



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 P. 813. 274. 8456 -- F. 813. 274. 8080
 URL: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Herlika, AIA
 Project Architect
 Thomas A. Heister, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #14
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD0118

ISSUE DATE
MAY 31, 2018

DRAWN BY

REVISIONS
 △
 △
 △

SCALE

SCALE: NOT TO SCALE

MECHANICAL SCHEDULES

SHEET NUMBER

M-5.0

XXX OF XXX

ASHRAE 62.1-2007 OUTSIDE AIR CALCULATION COMMERCIAL												
SPACE	AREA (FT²)	OCCUPANTS (#)	VENTILATION AIR CFM PER FT²	VENTILATION AIR CFM PER PERSON	EXHAUST CFM PER FT²	TOILET FIXTURES	DIVERSITY-INTERMITTENT OCCUPANCY	VENTILATION AIR CFM REQUIRED	VENTILATION AIR CFM SPECIFIED	EXHAUST CFM REQUIRED	EXHAUST CFM SPECIFIED	CFM FOR BUILDING PRESSURIZATION
100 ENTRY, 101 ACTIVITY AREA, 102 KITCHEN	947	8	0.06	5.0	0.00	0	-	97		0		
103 OFFICE	75	1	0.06	5.0	0.00	0	-	10		0		
104 NITE ROOM	78	1	0.06	5.0	0.00	0	-	10		0		
105 ADA REST ROOM	69	0	0.00	0.0	0.00	1	-	0		50	50	
106 BUNKER ROOM	0	0	0.00	0.0	0.00	0	-	0		0	200	
AHU-1	1169	10						116	350	50	250	100
116 BATH	126	0	0.00	0.0	0.00	1	-	0		50		
117 RESTROOM	216	0	0.00	0.0	0.00	4	-	0		200		
118 BATH	86	0	0.00	0.0	0.00	1	-	0		50		
122 CORRIDOR	1310	0	0.06	0.0	0.00	0	-	79		0		
114 CHIEF'S QUARTERS	278	1	0.06	5.0	0.00	0	-	22		0		
115 CAPTAIN'S QUARTERS	142	1	0.06	5.0	0.00	0	-	14		0		
120a CREW QUARTERS	105	1	0.06	5.0	0.00	0	-	11		0		
120b CREW QUARTERS	105	1	0.06	5.0	0.00	0	-	11		0		
120c CREW QUARTERS	105	1	0.06	5.0	0.00	0	-	11		0		
120d CREW QUARTERS	105	1	0.06	5.0	0.00	0	-	11		0		
120e CREW QUARTERS	105	1	0.06	5.0	0.00	0	-	11		0		
120f CREW QUARTERS	105	1	0.06	5.0	0.00	0	-	11		0		
AHU-2	2788	8						182	475	300	300	175

AIR DEVICE SCHEDULE						
MARK	TYPE	MATERIAL	FINISH	MANUFACTURER	MODEL No.	NOTES
AD-1	CEILING SUPPLY, 24x24	ALUMINUM	WHITE	PRICE	ASCD	1, 2, 3, 4, 5
AD-2	CEILING SUPPLY, 12x12	ALUMINUM	WHITE	PRICE	ASCD	1, 2, 3, 4, 5
AD-3	LOUVERED EXHAUST/RETURN, 24x24	ALUMINUM	WHITE	PRICE	630	1, 2, 3, 6

NOTES:
 1. NOISE CRITERIA NOT TO EXCEED 25.
 2. CONTRACTOR TO COORDINATE BORDER WITH CEILING TYPE (LAY-IN OR PLASTER).
 3. REFER TO FLOOR PLAN FOR CFM.
 4. AIR DEVICES ARE FOUR WAY THROW UNLESS NOTED OTHERWISE ON DRAWINGS.
 5. AIR DEVICES ARE TO BE SUPPLIED WITH OPPOSED BLADE DAMPER.
 6. PROVIDE INSULATED PLENUM BACK.

