DIFFUSER, REGISTER & GRILLE SCHEDULE

SYMBOL	DESCRIPTION	TITUS	PRICE	METALAIR	KRUEGER
CD	MODULAR CORE SURFACE MOUNT CEILING DIFFUSER FLAT FRAME	MCD – BORDER TYPE 1	SMCD–FRAME1	9000–1	1240 FRAME 22
CDL	MODULAR CORE LAY–IN CEILING DIFFUSER FOR T–BAR CEILING 24x24 PANEL	MCD – BORDER TYPE 3	SMCD–FRAME 3P	9000–6P	1240 FRAME 23
CR, CE	CEILING RETURN WITH 1/2" EGG CRATE CORE SURFACE MOUNT	MODEL 50 F – BORDER TYPE 1	80	CC5D	EGC–5
CRL, CEL	CEILING RETURN WITH 1/2" EGG CRATE CORE IN 24x24 PANEL FOR T–BAR CEILING	MODEL 50 F – BORDER TYPE 3	80 – TBP	CC5D–TBD	EGC–5TB
S	DOUBLE DEFLECTION SUPPLY GRILLE WITH VERTICAL FRONT BARS, 3/4" SPACING	300 RS	520 S	V 4004 S	880 V
R & E *	RETURN OR EXHAUST GRILLE WITH 35° OR 45° HORIZONTAL BARS.	350 RL	530L	SRH	S 80 H

NOTES:
1. ALL SYMBOLS NOTED MAY NOT BE USED. REFER TO PLANS FOR SIZE AND QUANTITY.
2. ALL SUPPLY AIR DIFFUSERS ARE 4 WAY BLOW UNLESS SHOWN OTHERWISE.
3. FURNISH ALL PRODUCTS OF A SINGLE MANUFACTURER.
4. COORDINATE DIFFUSER TYPE WITH REFLECTED CEILING PLAN.
5. OPPOSED BLADE DAMPERS ARE NOT REQUIRED AT DIFFUSERS, REGISTERS OR GRILLES UNLESS OTHERWISE NOTED.
6. PROVIDE MANUAL AIR DAMPERS AT EACH BRANCH DUCT TO A SINGLE DIFFUSER, REGISTER OR GRILLE.

* PROVIDE ALUMINUM GRILLES IN SHOWERS & DAMP AREAS.

TABLE OF BRANCH DUCT (SA, RA, EA) SIZES TO INDIVIDUAL DIFFUSERS, GRILLES, & REGISTERS

CFM	DUCT SIZE (INCHES) 1				REMARKS 3
	ROUND	SQUARE	RECTANGULAR	MIN. AREA (SQ. IN.) 2	
0–210	8ø	8x8	8x6	48	8x8 MIN ON RA & EA
211–380	10ø	10x10	10x8	80	
381–600	12ø	12x12	12x10, 16x8	120	
601–900	14ø	14x14	14x12, 16x10, 20x8	160	
901–1300	16ø	16x16	16x14, 18x12, 22x10	220	
1301–1800	18ø	18x18	18x16, 20x14, 22x12	264	
1801–2400	20ø	20x20	22x16, 24x14, 30x12	340	

NOTES:
1. SIZE OF BRANCH DUCT IF SHOWN ON PLANS OR FROM ABOVE TABLE IS NOT THE INLET SIZE TO DIFFUSER, GRILLE OR REGISTER.
2. MINIMUM DUCT AREA TO BE USED FOR ALTERNATE DUCT SIZES (DIFFERENT THAN THIS TABLE) WHEN REQUESTED BY CONTRACTOR FOR SA, RA, AND EA.
3. ALL DUCT SIZES SHALL BE SHOWN CLEARLY ON THE CONTRACTOR'S SUBMITTAL DRAWINGS. SHOW SIZE OF EACH DUCT ON THE PLANS AT EACH DUCT LOCATION.

MECHANICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES AND INDUSTRY STANDARDS.
2. COORDINATE EXACT LOCATION OF EQUIPMENT AND ALL PENETRATIONS THROUGH WALLS & ROOFS WITH ARCHITECTURAL DRAWINGS AND STRUCTURAL COMPONENTS PRIOR TO COMMENCING WORK.
3. COORDINATE EXACT SIZE AND ROUTING OF DUCTWORK AND PIPING ON THE JOB PRIOR TO FABRICATION AND INSTALLATION WITH ARCHITECTURAL, STRUCTURAL, PLUMBING, AND ELECTRICAL. NOT ALL RISES AND DROPS ARE SHOWN. PROVIDE AS REQUIRED TO ACCOMMODATE STRUCTURE AND EXISTING CONDITIONS. HOLD ALL PIPING AS HIGH AS POSSIBLE UNLESS OTHERWISE INDICATED.
4. PROVIDE AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE SUPPLY DIFFUSER/REGISTER OR FROM A SINGLE RETURN OR EXHAUST REGISTER/GRILLE.
5. SEE ARCHITECTURAL FOR SEALING ROOF PENETRATIONS.
6. ALL WORK SHOWN IS NEW UNLESS NOTED OTHERWISE. CAREFULLY COORDINATE CONNECTION OF NEW WORK TO EXISTING WORK.
7. USE OF FLEX DUCT SHALL BE LIMITED TO LAY IN CEILING DIFFUSERS ONLY AND NOT EXCEED 7 FEET IN LENGTH.
8. PENETRATIONS OF RATED FIRE ASSEMBLIES SHALL BE FIRESTOPPED. FIRE–STOPPING SHALL BE OF AN APPROVED MATERIAL AS PRESCRIBED IN THE STATE FIRE MARSHAL STANDARDS.
9. PROVIDE COORDINATED & DIMENSIONED SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION OR INSTALLATION.
10. FIRE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE PROVIDED AS REQUIRED BY 2001 UBC.
11. ALL WALL AND ROOF OPENINGS SHALL BE IDENTIFIED ON SHOP DRAWINGS AND COORDINATED WITH STRUCTURAL REQUIREMENT.
12. SHOW ALL LOCATIONS OF ROOF PENETRATIONS & ROOF MOUNTED EQUIPMENT ON SHOP DRAWINGS, SUBMIT FOR APPROVAL BY THE OWNER'S REPRESENTATIVE.
13. FIRE DAMPERS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. MANUFACTURER'S INSTRUCTIONS SHALL BE MADE AVAILABLE TO THE OWNER'S REPRESENTATIVE.
14. SEE 3/H–3 FOR REGISTER DETAILS.
15. SEE 7/H–3 FOR BRANCH DUCT TAKE–OFFS.

DUCT LEGEND

SINGLE LINE SYMBOL	DOUBLE LINE SYMBOL	DESCRIPTION
24x12	24x12	RECTANGULAR DUCT – WIDTH x DEPTH (PLAN VIEW) DEPTH x WIDTH (SECTION VIEW)
26x14L	26x14L	ACOUSTICALLY LINED RECTANGULAR DUCT–DIMENSIONS ARE OUTSIDE DIMENSION (BASED ON 2" INSULATION, R–8 MIN)
		MANUAL AIR DAMPER
R OR D	RISE OR DROP	RISE OR DROP DUCT IN DIRECTION OF AIR FLOW
OR		RECTANGULAR TO RECTANGULAR TRANSISTION , MAX. SLOPE OF 1:3 RECTANGULAR TO ROUND TRANSITION , MAX. SLOPE OF 1:3
	R, W, D, W/D = 1.5	ELBOW, RECTANGULAR, SMOOTH RADIUS, WITHOUT TURNING VANES
		SQUARE/RECTANGULAR DUCT ELBOW WITH TURNING VANES
		CONVERGING OR DIVERGING TEE, 45° ENTRY, RECTANGULAR MAIN AND BRANCH. WHEN REDUCING MAIN, SIDE OF TAKE OFF OR ENTRY BRANCH TO BE FLAT, OTHER SIDES MAX. SLOPE OF 1:3
		CONICAL DUCT TAKE OFF FROM RECTANGULAR VIA SPIN–IN W/DAMPER AND SCOOP
	ROUND DUCT	ROUND DUCT TAKE OFF FROM RECTANGULAR VIA SMOOTH CONVERGING BELL MOUTH
		RECTANGULAR DUCT TEE MAD'S ON THE 2 BRANCHES, THROAT SIZED FOR EQUAL PRESSURE DROP
		RECTANGULAR DUCT SPLIT MAD'S, THROAT SIZED FOR EQUAL PRESSURE DROP
		3–WAY RECTANGULAR SPLIT WITH TWO TRANSITIONAL ELBOWS AND TRANSITIONING MAIN. DOWNSTREAM MAD'S ON THE TREE BRANCHES. THROATS SIZED FOR EQUAL PRESSURE DROP.
		FOR CONCEALED DUCT: DROP TO DIFFUSER SHALL BE FULL SIZE OF DIFFUSER NECK. FOR EXPOSED DUCT: DROP SHALL BE FULL SIZE OF OD DIFFUSER FRAME, FLANGE FOR MOUNITING DIFFUSER TURNED IN. AIR EXTRACTOR AND EQUALIZER GRID AT CONNECTION TO MAIN.
		SUPPLY AIR, SUPPLY AIR DUCT IN SECTION, SUPPLY DROP
		RETURN AIR, RETURN AND OUTSIDE AIR DUCT IN SECTION, RETURN AIR DROP
		EXHAUST AIR, EXHAUST AIR DUCT IN SECTION, EXHAUST AIR DROP
		FLEXIBLE DUCT (ROUND)
		FLEXIBLE DUCT (FABRIC)
	18"ø, 10"ø, 12"ø, MAD, 12"ø	45° REDUCING LATERAL FITTING
	18"ø, 12"ø, MAD, 18"ø, 12"ø, 10"ø	90° REDUCING TEE FITTING

