROTECTION AND ELECTRICAL AND MODIFY THE DUCT ROUTING TO AVOID CONFLICTS.
- B. THE MAXIMUM ALLOWABLE FLEXIBLE DUCT LENGTH SHALL BE 6 FEET. INSTALL PER CMC AND SMACNA REQUIREMENT.
- C. ALL SUPPLY, RETURN AND EXHAUST SHALL BE DUCTED. DUCTWORK SHALL BE SEALED & LEAKAGE TESTED PER CEC T-24 REQUIREMENTS AND CERTIFIED. SHEET METAL DUCTWORK SHALL BE FABRICATED AND INSTALLED PER CMC AND SMACNA.
- D. HVAC WORK SHALL BE IN COMPLIANCE WITH THE CURRENT CEC T-24 STANDARDS AND ALL APPLICABLE CALIFORNIA AND LOCAL CODES.
- E. PROVIDE VOLUME DAMPERS IN EACH BRANCH DUCTS FOR AIR BALANCING.
- F. PROVIDE TRANSFER AIR BOOT ABOVE CEILING AT ALL FULL-HEIGHT PARTITIONS.
- G. LOCATE DUCT DETECTOR WITHIN 5 FEET FROM FSD TO CLOSE THE DAMPER WHEN THE DETECTOR IS ACTIVATED. COORDINATION WIRING WITH DIVISION-16.
- H. PROVIDE FACTORY FURNISHED T-24 COMPLIANT ELECTRONIC PROGRAMMABLE ROOM THERMOSTATS FOR EACH AC UNITS AND PROGRAM THE THERMOSTATS DAILY START-STOP AND SETTING REQUIREMENTS PER THE OWNERS' BUILDING OCCUPANCY SCHEDULE. PROGRAM THE OFF-HOUR COOLING SET-UP AND HEATING SET-BACK SETTINGS PER TITLE-24. PROVIDE CO2 SENSORS FOR CONFERENCE ROOMS PER SHEET NOTE #11 BELOW.
- I. AIR BALANCE CONTRACTOR SHALL VERIFY THE CONTROL FUNCTIONS OF EACH AC UNITS AND VERIFY THE ECONOMIZER OPERATION AND OUTSIDE AIR CONTROL DAMPERS ARE FUNCTIONING PROPERLY. WHEN THE UNIT IS OFF, THE EXHAUST AIR DAMPER & OUTSIDE AIR CONTROL DAMPERS SHALL CLOSE. BALANCE OUTSIDE AIR TO EACH THERMOSTATIC ZONE TO THE AMOUNT INDICATED ON THE AC UNIT SCHEDULE AND SUBMIT TEST AND VERIFICATION REPORTS IN ACCORDANCE WITH T-24 REQUIREMENTS.
- J. COMPLY WITH REQUIREMENTS OF USGBC-LEED NC PER THE CHECKLIST FOR INDOOR ENVIRONMENTAL AIR QUALITY, VENTILATION, INSULATION, THERMAL COMFORT AND POST CONSTRUCTION COMMISSIONING AND PURGING. SUBMIT REPORTS FOR EACH TASK.
- K. FACTORY MADE U.L. LISTED CLASS-1 ACOUSTICAL FLEX DUCT LENGTH SHALL NOT EXCEED MAX OF 6 FEET IN LENGTH. USE FACTORY ATTACHED COLLARS AND T-24 APPROVED ADHESIVE MASTIC TAPES TO ATTACH THE FLEX DUCT TO DUCTWORK AND DIFFUSER. INSTALL PER CALIFORNIA MECHANICAL CODE WITHOUT KINKS.
- L. INSULATE ALL UNLINED SUPPLY AND RETURN DUCTS WITH MIN. R-8 DUCT WRAP INSULATION WITH VAPOR JACKET PER T-24 AND CMC REQUIREMENTS.
- M. FOR FSD INSTALLATION REFER TO DETAIL-1/M11.2B & PER MANUF. UL LISTING.

**SHEET NOTES**

- ① SUPPLY AND RETURN AIR DUCTS WITH ACOUSTICAL LINING FROM ROOFTOP AC UNIT IN THE ROOF WITH ONE ELBOW AND MIN. 10 FEET OF DUCT PRIOR TO CONNECTING THE BRANCH DUCTWORK. COORDINATE THE LOCATION OF THE DUCT DROP AND AC UNIT ROOFTOP LOCATIONS WITH OTHER TRADES AND ADJUST ACCORDINGLY.
- ② 14x14 EXHAUST AIR DUCT UP TO TOILET EXHAUST FANS (EF-C-1 & EF-C-2) ON THE ROOF. SEE ROOF PLANS FOR CONTINUATION.
- ③ 14x10 TRANSFER AIR DUCT WITH ACOUSTICAL LINING. (TYPICAL OF 2).
- ④ TERMINATE 1/4" CONDENSATE DRAIN LINE OVER THE JANITOR'S SINK.
- ⑤ 3/4" CONDENSATE DRAIN LINE FROM ROOFTOP AC UNITS ON THE ROOF. TYPICAL OF 6. PROVIDE MINIMUM 1/8" PER FOOT SLOPE DOWN TO THE JANITOR'S SINK IN THE JANITOR ROOM. INSULATE ALL CONDENSATE LINES WITHIN THE CEILING SPACE.
- ⑥ SIGHT-PROOF 18x12 EXTERIOR GRADE DOOR LOUVER WITH INSECT SCREEN.
- ⑦ 14x14 EXHAUST AIR DUCT UP TO EXHAUST FAN (EF-C-3) ON THE ROOF. PROVIDE WALL MOUNTED LOCAL EXHAUST SWITCH TO EXHAUST THE COPIER ROOM, WHEN IT IS IN USE.
- ⑧ 12x12 EXHAUST AIR DUCT UP TO EXHAUST HOOD (EH-1) ON THE ROOF FOR GRAVITY EXHAUST ENTILATION. PROVIDE 18x18 EXHAUST GRILLE.
- ⑨ 12x8 TRANSFER AIR DUCT WITH ACOUSTICAL LINING.
- ⑩ 6'x6' DOOR ENTRY MAT TYP AT EAST AND WEST ENTRY DOORS. SEE ARCH. DRAWINGS FOR DETAILS.
- ⑪ PROVIDE WALL-MOUNTED CARBON DIOXIDE (CO2) SENSORS COMPATIBLE WITH THE ROOFTOP AC UNIT CONTROLLER FOR AC UNITS AC-C-5 & AC-C-6. WHEN THE CO2 LEVEL IN THE CONFERENCE ROOM EXCEED 800 PPM (ADJUSTABLE) IT SHALL SEND A SIGNAL TO THE AC UNIT CONTROLLER TO MODULATE OPEN THE OUTSIDE AIR AND EXHAUST AIR DAMPERS PROPORTIONALLY TO INCREASE AMOUNT OF OUTSIDE AIR TO THE SPACE. UPON A DROP IN THE CO2 LEVELS BELOW THE PRESET 800 PPM, THE OSA AND EA CONTROL DAMPERS SHALL MODULATE BACK TO THE NORMAL (MINIMUM) MODE OF OPERATION.

REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
HEALTH DEPT PLAN CHECK 08-26-10	HDPC
09-22-10	BPC
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NEW BUILDING "C" - PHASE 1B  
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1200 ARROWHEAD AVE. LIVERMORE, CA 94551

MECHANICAL PLAN  
BUILDING C  
PHASE 1-B

Ajmani & Parnidi Inc.  
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121 California St., Suite 2025  
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E-mail: Map@ajpni.com 09071

DATE
05/28/10
SCALE:
AS NOTED
DRAWN BY:
ARROWHEAD
PROJECT:
ARROWHEAD

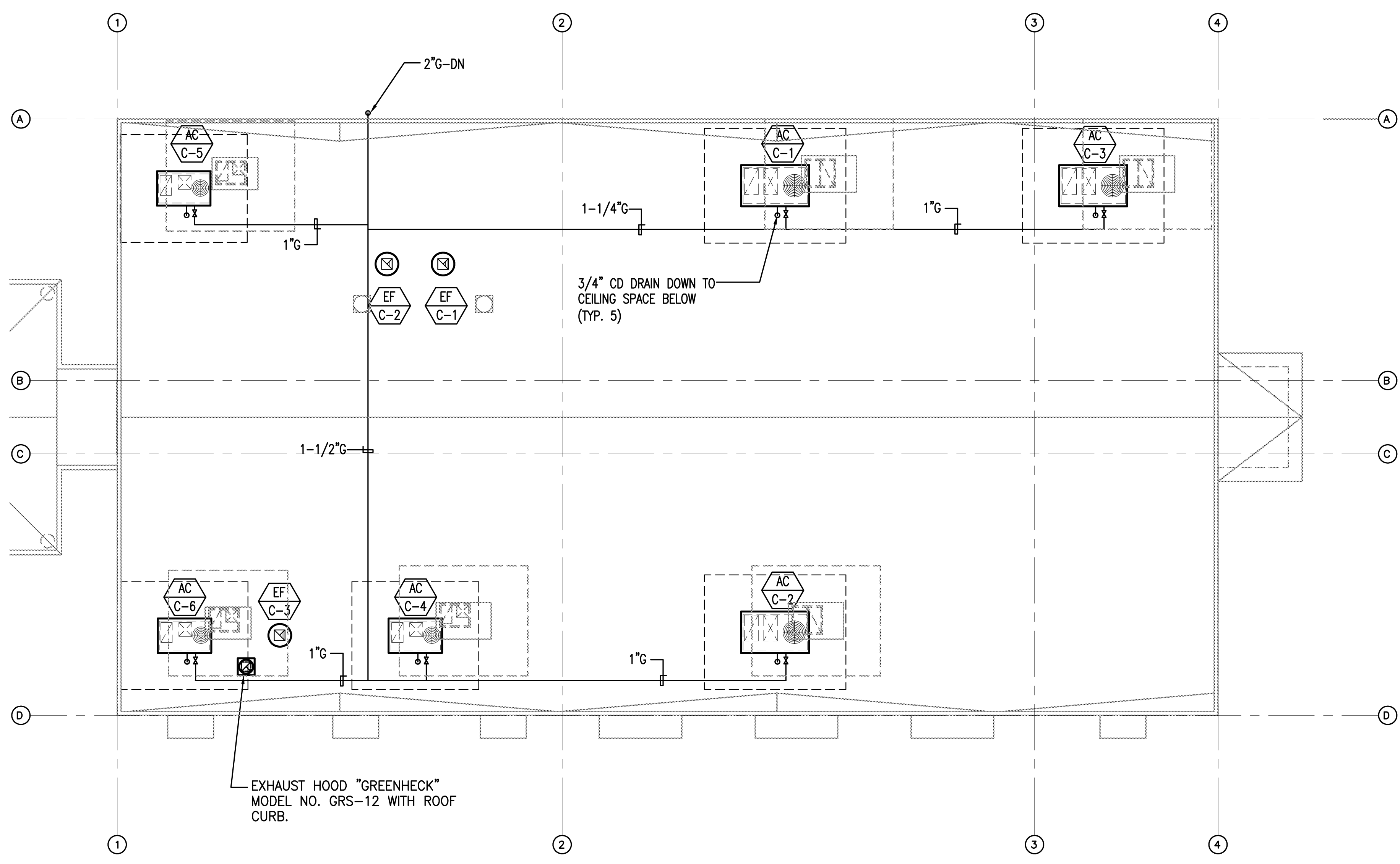


**M13.0B**

REVISIONS	BY
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△ 08-02-10	BPC
△ HEALTH DEPT PLAN CHECK 08-26-10	HDPC
△ 09-22-10	BPC
△ 10-07-10	HCCC