AIR COOLED CHILLER SCHEDULE		
MARK		CH-1
MANUFACTURER		CARRIER
MODEL No.		30RA0155K-98F54
DIMENSIONS	LxWxH, INCHES	82x43x52
WEIGHT	LB	1298
COMPRESSOR TYPE		DIGITAL SCROLL
REFRIGERANT TYPE		R22
EFFICIENCY	EER/COP	9.87/-
EFFICIENCY, PART LOAD	IPLV EER	12.68
CAPACITY	TONS	14.0
AMBIENT TEMPERATURE	DB°F	95
CHILLED WATER TEMPERATURE	ENTERING °F / LEAVING °F	55/45
CHILLED WATER FLOW RATE	G.P.M.	33.5
PRESSURE DROP	FT. H ₂ O	9.5
FLUID TYPE		WATER
EVAPORATOR FOULING FACTOR		0.00010
EVAPORATOR CONNECTION SIZE	INCHES	2
COMPRESSORS / CIRCUITS	NO./NO.	1/1
COMPRESSOR RLA	NO./AMPS	1/48.7
INPUT POWER	KW	17.8
PUMP MOTOR	HP	1.5
PUMP FLA	AMPS	8.2
CONDENSER FANS	NO./FLA	1/8.4
ELECTRIC	V/φ/HZ	208/3/60
MCA/MOCP	AMPS	73.7/110
STARTER TYPE		WYE DELTA CLOSED TRANSITION
SOUND PRESSURE ARI 370 OVERALL "A" WEIGHTED	dba	95
NOTES		ALL

NOTES:
 1. PROVIDE WITH FACTORY INSTALLED HYDRONIC PUMP PACKAGE.
 2. PROVIDE WITH FACTORY INSTALLED LOW AMBIENT PROTECTION PACKAGE.
 3. PROVIDE WITH FACTORY INSTALLED ENERGY MANAGEMENT MODULE.
 4. PROVIDE WITH FACTORY INSTALLED MINIMUM LOAD CONTROL.
 5. PROVIDE WITH FACTORY INSTALLED COIL PROTECTION GRILLES.
 6. PROVIDE WITH FACTORY INSTALLED CONDENSER COIL CORROSION PROTECTION-MILD COASTAL, AL FINS, PRECOATED
 7. PROVIDE WITH FIELD INSTALLED CONTROL DISPLAY ACCESS DOOR.
 8. PROVIDE WITH FIELD INSTALLED CHILLED WATER STORAGE TANK.
 9. PROVIDE WITH FIELD INSTALLED VIBRATION ISOLATION.
 10. PROVIDE WITH DIGITAL SCROLL COMPRESSOR FOR CAPACITY CONTROL

CHILLED WATER AIR HANDLING UNIT SCHEDULE			
AHU UNIT NO.		AHU-1	AHU-2
AREA SERVED		DAYROOM / KITCHEN	QUARTERS AREAS
MANUFACTURER		CARRIER	CARRIER
MODEL NO.		39L-06	39L-06
UNIT TYPE		CENTRAL STATION	CENTRAL STATION
DIMENSIONS	LxWxH		
WEIGHT	LBS		
NOMINAL CAPACITY	TONS	5	8
FAN			
SUPPLY AIRFLOW	CFM	2400	2950
OUTSIDE AIRFLOW	CFM	350	475
EXTERNAL STATIC PRESSURE	IN. H ₂ O	0.7	1.0
TOTAL STATIC PRESSURE		1.5	2.06
MAXIMUM FAN SPEED	RPM	960	1129
FAN MOTOR	BHP/HP	1.0/1.5	1.8/2.0
FAN MOTOR AMPERAGE (FLA)	AMPS	4.5	6.0
FAN TYPE		FORWARD CURVE	FORWARD CURVE
RETURN AIR COILS			
AIRFLOW	CFM	2400	2950
TOTAL CAPACITY	MBH	75.54	96.65
SENSIBLE CAPACITY	MBH	57.65	71.50
ENTERING AIR TEMPERATURE	DB°F/WB°F	77.5/65.0	76.3/64.6
LEAVING AIR TEMPERATURE	DB°F/WB°F	55.53/54.57	54.1/53.6
CHILLED WATER FLOW RATE	G.P.M.	15.1	19.3
CHILLED WATER TEMPERATURE	ENTERING °F / LEAVING °F	45/55	45/55
COOLING COIL	ROWS/FPI	6/11	6/11
COOLING COIL FACE	FT²	5.9	5.9
COIL FACE VELOCITY	FPM	406.8	499.5
COIL AIR PRESSURE DROP	IN. H ₂ O	0.53	0.87
WATER PRESSURE DROP	FT. H ₂ O	5.2	8.1
FILTER TYPE		2" MERV 7	2" MERV 7
ELECTRIC	V/φ/HZ	208/3/60	208/3/60
ELECTRIC HEAT CAPACITY	MBH/KW/STEPS	68.2/20/SCR	NA/NA/NA
HEATER FLA	AMPS	60.01	NA
MCA/MOCP	AMPS	75.02/90	7.5/10
NOTES		ALL	ALL

