DIFFUSER, REGISTER AND GRILLE SCHEDULE

TYPE ②	SERVICE	MOUNTING	NOMINAL FACE SIZE INCHES	NECK SIZE INCHES	MATERIAL	LINEAR BAR BAR WIDTH INCHES	LINEAR BAR SPACE WIDTH INCHES	LINEAR BAR DEFLECTION	PATTERN ①	CFM RANGE	REMARKS
PS-1	SUPPLY	④	24x24	6"DIA	STEEL	–	–	–	4W	0-140	TITUS MODEL PAS
PS-1	SUPPLY	④	24x24	8"DIA	STEEL	–	–	–	4W	141-210	TITUS MODEL PAS
PS-1	SUPPLY	④	24x24	10"DIA	STEEL	–	–	–	4W	211-275	TITUS MODEL PAS
PS-1	SUPPLY	④	24x24	12"DIA	STEEL	–	–	–	4W	276-325	TITUS MODEL PAS
PS-1	SUPPLY	④	24x24	14"DIA	STEEL	–	–	–	4W	326-425	TITUS MODEL PAS
PS-1	SUPPLY	④	24x24	16"DIA	STEEL	–	–	–	4W	426-600	TITUS MODEL PAS
PS-2	SUPPLY	④	12x12	6"DIA	ALUM	–	–	–	4W	0-140	TITUS MODEL PAS
PR-1	RETURN	④	24x24	6"DIA	STEEL	–	–	–	–	0-140	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PR-1	RETURN	④	24x24	8"DIA	STEEL	–	–	–	–	141-210	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PR-1	RETURN	④	24x24	10"DIA	STEEL	–	–	–	–	211-275	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PR-1	RETURN	④	24x24	12"DIA	STEEL	–	–	–	–	276-325	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PR-1	RETURN	④	24x24	14"DIA	STEEL	–	–	–	–	326-425	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PR-1	RETURN	④	24x24	16"DIA	STEEL	–	–	–	–	426-600	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PR-1	RETURN	④	24x24	22x22	STEEL	–	–	–	–	601-1500	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PR-2	RETURN	④	12x12	6"DIA	ALUM	–	–	–	–	0-140	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PE-1	EXHAUST	④	12x12	6x6	ALUM	–	–	–	–	0-140	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PE-1	EXHAUST	④	12x12	10x10	ALUM	–	–	–	–	141-275	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
PE-2	EXHAUST	④	64x24	14" DIA	ALUM	–	–	–	–	276-375	SIMILAR TO SUPPLY WITH DEFLECTORS REMOVED, TITUS MODEL PAR
RG-1	RETURN	SIDEWALL	32x20	30x18	STEEL	–	–	–	–	1800	TITUS MODEL 15RL ③
RG-2	RETURN	SIDEWALL	20x12	18x10	STEEL	–	–	–	–	500	TITUS MODEL 25RL GRILLE WITH 1/2" BLADE SPACING AND 30° DEFLECTION
RG-3	RETURN	④	50x20	48x18	ALUM	–	–	–	–	2000-3500	TITUS MODEL 50R STEEL BORDER, ALUM CORE 1/2"x1/2"x1/2" EGGCRATE
RG-4	RETURN	④	26x26	24x24	ALUM	–	–	–	–	300-1100	TITUS MODEL 4F 45° DEFLECTION
SG-1	SUPPLY	SIDEWALL	20x10	18x8	STEEL	–	–	–	ADJ	500	TITUS MODEL 272RS GRILLE WITH 3/4" BLADE SPACING AND DOUBLE DEFLECTION
SG-2	SUPPLY	SIDEWALL	38x8	36x6	ALUM	1/8"	1/4"	0°	–	50-100/L.F.	TITUS MODEL CT-480 ⑥
SG-3	SUPPLY	SIDEWALL	(X)x8	(X)x6	ALUM	1/8"	1/4"	0°	–	50-100/L.F.	TITUS MODEL CT-480 ④⑤⑥
SD-1	SUPPLY	④	12x12	6x6	ALUM	–	–	–	3W	0-150	TITUS MODEL TDC-AA ⑦
SD-2	SUPPLY	④	15x15	9x9	ALUM	–	–	–	3W	151-300	TITUS MODEL TDC-AA ⑧
SD-3	SUPPLY	④	18x18	12x12	ALUM	–	–	–	4W	301-550	TITUS MODEL TDC-AA ⑨

NOTES:

1) MAX. APD. 0.1" WG
2) DUCT RUNOUT SAME SIZE AS DIFFUSER NECK
3) MAX. NC = 27
4) DUCTWORK AND PLENUMS BEHIND GRILLES, REGISTERS AND DIFFUSERS SHALL BE PAINTED FLAT BLACK OR AS OTHERWISE DIRECTED BY ARCHITECT.

