ROOF DRAIN SIZING CALCULATION

ROOF DRAIN NO.	ROOF AREA COVERED * FLOOR AREA COVERED	WALL AREA COVERED	TOTAL AREA COVERED	MAX. AREA ALLOWED	SIZE
1-A	*1515	–	*1515		4"
1-B	*4523	–	*4523		6"
1-C	*2912	–	*2912		4"
2-A	*1515	–	*1515		4"
2-B	*2921	–	*2921		4"
2-C	*1512	–	*1512		4"
2-D	* 3321	–	* 3321		6"
3-A	*1515	–	*1515		4"
3-B	*2919	–	*2912		4"
3-C	*2159	–	*2159		4"
3-D	7653	149	7802	23000	8"
4-A	3583	237	3820	10700	6"
4-B	14083	542	14625	23000	8"
4-C	6567	175	6742	23000	8"
5-A	657	–	657		3"
5-B	242	–	242		3"

NOTES:
ROOF DRAINS SIZED PER IPC, TABLE 1106.3, FOR 2"/ HR RAIN FALL WITH 1/8" / FT. SLOPE.
DRAINS 1-A THRU 3-C ARE DRAINS COVERING AREAS NOT DIRECTLY OPEN TO RAIN AND ARE SIZED ONLY TO DRAIN WATER RUN OFF FROM VEHICLES AND WATER BLOWN IN FROM SIDE WALL OPENINGS.

AIR DISTRIBUTION SCHEDULE

SYMBOL	TYPE	DESCRIPTION
A	EXHAUST LOUVER	AUTOMATIC RELIEF COMBINATION LOUVER DAMPER. GALVANIZED STEEL, 6" DEEP FRAME DEPTH, 45° BLADE ANGLE AT 4 1/2" O.C. PROVIDE 1/8" MESH INSECT SCREEN BEHIND GRILLE. PROVIDE COUNTER BALANCED BACKDRAFT DAMPER BEHIND GRILLE IN S.M. SLEEVE. RUSKIN MODEL LC6375D
B	SIDEWALL EXHAUST	SINGLE DEFLECTION FIXED HORIZONTAL BLADE GRILLE WITH 3/4" SPACING AND FRAME FOR SURFACE MOUNT. TITUS MODEL 350ZFL. INTERIOR PAINTED FLAT BLACK.
C	CEILING EXHAUST	EGGCRATE GRILLE WITH 1/2" X 1/2" X 1/2" GRID, FRAME FOR SURFACE MOUNTING. TITUS MODEL 50F-1. INTERIOR PAINTED FLAT BLACK.

NOTES:
EQUIVALENT MODELS OF KRUEGER, ANEMOSTAT, PRICE, OR J&J ARE ACCEPTABLE.
REFER TO THE FLOOR PLANS FOR NECK SIZE, CFM, AIR DIFFUSION PATTERN AND FIRE DAMPER, IF REQUIRED. PROVIDE AIR CONTROL GRID FOR ALL CEILING SUPPLY DIFFUSERS SET AT 90°.

EXHAUST FAN SCHEDULE

NUMBER	EF-1	EF-2
TYPE	CENTRIFUGAL	CENTRIFUGAL
MOUNTING	INLINE	CEILING
WATTS/BHP	–/0.33	121/–
VOLTS/PHASE	208/3	115/1
CFM	1650	300
E.S.P. (IN. WC.)	0.50	0.25
DRIVE	BELT	DIRECT
RPM	1725	1000
SONES/TIP SPD. (FPM)	11.2/4302	2.0/1696
SERVICE	SEE PLANS	SEE PLANS
CONTROL	SEE NOTES	SEE NOTES
OPERATING WT. (LBS.)	110	34
MANUFACTURER	GREENHECK	GREENHECK
MODEL	BSQ140-3	SP-A410

NOTES:
1. PROVIDE BACKDRAFT DAMPER.
2. PROVIDE FACTORY SOLID STATE SPEED CONTROLLER MOUNTED WITHIN THE FAN CASING FOR EF-2.
3. PROVIDE T-STAT SET TO 80°F FOR OPERATION OF EF-2.
4. PROVIDE "ON-OFF" WALL SWITCH IN LOCK BOX FOR EF-1. PROVIDE ROOM CO2 SENSOR AND HUMIDISTAT SENSOR SYSTEM AND CONTROL PANEL TO OPERATE EF-1.
5. PROVIDE HANGERS AND ISOLATION SYSTEM FOR EF-1.
6. CONNECT EF-1 AND EF-2 TO CAMPUS EMS SYSTEM TO MONITOR STATUS.