NOTES:
 1. VERTICAL DRAW-THRU ARRANGEMENT.
 2. INTERNAL SPRING VIBRATION ISOLATION.
 3. PROVIDE SECONDARY DRAIN PAN WITH FLOAT SWITCH.
 4. PROVIDE STAINLESS STEEL DRAIN PAN.
 5. DIVISION 16 (ELECTRICAL) TO PROVIDE STARTER/DISCONNECT.
 6. ALL MOTORS TO BE PREMIUM EFFICIENT, PROVIDE 1.5 DRIVE SERVICE FACTOR. PROVIDE VFD COMPATIBLE MOTOR.
 7. PROVIDE SMOKE DETECTORS IN THE SUPPLY DUCT.

DESIGN CONDITIONS:
 SUMMER: OUTDOORS 92°F DB / 77°F WB
 INDOORS 75°F DB / 50% RH
 WINTER: OUTDOORS 36°F DB
 INDOORS 70°F DB

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1629 First Avenue North St. Petersburg, Florida 33713	Drawn	ABC
	Phone: (727)-822-2335	Designed	ABC
	Fax: (727)-823-3361	FOR	JHG
	Certificate of Authorization #3173	Job no.	12032

KITCHEN HOOD SCHEDULE																												
MARK	MANUFACTURER	MODEL	TYPE	CLASSIFICATION	DIMENSIONS			EXHAUST			SUPPLY			FILTER(S)			LIGHT(S)			UTILITY CABINETS			FIRE SYSTEM	ELECTRICAL	SWITCHES	FIRE SYTEM PIPING	HOOD WEIGHT	
					LENGTH	WIDTH	DEPTH	CFM	# OF CONN.	CONN. SIZE	CFM	# OF CONN.	CONN. SIZE	TYPE	QTY	HEIGHT	LENGTH	QTY	TYPE	WIRE GUARD	LOCATION	TYPE						SIZE
HOOD	CAPTIVEAIRE	4824 ND-2-PSP-F	WALL MOUNTED CANOPY	TYPE 1	72	3'-9"	-	1500	1	14x10	1260	2	16x10	ALUMINUM BAFFLE WITH HANDLES	2	16	16	2	INCANDESCENT	NO	RIGHT	ANSUL R-102	-	111110N9	1 LIGHT 1 FAN	OUTSIDE	YES	452 LBS.

NOTES:

1. FURNISH WITH FACTORY INSTALLED PRE-PACKAGED UL300 COMPLIANT ANSUL FIRE SUPPRESION SYSTEM. AGENT TANK AND ACCESSORIES SHALL BE LOCATED IN AN ENCLOSURE AT THE END OF THE HOOD.