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABV	ABOVE
	ABC	ABOVE CEILING
	AF	ABOVE FLOOR
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AI	ANALOG INPUT
	AD	ACCESS DOOR
	AP	ACCESS PANEL
	AC	AIR CONDITIONING
	APD	AIR PRESSURE DROP, INCHES WATER COLUMN
	BFP	BACKFLOW PREVENTER
	BF	BELOW FLOOR
	BAS	BUILDING AUTOMATION SYSTEM
	BHP	BRAKE HORSEPOWER
	BI	BINARY INPUT
	BO	BINARY OUTPUT
	BTU(H)	BRITISH THERMAL UNITS (PER HOUR)
	BPT	BYPASS TIMER
	CLG	CEILING
	CLR	CLEAR
CD	CD	CONDENSATE DRAIN LINE
	CONC	CONCRETE
	CONN	CONNECT OR CONNECTION
	CONT	CONTINUATION
	CFM	CUBIC FEET OF AIR FLOW PER MINUTE
	CS	CURRENT SWITCH
°F		DEGREES FAHRENHEIT
ø	DIA	DIAMETER
ΔP	ΔP	DIFFERENTIAL PRESSURE SENSOR, PIPE MOUNTED
	DL	DOOR LOUVER
	DN	DOWN
	DR	DRAIN
	(D)	DROP
	DB	DRY BULB (DEGREES FAHRENHEIT)
	DTR	DUCT THRU ROOF
	DX	DIRECT EXPANSION
	EF	EXHAUST FAN
	ELEC.	ELECTRIC, ELECTRICAL
	EL	ELEVATION
	EDB	ENTERING DRY BULB
	EW	ENTERING WATER
	EWT	ENTERING WATER TEMPERATURE
	EWB	ENTERING WET BULB
	EA	EXHAUST AIR
	EAD	EXHAUST AIR DAMPER
	(E), EXIST.	EXISTING
	EL, EXP. LP.	EXPANSION LOOP
	ESP	EXTERNAL STATIC PRESSURE
	FPM	FEET PER MINUTE
FS	FS	FIRE/SMOKE DAMPER
	FC	FLEXIBLE OR FLEXIBLE CONNECTION
	FLR	FLOOR
		FLOW IN DIRECTION OF ARROW
	FA	FROM ABOVE
	FB	FROM BELOW
	FLA	FULL LOAD AMPS
	GPH	GALLONS PER HOUR
	GPM	GALLONS PER MINUTE
	GALV	GALVANIZED
	GSM	GALVANIZED SHEET METAL
	GA	GAUGE
	GYP. BD.	GYPSUM BOARD
	HTG	HEATING
	HP	HORSEPOWER
	HW	HOT WATER
	HR	HOUR
	I.E.	INVERT ELEVATION
	IN. WC., IN. WG.	INCHES WATER GAGE, INCHES WATER COLUMN
	J–BOX	JUNCTION BOX
	KW	KILOWATTS
	KWH	KILOWATT HOUR
	LDB	LEAVING DRY BULB IN DEGREES FAHRENHEIT
	LWB	LEAVING WET BULB IN DEGREES FAHRENHEIT
	LRA	LOCKED ROTOR AMPERES
	MAV	MANUAL AIR VENT
	MAD, MD	MANUAL AIR DAMPER
M		MOTORIZED AIR DAMPER
	MFR	MANUFACTURER
	MAX	MAXIMUM
	MOCP	MAXIMUM OVER CURRENT PROTECTION
	MBH	THOUSANDS OF BRITISH THERMAL UNITS
	MIN	MINIMUM
	MCC	MOTOR CONTROL CENTER
	MS	MOTOR STARTER
	(N)	NEW
	OC	ON CENTER
	OA	OUTSIDE AIR
	OAD	OUTSIDE AIR DAMPER
	OH	OVERHEAD
ø	PH	PHASE
	POC	POINT OF CONNECTION
	LB, LBS	POUND, POUNDS
	PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
	PD	PRESSURE DROP
P OR	PG	PRESSURE GAUGE
	PRV	PRESSURE REDUCING VALVE