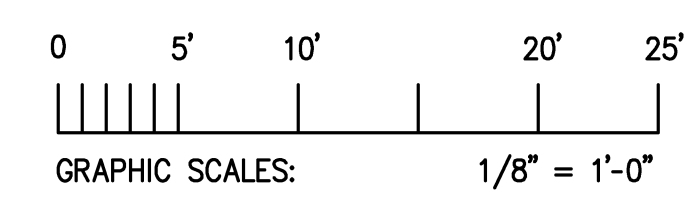
**GENERAL NOTES**

- A. ALL INSTALLATIONS SHALL COMPLY WITH ALL APPLICABLE CALIFORNIA AND LOCAL CODES.
- B. ALL NEW WORK SHALL COMPLY WITH CURRENT 2007 CMC AND SMACNA DUCT CONSTRUCTION STANDARDS.
- C. INSULATE SUPPLY & RETURN DUCTS PER TITLE 24 REQUIREMENTS.
- D. MAINTAIN SERVICE CLEARANCE ALL AROUND THE EQUIPMENTS.
- E. SEISMICALLY ANCHOR ALL EQUIPMENTS TO THE STRUCTURES PER BUILDING CODE. COORDINATE WITH STRUCTURAL ENGINEER FOR FRAMING AND BLOCKING FOR EQUIPMENT ANCHORAGE.
- F. PROVIDE GALVANIZED PIPING & FITTINGS FOR EXPOSED GAS PIPING ON ROOF. PROVIDE GAS COCK, DIRT LEG, LISTED GAS CONNECTORS RATED FOR OUTDOOR APPLICATION AT CONNECTIONS TO EACH AC UNIT.
- G. PROVIDE TRAPPED CONDENSATE DRAIN FROM THE AC UNIT AND TERMINATE TO THE SERVICE SINK IN JANITOR CLOSET. INSTALL CONDENSATE COLLECTOR DRAIN PIPING WITH MINIMUM 2% SLOPE.
- H. SUPPORT ROOFTOP GAS AND CONDENSATE PIPING AND CONDUITS WITH B-LINE "DURA-BLOCK" DB SERIES SUPPORT BLOCKS ANCHORED TO ROOF. USE DURA-BLOCK "BVT" SERIES INSULATED PIPE CLAMPS (TYP). PROVIDE SLEEPER SUPPORTS AT MAX 6 FT ON CENTERS OR AS REQUIRED TO PREVENT PIPE SAGGING AND TO DRAIN THE CONDENSATE TOWARDS THE JANITOR SINK. MAINTAIN 2% SLOPE ON ROOF FOR CONDENSATE DRAIN PIPE.



**BUILDING C - ROOF PLAN**  
MECHANICAL PLAN

TOTAL 7800 SQ. FT.  
SCALE: 1/8" = 1'-0"

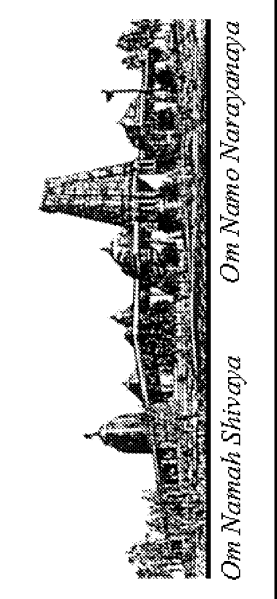


NEW BUILDING "C" - PHASE 1B  
**HINDU COMMUNITY and CULTURAL CENTER**  
1200 ARROWHEAD AVE. LIVERMORE, CA 94551

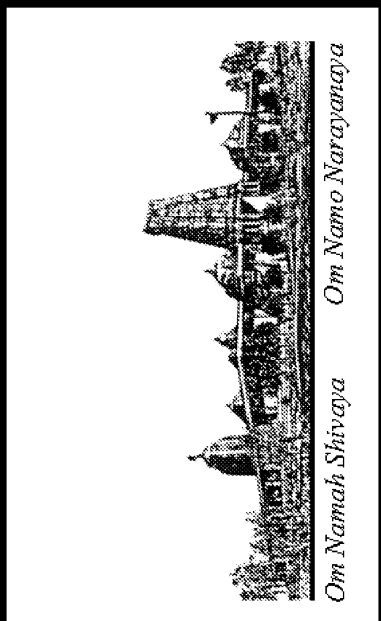
MECHANICAL ROOF PLAN  
BUILDING C  
PHASE 1-B