HOOD FAN SCHEDULE			
MARK	HEF-1	HSF-1	
SERVICE	EXHAUST	INTAKE	
MANUFACTURER	CAPTIVEAIRE	CAPTIVEAIRE	
MODEL	NCA14FA	INLINE1L-G10	
AIR QUANTITY	CFM	1500	1260
EXT. STATIC PRESSURE	IN. H ₂ O	0.7	0.5
FAN SPEED	RPM	990	779
DRIVE		BELT	BELT
SONES		-	-
MOTOR	HP OR W	0.5 HP	0.5 HP
ELECTRICAL	V/φ/HZ	115/1/60	115/1/60
NOTES		1, 2, 3, 4, 5	2, 3, 7, 8

NOTES:

- INTERLOCKED WITH HOOD.
- FURNISH WITH INTERNAL OVERLOAD PROTECTION.
- FURNISH WITH INTEGRAL DISCONNECT MEANS (TOGGLE SWITCH OR CORD AND PLUG).
- FURNISH WITH INTEGRAL BACKDRAFT DAMPER.
- ALL 24 VOLT WIRING SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.

LOUVER SCHEDULE				
UNIT NUMBER	L-1	L-2	L-3	L-4
SERVICE	OA INTAKE	OA INTAKE	EXHAUST	O.A. INTAKE
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL	EVH-602X	EVH-602X	EVH-602X	EVH-602X
FLORIDA PRODUCT APPROVAL No.	FL7494.1	FL7494.1	FL7494.1	FL7494.1
MIAMI-DADE NOA No.	NA	NA	NA	NA
MATERIAL	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
FRAME	FLANGED	FLANGED	FLANGED	FLANGED
AIR QUANTITY	CFM	475	5000	6000
STATIC PRESSURE	IN. H ₂ O	0.015	1.100	0.070
WIDTH	INCHES	36	18	48
HEIGHT	INCHES	16	96	54
FREE AREA	FT ²	0.91	4.07	6.75
AIR VELOCITY	FPM	522.0	1228.5	888.9
NOTES		ALL	ALL	ALL

NOTES:

- PROVIDE WITH ALUMINUM BIRD & INSECT SCREENS.
- COORDINATE COLOR WITH ARCHITECT.

VARIABLE AIR VOLUME SCHEDULE																
MARK	MAKE/MODEL	SIZE	MAXIMUM PRIMARY CFM	MINIMUM PRIMARY CFM	TOTAL SPD IN WG	HEAT/FAN CFM	EAT °F	LAT °F	EH CAP MBH/KW	STEPS	HTR VOLT	PHASE	MCA/MOCP AMPS	INLET SP IN WG	DIS NC	RAD NC
VAV-1	CARRIER / 35E	7	575	0		575	55	82.5	17.1/5	SCR	208	3	17.37/-	1	15	20
VAV-2	CARRIER / 35E	4	200	0		200	55	86.6	6.8/2	SCR	208	3	6.95/-	1	19	22
VAV-3	CARRIER / 35E	14	2225	350		2225	55	80	54.6/16	SCR	208	3	55.58/-	1	15	21

NOTES:

- DDC CONTROLS TO BE PROVIDED TO VAV BOX MANUFACTURER FOR FACTORY MOUNTING.
- PROVIDE HEATER WITH AUTO RESET PRIMARY TEMPERATURE LIMIT, SECONDARY HIGH LIMITS, AIRFLOW SWITCH, 80/20 NICKEL-CHROMIUM ELEMENTS, AND FUSING PER UL AND NEC.
- PROVIDE FUSED DOOR INTERLOCKING DISCONNECT.
- PROVIDE 3/4-INCH FOIL FACED INSULATION.
- PROVIDE SINGLE POINT POWER CONNECTION.
- NOISE CRITERIA RATED IN ACCORDANCE WITH ARI STANDARD 880 AT 1.0" STATIC PRESSURE AT TERMINAL INLET.