SPECIAL NOTES:

① 4-WAY DISCHARGE SHALL BE ADJUSTABLE PATTERN, AND SHALL ALSO BE ADJUSTED AS FOLLOWS; CORRIDORS LESS THAN 8 FEET WIDE SHALL BE 2 WAY ARRANGEMENT, OTHERS SHALL BE ADJUSTED TO SUIT ACTUAL CONDITIONS (EXAMPLE: NEAR WALL 3 WAY, IN CORNER 2 WAY, ETC.).

② UNLESS INDICATED OTHERWISE ON PLANS, ALL SUPPLY AIR DIFFUSERS SHALL BE TYPE "PS-1" (PERFORATED FACE) ALL RETURN AIR DEVICES SHALL BE TYPE "PR-1" (PERFORATED FACE) AND ALL EXHAUST GRILLES SHALL BE TYPE "PE-1" (PERFORATED FACE).

③ GRILLE WITH 1/2" BLADE SPACING, 0° DEFLECTION WITH EXTRUDED BLADES PARALLEL TO LONG DIMENSION.

④ COORDINATE WITH ARCHITECTURAL WORK, FOR LAY-IN TILE OR GYPSUM BOARD MOUNTING.

⑤ EXACT LENGTH "(X)" OF AIR DEVICE MUST BE COORDINATED WITH FLOOR PLANS, THE UNIT MUST BE CURVED TO MATCH THE OUTSIDE RADIUS OF THE WALL.

⑥ THE COLOR OF UNIT MUST BE APPROVED BY THE ARCHITECT.

⑦ PROVIDE TRANSITION FROM SQUARE NECK TO ROUND 8" DIA DUCT RUNOUT.

⑧ PROVIDE TRANSITION FROM SQUARE NECK TO ROUND 12" DIA DUCT RUNOUT.

⑨ PROVIDE TRANSITION FROM SQUARE NECK TO ROUND 16" DIA DUCT RUNOUT.

HVAC DUCT CONSTRUCTION SCHEDULE

DUCT PRESSURE CLASS REQUIREMENTS

SYSTEM	SMACNA DUCT PRESSURE CLASS (INCHES W.G.) SUPPLY: DUCT BRANCH AND RUNOUT DISCHARGE	SUPPLY: MAIN SUPPLY DUCT AND TERMINAL UNIT DISCHARGE	RETURN: SUCTION	EXHAUST: DISCHARGE	EXHAUST: SUCTION	OUTSIDE AIR: DISCHARGE	OUTSIDE AIR: SUCTION	NOTES
GENERAL SUPPLY	2.0	4.0	2.0	--	--	--	2.0	
GENERAL EXHAUST & VENTILATION	--	--	--	2.0	2.0	--	--	1

GENERAL:
A. MIXED AIR DUCTS (RA & OA) AND INLET PLENUMS SHALL BE CONSTRUCTED SAME AS RETURN DUCTS.
B. PROVIDE DUCT JOINT TYPES WHICH ASSURE COMPLIANCE WITH THE ASSOCIATED LEAKAGE FACTOR.

MINIMUM RECTANGULAR DUCT CONSTRUCTION REQUIREMENTS

SPECIAL NOTE:
REFER TO PLANS FOR SPECIAL DUCT CONSTRUCTION REQUIRING THICKER GAGE MATERIALS TO LIMIT NOISE, VIBRATION AND RUMBLE IN SPECIFIC SOUND SENSITIVE AREAS

2.0 INCHES W.G. STATIC (POS. OR NEG.) DUCT DIMENSION (INCHES)	MINIMUM STEEL GAGE	MAXIMUM REINFORCEMENT SPACING (FEET)	3.0 INCHES W.G. STATIC (POS. OR NEG.) DUCT DIMENSION (INCHES)	MINIMUM STEEL GAGE	MAXIMUM REINFORCEMENT SPACING (FEET)	4.0 INCHES W.G. STATIC (POS. OR NEG.) DUCT DIMENSION (INCHES)	MINIMUM STEEL GAGE	MAXIMUM REINFORCEMENT SPACING (FEET)
10" LESS	26	NONE	18" LESS	24	5.0	18" LESS	24	5.0
11"-12"	24	NONE	19"-28"	22	5.0	19"-28"	22	5.0
13"-30"	24	5.0	29"-48"	22	2.5	29"-42"	22	2.5
31"-42"	22	5.0	49"-72"	20	2.5	43"-60"	20	2.5
43"-48"	22	2.5	73"-84"	18	2.5	61"-72"	18	2.5
49"-84"	20	2.5	85" UP	16	2.5	73"-96"	16	2.5
85" UP	18	2.5						