EF-1 CONTROL SYSTEM

NOTES:
1. SYSTEM EXHAUST SIZED FOR 1.5 CFM PER SF OF FLOOR AREA. 1080 SF X 1.5 = 1620 MIN. 1650 CFM PROVIDED.
2. PROVIDE CUSTOM CONTROL PANEL TO MONITOR HUMIDITY
3. AND CO2 LEVELS. CONTROL PER THE FOLLOWING:
HUMIDITY = FAN ON LEVELS ABOVE 60%.
CO2 = FAN ON AT LEVELS ABOVE 25 PPM.

EMS NOTES

NOTES:
1. CONNECT EXHAUST FANS, INDOOR UNIT AND SUMP PUMP TO CAMPUS EMS TO MONITOR STATUS.

ELEVATOR VENT SCHEDULE

NUMBER	EV-1
TYPE	INTAKE/RELIEF
MOUNTING	ROOF
CURB CAP (IN.)	38X38
ROOF OPENING (IN.)	33X33
HOOD SIZE (IN.)	44X44
HOOD HEIGHT (IN.)	21
SERVICE	SEE PLAN
OPER. WT. (LBS.)	125
ISOLATOR DEFL.(IN.)	---
MANUFACTURER	GREENHECK
MODEL	WH30X30

NOTES:
1. PROVIDE FACTORY SLOPED ROOF CURB.
2. PROVIDE BIRD SCREEN.
3. NO DAMPER INSTALLATION USED FOR INTAKE AND RELIEF.

SOLAR VENT FAN

NUMBER	SVF-1 THRU 4
TYPE	VENTILATION FAN
MOUNTING	ROOF
POWER	SOLAR
CFM	800
HOOD SIZE (IN.)	23X26
HOOD HEIGHT (IN.)	10
SERVICE	SEE PLAN
OPER. WT. (LBS.)	40
MANUFACTURER	WEATHERWOOD
MODEL	NPSP8WW

NOTES:
1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

INDOOR UNIT SCHEDULE

NUMBER	IDU-1
TYPE	HORIZONTAL DISCHARGE
MOUNTING	WALL
VOLTS/PHASE	208/1
MCA	1.2
M.O.C.P.	20
HSPF / SEER	– / 16.0
BLOWER: NOMINAL HP	0.06
BLOWER: SUPPLY CFM	406
BLOWER: E.S.P. (IN. WC.)	–
BLOWER: RPM	–
BLOWER: DRIVE	DIRECT
BLOWER: MIN. OA (CFM)	–
COOLING: TOTAL CAP. (MBH)	12.0
COOLING: SENS. CAP. (MBH)	9.0
COOLING: E.A. DB/WB (°F)	80 / 67
COOLING: L.A. DB/WB (°F)	–
HEATING: AMBIENT TEMP. (°F)	105
HEATING: COIL TYPE	DIRECT EXP.
SERVICE	SEE PLANS
ACCESSORIES	SEE NOTES
OPER. WT. (LBS.)	27
MANUFACTURER	MITSUBISHI
MODEL	MS-A12WA

NOTES:
1. PROVIDE FACTORY INTERNAL FILTER ASSEMBLY.
2. PROVIDE FACTORY CONDENSATE PUMP CAPABLE OF LIFTING CONDENSATE A MINIMUM OF 48".
3. CONSULT MANUFACTURER FOR REFRIGERANT LINE SIZE AND CONNECTIONS.
4. 9U POWER TO BE PROVIDED BY ODU.
5. PROVIDE FACTORY THERMOSTAT. MOUNT @(+)48" A.F.F. CONNECT TO CAMPUS EMS SYSTEM TO MONITOR STATUS.
6. PROVIDE WITH AUTOMATIC SHUT DOWN OF UNIT IF CONDENSATE PUMP FAILS.