FAN SCHEDULE									
MARK	EF-1	EF-2	EF-3	EF-4	EF-5	EF-6	EF-7	EF-8	
AREA SERVED	116 BATHROOM	118 BATHROOM	105 BATHROOM	117 BATHROOM	106 BUNKER ROOM	113 APPARATUS BAY	113 APPARATUS BAY	110 GENERATOR ROOM	
SERVICE	EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST	
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	
MODEL	SP-B80	SP-B80	SP-B80	SP-A290	SP-A190	BSQ-240-50	BSQ-240-50	SP-A290	
AIR QUANTITY	CFM	50	50	50	200	100	10,000	200	
EXT. STATIC PRESSURE	IN. H ₂ O	0.4	0.4	0.4	0.35	0.35	0.75	0.35	
FAN SPEED	RPM	819	819	819	946	100	1128	946	
DRIVE		DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	BELT	DIRECT	
SONES		3.2	3.2	3.2	2.8	2.4	30	2.8	
MOTOR	HP OR W	54 W	54 W	54 W	81 W	113 W	3.84	81 W	
ELECTRICAL	V/φ/HZ	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	208/3/60	208/3/60	115/1/60
NOTES		1, 2, 3, 4, 5, 9	1, 2, 3, 4, 5, 9	1, 2, 3, 4, 5, 9	1, 2, 3, 4, 5, 9	2, 3, 4, 5, 6, 9	2, 3, 7, 8	2, 3, 7, 10, 11, 12, 13, 14,	2, 3, 7, 10, 11, 12, 13, 14,

NOTES:

- INTERLOCKED WITH LIGHT SWITCH.
- FURNISH WITH INTERNAL OVERLOAD PROTECTION.
- FURNISH WITH INTEGRAL DISCONNECT MEANS (TOGGLE SWITCH OR CORD AND PLUG).
- FURNISH WITH INTEGRAL SOLID STATE FAN SPEED CONTROLLER.
- FURNISH WITH INTEGRAL BACKDRAFT DAMPER.
- CONTINUOUS FAN OPERATION.
- ALL 24 VOLT WIRING SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.
- INTERLOCK WITH THERMOSTAT.
- PROVIDE MANUFACTURER'S PITCHED ROOF CAP.
- EXHAUST FAN SEQUENCE TO START UPON CARBON MONOXIDE SENSORS READ 8PPM (ADJUSTABLE) OR THE OPENING OR CLOSING OF ANY OVERHEAD DOORS. OVERHEAD DOOR SWITCHED SHALL INDICATE TRAVEL BEYOND 2 INCHES FORM AN OPEN OR CLOSED POSITION.
- EXHAUST FANS ARE ON A OFF DELAY TIM SEQUENCE OF 15 MINUTES (ADJUSTABLE).
- ONCE CARBON MONOXIDE LEVELS DROP BELOW 8PPM, EXHAUST FANS WILL RUN FOR AN ADDITIONAL 15 MINUTES (ADJUSTABLE) AND THEN TURN OFF.
- IF CARBON MONOXIDE SENSORS READ BEYOND 25PPM (ADJUSTABLE), AUDIBLE AND VISUAL ALARMS WILL BE ACTIVATED.
- PROVIDE A TIMED OVERRIDE SWITCH TO OPERATE THE EXHAUST FANS ON DEMAND.

AIR SEPARATOR SCHEDULE		
MARK	AS-1	
SERVICE	CHILLED WATER	
MANUFACTURER	BELL & GOSSETT	
MODEL	RL-2N	
WATER FLOW RATE	GPM	33.5
PRESSURE DROP	FT. H ₂ O	1.0
INLET	INCHES	2
OUTLET	INCHES	2
CONNECTIONS	TYPE	SCREW
STRAINER	YES/NO	NO

VENTILATOR SCHEDULE			
UNIT NUMBER	GRSJ-1	GRSR-1	
SERVICE	KITCHEN HOOD	EQUIPMENT BAY	
AIR QUANTITY	CFM	1260	10000
STATIC PRESSURE	IN. H ₂ O	0.016	0.104
THROAT AREA	FT ²	5.03	12.83
THROAT VELOCITY	FPM	250.0	779.4
ROOF OPENING	INCHES	32.5x32.5	50.5x50.5
MANUFACTURER		GREENHECK	GREENHECK
MODEL		GRSJ 30	GRSR 48
NOTES		ALL	ALL

NOTES:

- PROVIDE WITH ALUMINUM BIRDSCREEN.
- FURNISH WITH 14-INCH HIGH (MIN.) ROOF CURB WHILE MAINTAINING A MIN. OF 8-INCH CLEARANCE BETWEEN BASE OF UNIT AND FINISHED ROOF SURFACE.