DATE: 05/28/10  
SCALE: AS NOTED  
DRAWN BY:  
PROJECT: ARROWHEAD

**M14.0B**



REVISIONS	BY
05-24-10	HCCC
08-02-10	BPC
08-26-10	HDPC
09-22-10	BPC
10-07-10	HCCC

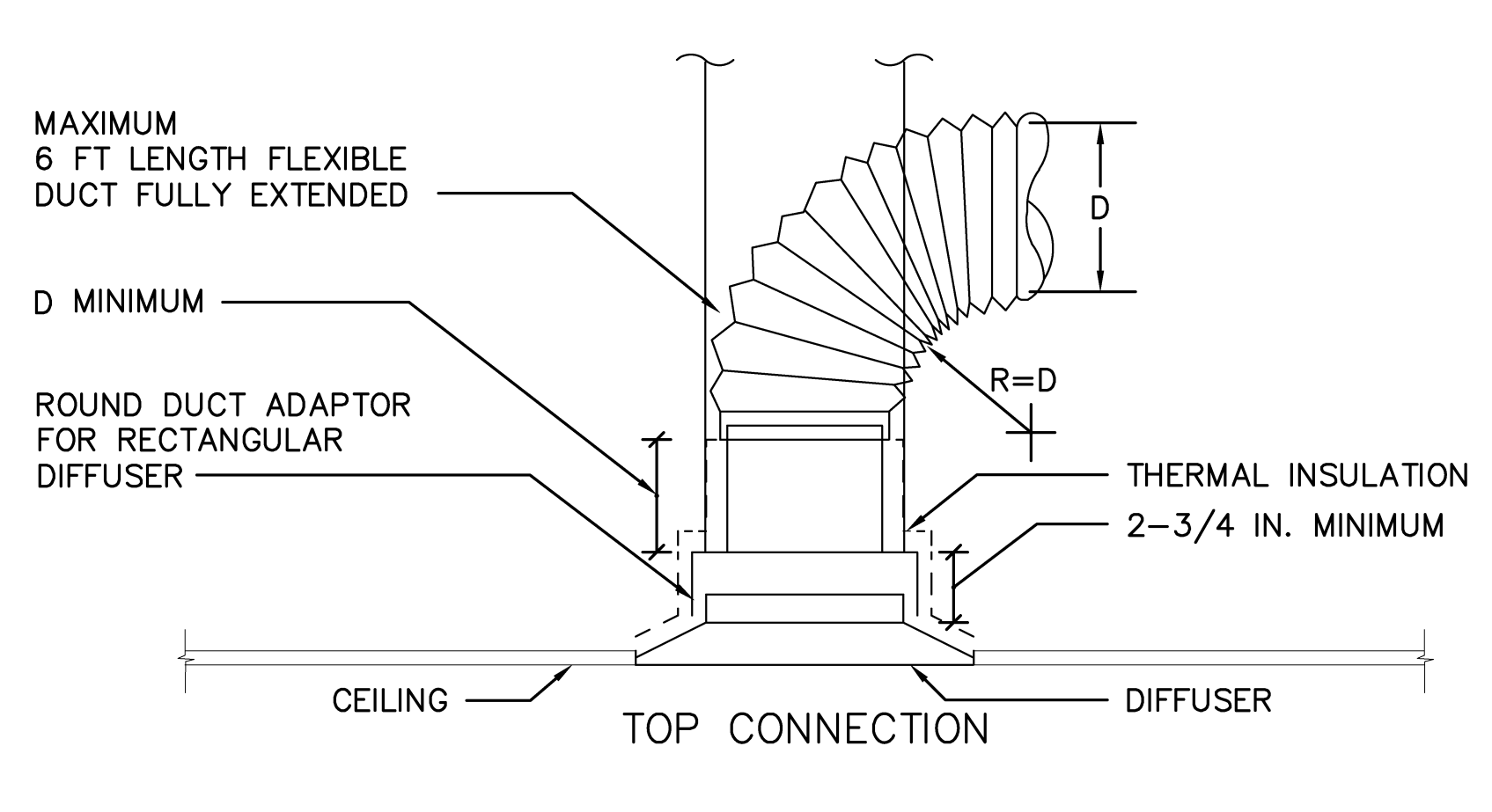
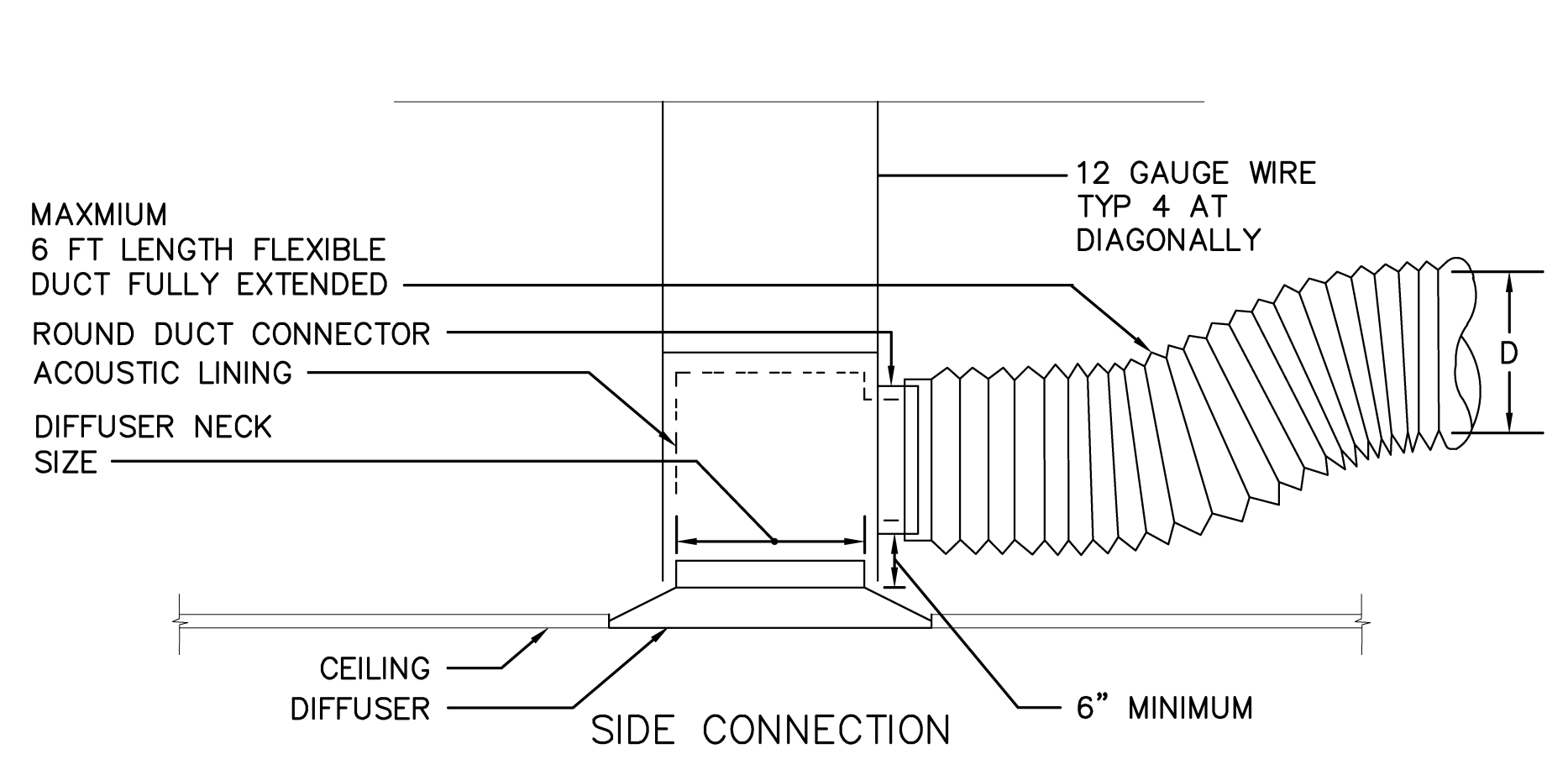