OUTDOOR UNIT SCHEDULE

NUMBER	ODU-1
TYPE	COMPRESSOR
VOLTS/PHASE	208/1
MIN. CIRCUIT AMPS	16
M.O.C.P.	20
SEER/EER	13.0/ –
NOMINAL CAPACITY (MBH)	12.0
AMBIENT TEMP. (°F)	105
REFRIGERANT TYPE	R410A
REFRIG. LINE SIZE (LIQ/SUC)	SEE NOTES
UNIT SERVED	SEE PLANS
ACCESSORIES	SEE NOTES
OPER. WT. (LBS.)	110
MANUFACTURER	MITSUBISHI
MODEL	MU-A12WA

NOTES:
1. PROVIDE FACTORY CRANKCASE HEATER, LOW AMBIENT KIT, AND HIGH & LOW PRESSURE SWITCHES.
2. MAINTAIN MANUFACTURER'S REQUIRED SERVICE CLEARANCES.
3. PROVIDE FACTORY FILTER DRIER.
4. CONSULT MANUFACTURER FOR REFRIGERANT LINE SIZES.
5. PROVIDE EXPANDED METAL COIL GUARDS.

DOMESTIC WATER DEMAND AND PIPE SIZING

PLAN CHECK# _____ DATE: _____ PREPARED BY: _____
PROJECT: VA PARKING LOCATION: MATHER, CA.
Water Meter Size 2" (EXISTING)
Total Fixture Units: 175 TOTAL GPM: 14
Total Distance from water meter to most remote plbg. fixture. 275 ft.
Total rise for head loss 37 ft. x 0.43 . . . . . 15.9 PSI
PSI required for water closet/urinal (*F.V.=15.0 PSI, F.T.=8.0 PSI). . . . . ---- PSI
PSI flow loss through water meter (Chart A-1) . . . . . 0* PSI
PSI flow loss through backflow preventer (RP=12.0 PSI, D.C.=12.0 PSI) (EXISTING) . . . . . 12.0 PSI
Total system loss . . . . 27.9 PSI
MINIMUM PSI available @ jobsite . . . . . 35.0 PSI
Total system loss in PSI . . . . . 27.9 PSI
Remaining PSI available (if negative use booster pump) . . . 7.1 PSI
Booster pump PSI . . . . . ---- PSI
Total remaining PSI available . . . . . 7.1 PSI
PSI available 7.1 /275 Total Feet = 0.026 x 100 = 2.6 PSI/100 FT
Use line 2.6 On Chart
VELOCITIES SHALL NOT EXCEED 8 FT/SEC.

* NO LOSS AT 10 GPM THRU 2" METER, LINE AN METER UPSIZED FOR POSSIBLE FUTURE DEMAND.

PIPE SIZE (IN.)	WILL DELIVER (GPM)	FOR F.V. (F.U.)	FOR F.T. (F.U.)
6"			
5"			
4"			
3"			
2-1/2"			
2"	50	48	128
1-1/2"	26	9	46
1-1/4"	18	–	27
1"	8	–	11
3/4"	4	–	5
1/2"	2	–	2

F.V. = Flushometer Valve
F.T. = Flush Tank
SIZED PER IPC

FIXTURE UNIT
(COLD WATER)

NO. OF FIX.	TYPE OF FIXTURE	F.U. / FIX.	TOTAL FIX. UNITS
---	WATER CLOSET (F. TANK)	---	---
---	WATER CLOSET (F. VALVE)	---	---
---	URINAL (WALL)	---	---
---	LAVATORY	---	---
---	SINK	---	---
---	KITCHEN SINK 3- COMP. (POT)	---	---
---	SERVICE SINK	---	---
---	TUB/SHOWER	---	---
---	SHOWER	---	---
---	DRINKING FOUNTAIN (2) BUBBLER	---	---
1	HOSE BIBB	2.5	2.5
15	HOSE BIBB (EA. ADDITION)	1.0	15.0
		TOTAL	17.5