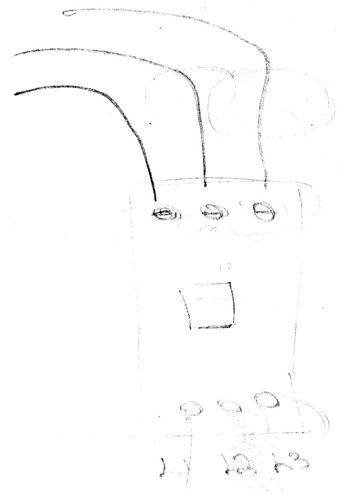
GENERAL:
DUCT REINFORCEMENT SHALL BE AS LISTED BY SMACNA DUCT CONSTRUCTION STANDARDS

DUCT SEAL CLASS AND LEAKAGE REQUIREMENTS

PRESS. CLASS (INCHES W.G.)	SEAL CLASS (NOTE 1)	TEST PRESS. (INCHES W.G.)	LEAKAGE FACTOR (NOTE 2)
2.0	C	2.0	10
3.0	B	3.0	8
4.0	A	4.0	8
6.0	A	6.0	10
10.0	A	10.0	15

GENERAL:
* THE LEAKAGE REQUIREMENTS SCHEDULED ABOVE ARE FOR STANDARD, HVAC APPLICATIONS.
* SEAL ALL DUCTS AS INDICATED ON THIS SCHEDULE
* UNLESS OTHERWISE NOTED ABOVE LEAK TEST ALL DUCTS. LEAKAGE RATES SHALL NOT EXCEED LEAKAGE FACTORS INDICATED ON THIS SCHEDULE FOR THE APPLICABLE PRESSURE CLASSES.

NOTES:
1. SMACNA SEAL CLASS DESCRIPTIONS:
   A – SEAL ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS AND DUCT WALL PENETRATIONS.
   B – SEAL ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS.
   C – SEAL TRANSVERSE JOINTS.
2. DUCT LEAKAGE FACTOR 9CFM/100 SQ. FT OF DUCT SURFACE AREA). MAXIMUM LEAKAGE RATE AT TEST PRESSURE.



ELECTRIC BASEBOARD HEATER SCHEDULE

DESIGN.	WATTS/LF	NOMINAL ELEMENT LENGTH	VOLTAGE	HEATER DIMENSIONS HEIGHT	HEATER DIMENSIONS LENGTH	REMARKS	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER
EB-1	188	8.0 FT	208V/1ø/60Hz	5"	3"	①②③④	DESIGN ARCHITECTURAL HEATING MODEL SBT-PD
EB-2	188	4.0 FT	208V/1ø/60Hz	5"	3"	①②③④	DESIGN ARCHITECTURAL HEATING MODEL SBT-PD

NOTE:

① UNIT SHALL BE PEDESTAL MOUNTED WITH TOP OUTLET AND BOTTOM INLET COMPLETE WITH END ENCLOSURE OR TRIM PEICES, THERMOSTAT AND WIRING CONNECTION JUNCTION BOX.

② PEDESTAL SHALL BE SET FOR HEATER TO BE 3" ABOVE FINISHED FLOOR.

③ COORDINATE EXACT LOCATION WITH ARCHITECTURAL WORK AND VERIFY LOCATION OF ELECTRICAL SERVICES TO ACCOMODATE ACTUAL UNIT PROVIDED FOR THIS PRODUCT.

④ COLOR: COLOR MUST BE APPROVED BY THE ARCHITECT. ARCHITECT RESERVES THE RIGHT TO SELECT CUSTOM COLOR FOR UNIT AND TRIM.

⑤ PROVIDE WITH INTEGRAL POWER DISCONNECT SWITCH.