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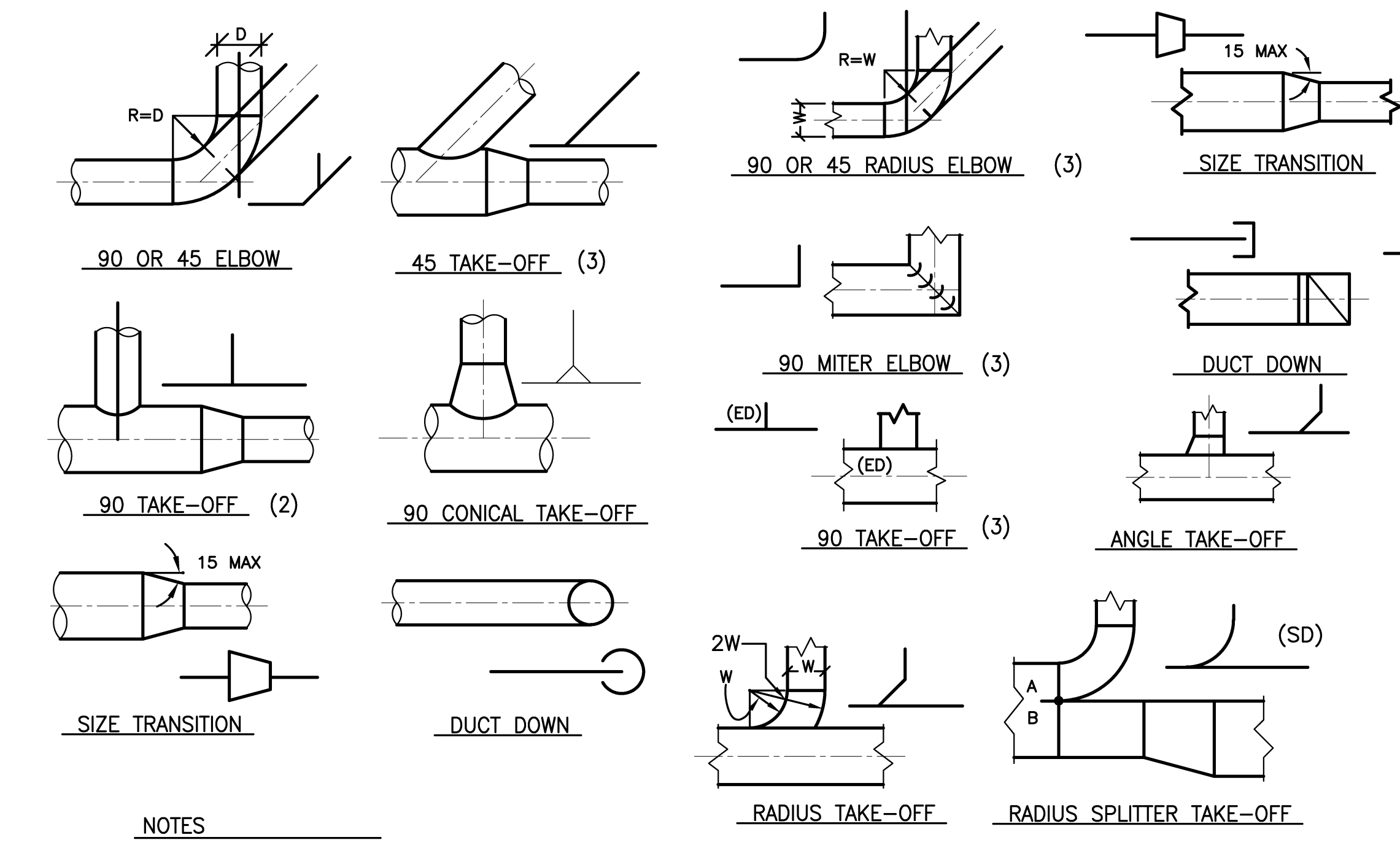
MECHANICAL DETAILS