PER IPC, APPX, A

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	S or W	V	CW	HW	DESCRIPTION
SOI 1	SAND OIL INTERCEPTOR	---	---	---	---	JENSEN PRECAST 5000 GALLON SAND-OIL INTERCEPTOR MODEL JZ5000EPE-SO. UPC LISTED. PROVIDE WITH ALL OPTIONS AS NEED FOR COMPLETE INSTALL. COORDIANTE FINAL LOCATIONS AND DEPTH WITH ENGINEER PRIOR TO INSTALLATION.
HB 1	HOSE BIBB	---	---	3/4"	---	BRASS FAUCET, LOOSE KEY HANDLE, AND NON-REMOVABLE VACUUM BREAKER AND POLISHED CHROME. WOODFORD 24P-3/4.
FD 1-A THRU 4-C	FLOOR DRAIN	VARIES	---	---	---	ZURN MODEL Z534-HP-Y PARKING STRUCTURE DRAIN, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, HEAVY-DUTY GASKETED DRAIN SUPPORT FLANGE, HEAVY DUTY HEAL PROOF GRATE, SEDIMENT BUCKET. REFER TO DRAIN SIZE FOR CONNECTION SIZE. INLET SIZE SHALL BE A MIN. 2 TIME THE AREA OF THE DRAIN LINE.
FD 2	FLOOR DRAIN	4"	2"	TP	---	ZURN Z415-5B COATED CAST IRON WITH 5" ROUND BRONZE GRATE WITH VANDAL PROOF SCREWS, DOUBLE DRAINAGE FLANGE & NO HUB OUTLET, P-TRAP, TRAP PRIMER CONNECTION.
TP 1	TRAP PRIMER	---	---	1/2"	---	PRECISION PLUMBING PRODUCTS INC. PR-500 BRASS DIAPHRAGM TYPE TRAP PRIMER WITH INTEGRAL VACUUM BREAKER AND GRAVITY OUTLET. PROVIDE INLET BALL VALVE AND ACCESS PANEL. SEE PLANS FOR NUMBER OF TRAPS SERVED.
SP 1	SUMP PUMP	SEE PLANS	2"	---	---	HYDROMATIC PUMPS HPGLX200, DUPLEX NON CLOG, SUBMERSIBLE PUMPS, INTEGRAL MERCURY FLOAT SWITCHES. (2) 2-HP, 480/3, 3450 RPM, 20 GPM AT 15 FT. TDH, BASIN MADE OUT OF CONCRETE IS BY OTHERS, SEE ARCH. DRAWINGS. PROVIDE DUPLEX ALTERNATING PUMP CONTROL & ALARM SYSTEM FOR REMOTE MOUNTING AND CONNECT TO CAMPUS EMS SYSTEM. SEE PLAN FOR LOCATION. PROVIDE A COMPLETE OPERATING SYSTEM.
ESB 1	EFFLUENT SAMPLE BOX	SEE PLANS	---	---	---	JENSEN MODEL 2432-Z EFFLUENT SAMPLE BOX WITH PIPE CONNECTORS 24"Ø GAS TIGHT MAN HOLE COVERS BROUGHT TO GRADE.
RD 5-A 5-B	COMBINATION ROOF & OVERFLOW DRAIN	SEE PLANS	---	---	---	ZURN Z165 COMPLETE WITH CAST IRON MEMBRANE CLAMP. CAST IRON DOME GRATES ON ROOF & OVERFLOW DRAIN INLETS, MINIMUM 2" WATER DAM FOR OVERFLOW PIPE. SEE PLUMBING PLAN FOR SIZE.

PLUMBING FIXTURES AND PIPING TO COMPLY WITH AB1953 FOR LEAD CONTENT.

SAND OIL INTERCEPTOR SIZING

SAND OIL INTERCEPTOR SIZED PER IPC 1003.4.2.2

SIZING:
6 CUBIC FEET CAPACITY PROVIDED FOR FIRST 100 SF OF AREA. 1 CUBIC FOOT OF CAPACITY PER ADDITIONAL 100 SF OF AREA COVERED.