V.A.V. TERMINAL UNIT SCHEDULE

DESIG.	SYSTEM	INLET SIZE ("ø")	DESIGN MAX. CFM	DESIGN MIN. CFM	ELECTRIC REHEAT COIL KW	HEATING MIN CFM	V/ø/Hz	No. OF STEPS	MAX ΔPS	MIN. INLET SP	SOUND DATA DIS. MAX.	RAD. MAX.	REMARKS
TU-1	RTU-1	5	280	100	1.5	120	208/1/60	1	.50	1.0	20	25	
TU-2	RTU-1	9	900	300	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-3	RTU-1	5	280	100	1.5	120	208/1/60	1	.50	1.0	20	25	
TU-4	RTU-1	5	275	275	3.5	275	208/1/60	2	.50	1.0	20	25	
TU-5	RTU-1	9	900	300	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-6	RTU-1	5	350	120	1.5	120	208/1/60	1	.50	1.0	20	25	
TU-7	RTU-1	9	900	300	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-8	RTU-1	9	900	300	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-9	RTU-1	9	900	300	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-10	RTU-1	6	400	130	1.5	130	208/1/60	1	.50	1.0	23	27	
TU-11	RTU-1	5	280	100	1.5	120	208/1/60	1	.50	1.0	20	25	
TU-12	RTU-1	5	250	100	1.5	120	208/1/60	1	.50	1.0	20	25	
TU-13	RTU-1	9	800	260	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-14	RTU-1	5	275	275	3.5	275	208/1/60	2	.50	1.0	20	25	
TU-15	RTU-1	9	800	260	3.5	430	208/3/60	2	.50	1.0	20	27	
TU-16	RTU-1	5	330	110	1.5	120	208/1/60	1	.50	1.0	20	25	
TU-17	RTU-1	9	800	260	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-18	RTU-1	7	500	170	3.0	220	208/1/60	1	.50	1.0	20	25	
TU-19	RTU-1	9	800	260	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-20	RTU-1	9	800	260	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-21	RTU-1	6	380	130	1.5	130	208/1/60	1	.50	1.0	23	27	
TU-22	RTU-2	9	820	270	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-23	RTU-2	12	1200	360	10.0	770	208/3/60	3	.50	1.0	20	25	
TU-24	RTU-2	8	680	220	3.0	220	208/1/60	1	.50	1.0	20	27	
TU-25	RTU-2	14	2000	660	16.0	1290	208/3/60	3	.50	1.0	20	35	
TU-26	RTU-2	8	690	250	3.5	250	208/1/60	2	.50	1.0	20	27	
TU-27	RTU-2	9	880	270	6.0	430	208/3/60	2	.50	1.0	20	27	
TU-28	RTU-2	6	410	130	1.5	130	208/1/60	1	.50	1.0	23	27	
TU-29	RTU-2	12	1100	330	10.0	770	208/3/60	3	.50	1.0	20	32	
TU-30	RTU-2	12	1000	300	10.0	770	208/3/60	3	.50	1.0	20	32	
TU-31	RTU-2	7	520	160	3.0	220	208/1/60	1	.50	1.0	23	25	
TU-32	RTU-2	12	1000	300	10.0	770	208/3/60	3	.50	1.0	20	32	
TU-33	RTU-2	12	1100	330	10.0	770	208/3/60	3	.50	1.0	20	32	
TU-34	RTU-2	5	250	250	3.5	250	208/1/60	2	.50	1.0	20	25	
TU-35	RTU-2	14	2000	660	16.0	1290	208/3/60	3	.50	1.0	20	32	
TU-36	RTU-2	7	600	180	3.0	220	208/1/60	1	.50	1.0	23	25	
TU-37	RTU-2	12	1100	330	10.0	770	208/3/60	3	.50	1.0	20	32	
TU-38	RTU-2	6	420	130	1.5	130	208/1/60	1	.50	1.0	23	27	

NOTES:

1. TERMINAL UNITS SHALL BE LOCATED TO ALLOW FOR MAINTENANCE ACCESS AND PROPER CLEARANCES TO MEET CODE REQUIREMENTS ESPECIALLY FOR ELECTRIC HEATING COIL, ELECTRIC HEATING COIL CONTROL AND SWITCHING SECTION SHALL BE MOUNTED LEFT HAND, RIGHT HAND OR REMOTE LOCATION AS REQUIRED TO ACCOMMODATE THIS PROJECT.
2. SOUND CRITERIA SHALL BE COMPLIANT WITH ARI STANDARDS 885-90 AND 880-94 AND THE VALUES INDICATED ARE THE MAXIMUM ACCEPTABLE LEVELS.
3. OUTLET DUCTS SHALL TRANSITION AS REQUIRED TO SIZES AS INDICATED ON PLANS.
4. THE LISTED INLET DUCT SHALL BE ROUTED FROM THE DUCT MAIN TO THE TERMINAL UNIT. ALL ROUTING SHALL BE COORDINATED WITH OTHER WORK FOR THIS PROJECT.
5. MINIMUM HEATING AIRFLOW MUST BE COORDINATED WITH ACTUAL HEATING COIL SELECTION.
6. TITUS MODEL DESV SINGLE DUCT TERMINAL UNITS ARE THE BASIS OF DESIGN UNITS, ONLY TITUS MODEL LISTED "OR EQUAL" UNITS WILL BE CONSIDERED FOR THIS PROJECT.
7. ALL UNITS SHALL HAVE DOOR INTERLOCK DISCONNECT SWITCH.
8. ALL UNITS SHALL HAVE MAIN SUPPLY FUSES. COORDINATE WITH ELECTRICAL WORK.