DATE: 05/28/10  
 SCALE: AS NOTED  
 DRAWN BY:  
 PROJECT: ARROWHEAD

M15.0B

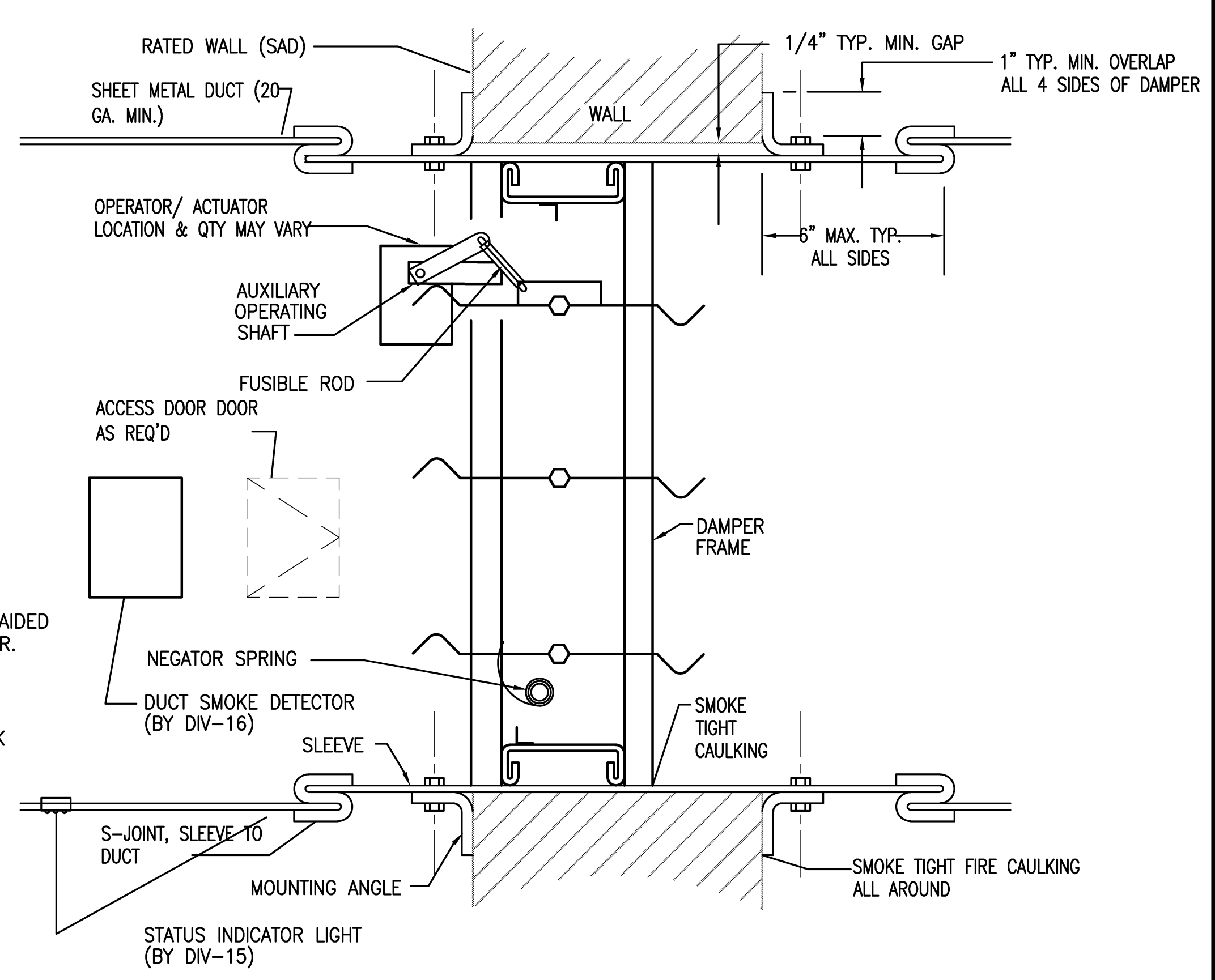


**1 DIFFUSER CONNECTION DETAIL**  
 SCALE: NOT TO SCALE



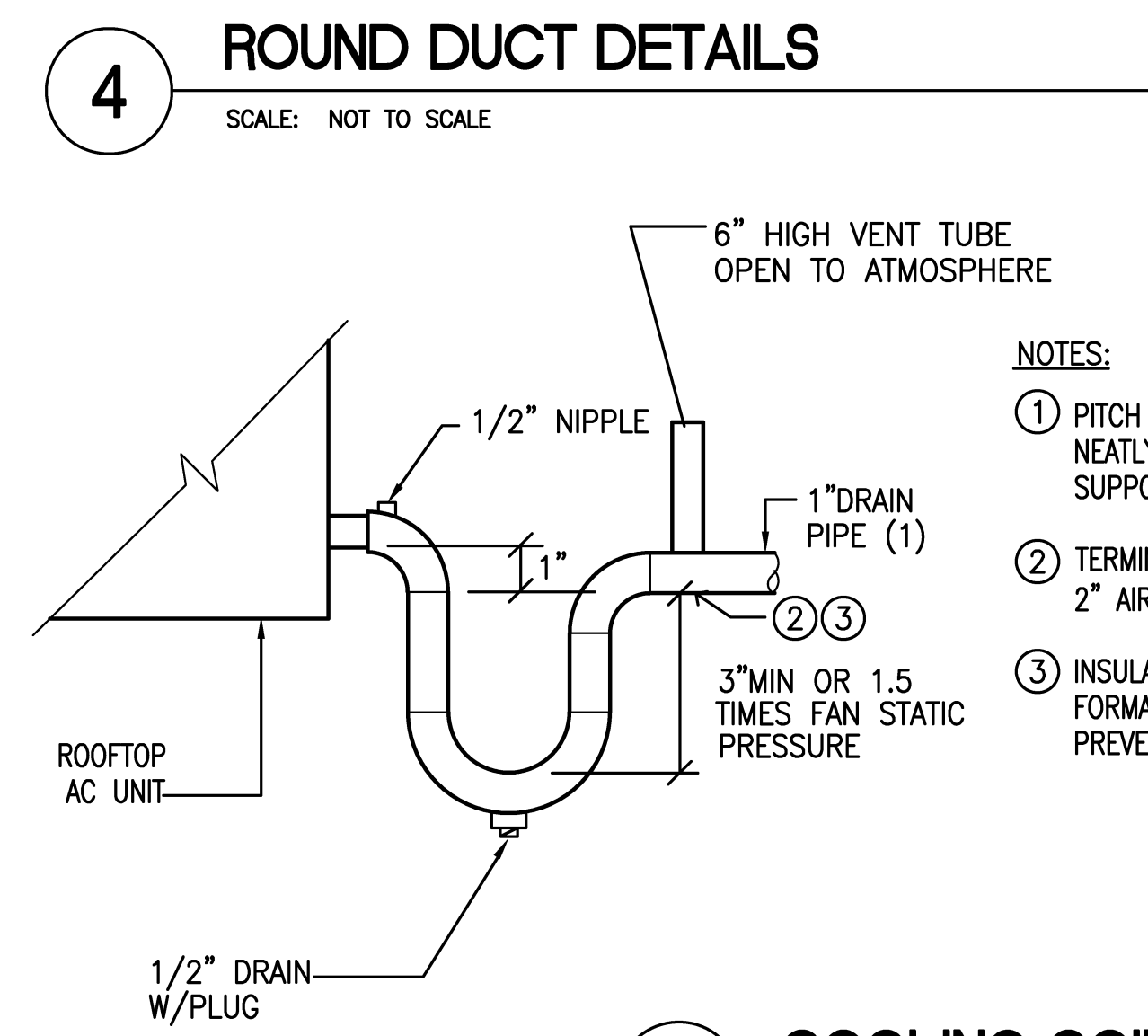
**2 ROOFTOP AC UNIT GAS CONNECTION DETAIL**  
 NOTE:  
 1. PROVIDE FLEXIBLE CONNECTORS ON UNITS W/ SPRING ISOLATORS.