AREA COVERED = 57,597 SF.
FIRST 100 SF = 6 CUBIC FEET CAPACITY
57,497 SF / 100 = 575 CUBIC FEET
TOTAL = 581 CUBIC FEET
581 CUBIC FEET X 7.48 GALLONS PER CUBIC FEET = 4,346 GALLONS REQUIRED. USE 5000 GALLON INTERCEPTOR

PIPE HANGER SCHEDULE AND NOTES

PIPING USE	PIPE SIZE	ROD SIZE	HORIZONTAL MAXIMUM INTERVAL	VERTICAL MAXIMUM INTERVAL
WATER OR CONDENSATE (REFER TO SPEC FOR MATERIAL)	LESS THAN 1-1/2"	3/8"ø	6'	EVERY FLOOR, NOT TO EXCEED 10'
	2"-4"	3/8"ø	10'	
	5"-8"	1/2"ø	10'	
	10"-12"	5/8"ø	10'	
DRAIN LINE (REFER TO SPEC FOR MATERIAL)	LESS THAN 1-1/2"	3/8"ø	EVERY OTHER JOINT, UNLESS OVER 4' IN THIS CASE, SUPPORT PER NOTES 1-4.	AT BASE AND AT EVERY FLOOR, NOT TO EXCEED 15'.
	2"-4"	3/8"ø		
	5"-8"	1/2"ø		
	10"-12"	5/8"ø		

1. SUPPORT ADJACENT TO JOINT, NOT TO EXCEED 18".
2. BRACE AT NOT MORE THAN 40' INTERVALS TO PREVENT HORIZONTAL MOVEMENT.
3. SUPPORT AT EACH HORIZONTAL BRANCH.
4. HANGERS SHALL NOT BE PLACED ON PIPE COUPLINGS.
5. VERTICAL WATER LINES MAY BE SUPPORTED IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRINCIPLES WITH REGARD TO EXPANSION AND CONTRACTION, WHEN FIRST APPROVED BY THE ADMINISTRATIVE AUTHORITY.
6. ALL PIPING SUPPORT SHALL BE IN ACCORDANCE WITH IPC 308 FOR SPACING, SEISMIC SUPPORT, SWAY BRACING AT CHANGES OF DIRECTION AND CHANGE OF DIRECTION RESTRAINTS.

PIPE MATERIAL NOTES

1. REFER TO SPECIFICATIONS FOR PIPE MATERIAL UNLESS NOTED ON PLANS.

GENERAL NOTES

1. ALL BRACING OF PIPING SHALL BE INSTALLED IN ACCORDANCE WITH IPC AND SMACNA GUIDELINES, HAZARD LEVEL 'A'.
2. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND FIELD INSPECTOR.
3. FOR PLUMBING FIXTURE MOUNTING HEIGHTS AND LOCATIONS, REFER TO THE ARCHITECTURAL DRAWINGS.
4. SUPPORT AND BRACING OF ALL PIPING SHALL BE IN ACCORDANCE WITH THE IPC AND SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF PLUMBING PIPING SYSTEMS", OR THE "SUPERSTRUT SEISMIC RESTRAINT SYSTEM" FOR PIPING ONLY.
5. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH INSTALLATION. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY EXISTING CONDITIONS WHICH CONFLICT WITH INFORMATION PROVIDED IN CONSTRUCTION DOCUMENTS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL PIPE ROUTING WITH WORK OF OTHER TRADES AND MAKE ANY OFFSETS AS REQUIRED TO AVOID CONFLICT WITH DUCTWORK, LIGHT FIXTURES, SKYLIGHTS, ETC.
7. PLUMBING CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR ALL CONDENSATE DRAIN CONNECTIONS TO MECHANICAL EQUIPMENT.

MECHANICAL & PLUMBING SCHEDULES
NTS

CONSTRUCTION DOCUMENTS - FINAL SUBMISSION

Revisions:	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER DAREN M. LENGKONG NO. 33380 REN. 6-30-12 MECHANICAL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER ERIC CHRISTOPHER FRAMPTON No. 64567 EXPIRES: 06/30/2011 CIVIL STATE OF CALIFORNIA

ARCHITECT/ENGINEERS:

Frampton Consulting Engineers
Civil · Structural · Design · Construction
895 W. Ashlan Ave. Clovis, CA 93612
TEL:(559)346-0800 FAX:(559)346-0900
EFRAMPTON@FCE-ENG.COM

Drawing Title: MECHANICAL & PLUMBING SCHEDULES

Approved: Project Director

Project Title: VA Northern California Health Care System Parking Structure

Location: 10535 Hospital Way, Mather, CA 95655

Date: 06/15/2011 **Checked:** G.M.L. **Drawn:** D.N.

Project Number: 612 - CSI - 102

Building Number: -

Drawing Number: MP701

Dwg. 108 of 122

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231