ELECTRIC DUCT HEATER SCHEDULE			
MARK	EDH-1		
AREA SERVED	AHU-1 DAYROOM / KITCHEN		
MANUFACTURER	DELL CORP.		
MODEL	HXOB-39L06-20-208-3-V/SCR		
QUANTITY		1	
AIR QUANTITY	CFM	2,400	
INPUT POWER	KW	20.0	
STEPS OF CONTROL		SCR	
ELECTRICAL	V/φ/Hz	208/3/60	
DUCT SIZE	WxH	16x12.56	
AIRFLOW ARRANGEMENT		VERTICAL	
NOTES		1	

NOTES:

- PROVIDE WITH INTEGRAL DISCONNECT MEANS (TOGGLE SWITCH OR CORD AND PLUG).
- SINGLE POINT POWER CONNECTION THROUGH AHU-1.

G	GRINER ENGINEERING, INC.	Date	05/31/2013
	1629 First Avenue North	Drawn	ABC
	St. Petersburg, Florida 33713	Designed	ABC
	Phone: (727) 822-2355	FOR	JHG
	Fax: (727) 821-3161	Job no.	12032



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p. 813. 274. 8456 -- f. 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Herlika, AIA
 Project Architect
 Thomas A. Heister, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1629 1st AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #14
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD0118