- NOTES
- (1) SINGLE-LINE ILLUSTRATIONS ARE SYMBOLS USED ON DRAWINGS
  - (2) SIZE A & B DIMENSIONS IN PROPORTION TO AIR QUANTITIES IN EACH LEG SPLIT
  - (3) FOR LOW PRESSURE SYSTEM ONLY.
  - (4) PROVIDE ACOUSTICAL LINING WHERE REQUIRED. OR WHERE SHOWN ON PLANS.

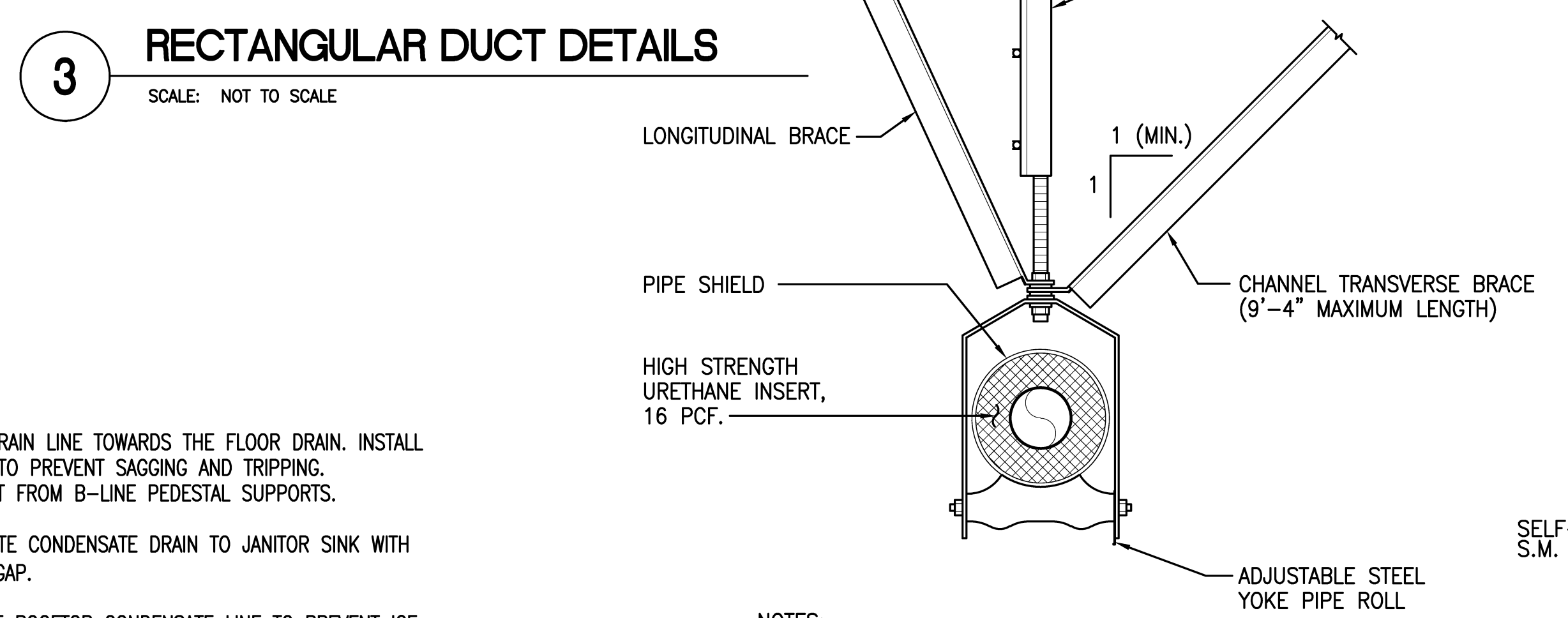


- FSD INSTALLATION & OPERATION NOTES:**
1. ENTIRE ASSEMBLY SHALL BE UL LISTED AND FACTORY ASSEMBLED COMPLETE WITH DAMPER, MOTOR, HEAT SWITCH, POSITION SENSORS, INTEGRAL SLEEVE, ETC., ASSEMBLY SHALL BE FACTORY TESTED PRIOR TO SHIPMENT. DAMPER SHALL BE RUSKIN FSD 60 OR APPROVED EQUAL.
  2. DAMPER SHALL BE POWER OPEN & NORMALLY CLOSED DAMPER, WHICH CLOSE UPON LOSS OF POWER.
  3. MOUNT MOTOR OPERATOR ON EXTERIOR OF DUCTWORK & READILY ACCESSIBLE THROUGH THE CEILING ACCESS PANEL.
  4. DAMPER SHALL BE FURNISHED & INSTALLED BY DIVISION-15, MONITORED BY DIVISION-15. DAMPER SHALL BE ACTIVATED BY THE DUCT SMOKE DETECTORS LOCATED WITHIN 5 FEET DISTANCE FROM THE FSD. COORDINATE WITH DIVISION-16 FOR COMPATIBILITY WITH THE BUILDING FIRE ALARM SYSTEM.
  5. FURNISH ACCESS DOORS OF ADEQUATE SIZE FOR DAMPER MAINTENANCE.