ELECTRIC CABINET, WALL AND UNIT HEATER SCHEDULE

UNIT NO.	CFM	KW	BTU/HR	VOLTAGE	PHASE	AMP WITH MOTOR	TYPE	DIMENSIONS WIDTH	DIMENSIONS HEIGHT	DIMENSIONS DEPTH	REMARKS	BASIS OF DESIGN MANUFACTURER AND MODEL NUMBER
CUH-1	250	6.0	20470	208	3	26	WALL MOUNTED, RECESSED	36"	28"	9 1/2"	①②③④⑤⑥⑦	BERKO CUH-3-620-3
CUH-2	250	6.0	20470	208	3	26	WALL SURFACE MOUNTED	36"	28"	9 1/2"	①②③④⑤⑥	BERKO CUH-3-620-3
CUH-3	–	3.0	10240	208	3	14.5	WALL SURFACE MOUNTED ⑧	14 1/2"	19 1/2"	5 1/2"	②③④⑤⑥⑧⑨	BERKO FRC 4024B

NOTE:

① INTEGRAL TAMPER-RESISTANT THERMOSTAT

② INTEGRAL POWER DISCONNECT

③ FAN DELAY RELAY

④ THERMAL OVERLOAD PROTECTION WITH AUTOMATIC RESET

⑤ MOUNTING: INVERTED (TOP INLET, BOTTOM OUTLET) FRONT INLET, FRONT OUTLET.

⑥ COLOR: COLOR MUST BE APPROVED BY ARCHITECT. ARCHITECT RESERVES THE RIGHT TO SELECT CUSTOM COLOR FOR UNIT AND ANY TRIM PIECES.

⑦ MATCHING TRIM FRAME KIT WITH 1" WIDE FACING

⑧ REMOTE MOUNTED THERMOSTAT LOCATION AS DETERMINED AND APPROVED BY ARCHITECT.

⑨ UNIT SHALL BE MOUNTED BEHIND REMOVABLE ARCHITECTURAL LATTICE WORK (3/4" WIDE ALUMINUM BAR) WITH MINIMUM 1" x 1" OPENINGS. FREE AREA SHALL NOT BE LESS THAN FREE AREA OF HEATER OPENINGS. CONTRACTOR MUST PROVIDE BAFFLE BETWEEN DISCHARGE AND INTAKE OF HEATER BETWEEN FACE OF HEATER AND BACK OF LATTICE TO PREVENT S SHORT CIRCUITING OF AIR.

FAN SCHEDULE

FAN NO.	AREA SERVED	DUTY	CFM	E.S.P. IN. WC	MAX FAN RPM	HP	FAN TYPE	DRIVE	MFR'S MODEL NO.	ELECTRICAL	CONTROL	NOTES
4	CLASSROOM LOWER TOILET	EXHAUST	450	.375	1540	1/4	CENTRIFUGAL	BELT	GREENHECK BCF-106	120V/1ø/60Hz	ATC	Ⓐ
5	CLASSROOM MAIN TOILET	EXHAUST	450	.375	1540	1/4	CENTRIFUGAL	BELT	GREENHECK BCF-106	120V/1ø/60Hz	ATC	Ⓐ
6	P.A. LOWER TOILET	EXHAUST	450	.50	1320	1/4	CENTRIFUGAL	BELT	GREENHECK GB-80	120V/1ø/60Hz	ATC	Ⓑ

NOTES:

Ⓐ INTERLOCK WITH RTU-1.

Ⓑ INTERLOCK WITH RTU-2.

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PERFORMING ARTS AND CLASSROOM ADDITIONS
NOTRE DAME PREPARATORY SCHOOL
TOWSON, MARYLAND

REVISIONS:

NO.	DESCRIPTION	DATE

LAST REV.:
PROJECT NO.: 98-033
DATE: FEB. 17, 1999
SCALE: AS NOTED
TITLE: SCHEDULES MECHANICAL

SHEET: M 3.0