MECHANICAL LEGEND cont'd

SYMBOL	ABBREVIATION	DESCRIPTION
	REF	REFERENCE
RS	RS	REFRIGERANT SUCTION PIPING
RL	RL	REFRIGERANT LIQUID PIPING
	RA	RETURN AIR
	RAD	RETURN AIR DAMPER
	REQ'D	REQUIRED
	RPM	REVOLUTIONS PER MINUTE
	(R)	RISE
		RISER DOWN (ELBOW)
		RISER UP (ELBOW)
	RLA	RUNNING LOAD AMPERES
		SEISMIC EXPANSION JOINT
	SM	SHEET METAL
SD	SD	SMOKE DAMPER
SD	SKD	SMOKE DETECTOR
ø	SQFT, FT^2	SQUARE FEET
	SQIN, IN^2	SQUARE INCHES
	SP	STATIC PRESSURE
	SPD	STATIC PRESSURE DROP
SP	SP	STATIC PRESSURE SENSOR (DUCT AND SPACE)
	STR	STRAINER
	SA	SUPPLY AIR
	SF	SUPPLY FAN
$		SWITCH, MANUAL FAN OPERATION
	TCV	TEMPERATURE CONTROL VALVE
	TCP	TEMPERATURE CONTROL PANEL
T X		TEMPERATURE SENSOR, "X" INDICATES DEVICE CONTROLLED
	TA	TO ABOVE
	TB	TO BELOW
	TP	TOTAL PRESSURE
	TSP	TOTAL STATIC PRESSURE
	TYP	TYPICAL
	UCD	UNDER CUT DOOR
	UG	UNDERGROUND
	UF	UNDER FLOOR
	UON	UNLESS OTHERWISE NOTED
	VLV	VALVE
	WPD	WATER PRESSURE DROP
	W	WATTS
	WT	WEIGHT
	WB	WET BULB
	WMS	WIRE MESH SCREEN
	WP	WORKING PRESSURE
CWS	CWS	CONDENSER WATER SUPPLY PIPING
CWR	CWR	CONDENSER WATER RETURN PIPING
CHWS	CHWS	CHILLED WATER SUPPLY PIPING
CHWR	CHWR	CHILLED WATER RETURN PIPING
HWS	HWS	HOT WATER SUPPLY PIPING
HWR	HWR	HOT WATER RETURN PIPING
LPS	LPS	LOW PRESSURE STEAM
LPR	LPR	LOW PRESSURE CONDENSATE RETURN
PR(R)	PR(R)	PRESSURE RELIEF, REFRIGERANT PIPING
CD	CD, D	CONDENSATE DRAIN , DRAIN
	TR	DUCT TRANSITION, LARGE TO SMALL
	AV, TCV	VALVE WITH MOTOR/ACTUATOR
	FLV	FLOW LIMITING VALVE
	AV, TCV	BUTTERFLY VALVE WITH MOTOR/ACTUATOR
	CBV	CALIBRATED BALANCE VALVE
	ANV	ANGLE VALVE
	BFP	BACKFLOW PREVENTER
	BFV	BUTTERFLY VALVE
	BV	BALL VALVE
	CKV	CHECK VALVE
	CP	CIRCULATING PUMP
	GV	BALL VALVE
	GL.V.	GLOBE VALVE
	GCK	GAGE COCK
	HV	HAND VALVE
	PRV	PRESSURE REDUCING VALVE
	PWR	POWER
OR	RV or P&TRV	RELIF VALVE OR PRESSURE & TEMPERATURE RELIEF VALVE
	TCV	TEMPERATURE CONTROL VALVE (2–WAY)
	TCV	TEMPERATURE CONTROL VALVE (3–WAY)
	FMS	FLOW MEASURING STATION
		VALVE IN RISER (TYPE AS INDICATED OR NOTED)
		FLOW IN DIRECTION OF ARROW
		PITCH DOWN IN DIRECTION OF FLOW
	UN	UNION
	FL	FLANGE
		EXISTING TO BE REMOVED
	EXP LP	EXPANSION LOOP
		PIPE ANCHOR
		PIPE GUIDE
	TG	TEMPERATURE GAUGE
	CR	CONCENTRIC REDUCER
	ER	ECCENTRIC REDUCER (FLAT SIDE ON TOP)
		SUCTION DIFFUSER
	STR	STRAINER W/BLOWDOWN VALVE

NOTE: ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE USED ON PLANS.

CONSTRUCTION DOCUMENTS

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Revisions | Date

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NATIONAL CEMETERY ADMINISTRATION

Drawing Title: HVAC LEGENDS, SCHEDULES, & NOTES

Project Title: LOUISIANA NATIONAL CEMETERY GRAVESITE EXPANSION PHASE 1B

Date: MARCH 22, 2012

Project No. 870CM3023B

Approved: Director, Office of Construction Management

Building Number | Checked | Drawn

Approved: Director, Project Management Service

Location: LOUISIANA NATIONAL CEMETERY ZACHARY, LOUISIANA

DRAWING NO. H-1

Dwg. 116 Of 137