  6. DAMPER SHALL BE CALIF. STATE FIRE MARSHAL APPROVED AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES, WHICH SHALL BE MADE AVAILABLE TO THE INSPECTING AUTHORITY. DETAILS SHOWN ARE FOR REFERENCE ONLY.
  7. DUCT SMOKE DETECTOR SHALL BE FURNISHED BY FIRE ALARM (DIVISION-16). INSTALLED BY DIVISION-15.

**8 COMINATION FIRE & SMOKE DAMPER (FSD) DETAIL**  
 SCALE: NOT TO SCALE



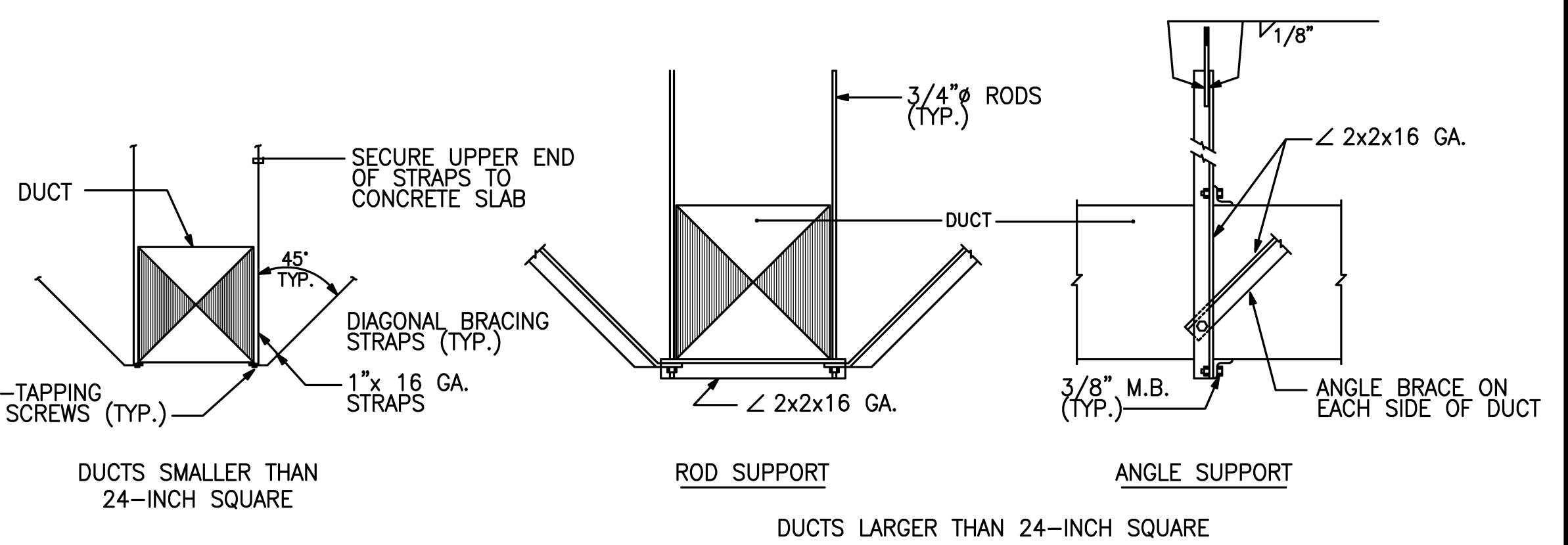
**4 ROUND DUCT DETAILS**  
 SCALE: NOT TO SCALE



**3 RECTANGULAR DUCT DETAILS**  
 SCALE: NOT TO SCALE

- NOTES:
1. PROVIDE BRACING AS REQUIRED BY OSHPD REQUIREMENTS. PROVIDE B-LINE B3110 HANGER OR APPROVED EQUAL.
  2. PROVIDE 360° GALVANIZED PIPE SHIELD PER SPECIFICATION AT ALL HANGER SUPPORT.

**6 PIPE HANGER DETAIL**  
 SCALE: NOT TO SCALE



**7 DUCT HANGER AND BRACING DETAIL**  
 SCALE: NOT TO SCALE



**5 COOLING COIL CONDENSATE TRAP (DRAW - THROUGH COIL)**  
 NOT TO SCALE

- NOTES:
1. PITCH DRAIN LINE TOWARDS THE FLOOR DRAIN. INSTALL NEATLY TO PREVENT SAGGING AND TRIPPING. SUPPORT FROM B-LINE PEDESTAL SUPPORTS.
  2. TERMINATE CONDENSATE DRAIN TO JANITOR SINK WITH 2" AIR GAP.
  3. INSULATE ROOFTOP CONDENSATE LINE TO PREVENT ICE FORMATION. INSULATE LINES INSIDE THE BUILDING TO PREVENT SWEATING AND DRIPPING ON THE CEILING.