ISSUE DATE
MAY 31, 2013

DRAWN BY

REVISIONS

△

△

△

SEAL

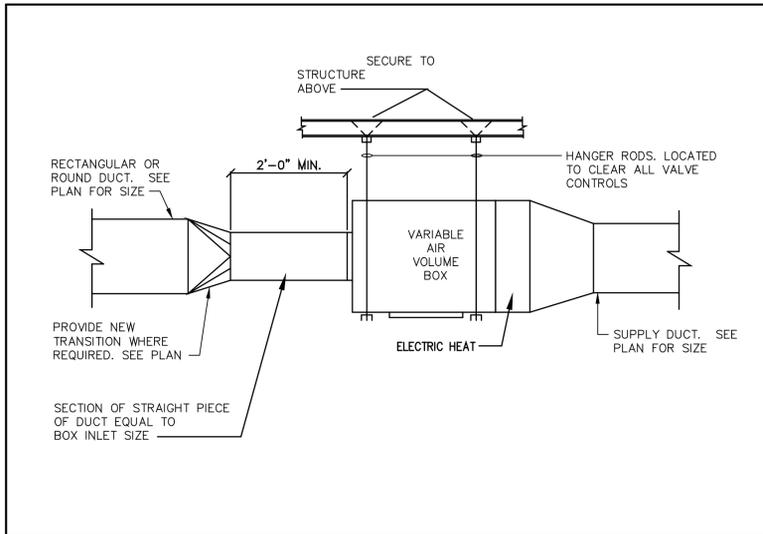
SCALE: NOT TO SCALE

MECHANICAL SCHEDULES

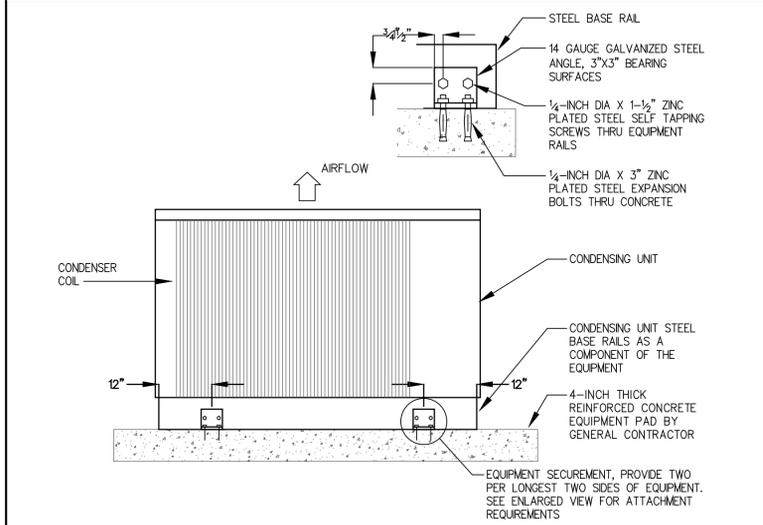
SHEET NUMBER

M-5.1

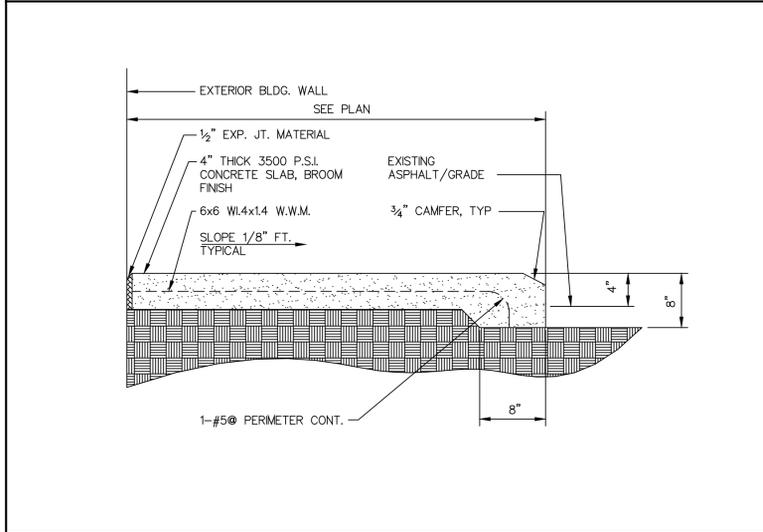
XXX OF XXX



VAV BOX DETAIL
NOT TO SCALE



CONDENSING UNIT TIE-DOWN DETAIL
NOT TO SCALE



CONDENSING UNIT PAD DETAIL
NOT TO SCALE

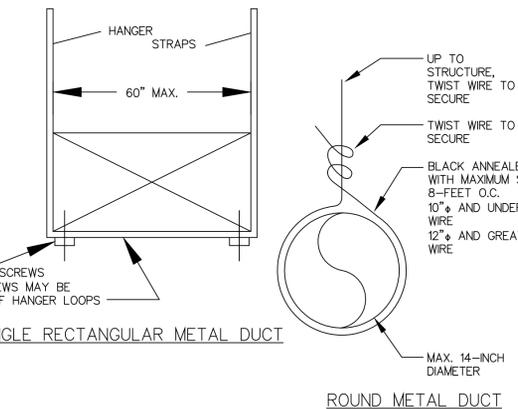
**RECTANGULAR DUCT HANGERS
MINIMUM SIZE**

MAXIMUM HALF OF DUCT PERIMETER	Pair at 10 ft. Spacing		Pair at 8 ft. Spacing		Pair at 6 ft. Spacing		Pair at 4 ft. Spacing	
	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD
P/2 = 30"	1" x 22 ga.	10 ga. (300')	1" x 22 ga.	10 ga. (300')	1" x 22 ga.	10 ga. (300')	1" x 22 ga.	10 ga. (300')
P/2 = 72"	1" x 18 ga.	3/8"	1" x 20 ga.	1/4"	1" x 22 ga.	1/4"	1" x 22 ga.	1/4"
P/2 = 96"	1" x 16 ga.	3/8"	1" x 18 ga.	3/8"	1" x 20 ga.	3/8"	1" x 22 ga.	1/4"
P/2 = 120"	1 1/2" x 16 ga.	1/2"	1" x 16 ga.	3/8"	1" x 18 ga.	3/8"	1" x 20 ga.	1/4"
P/2 = 168"	1 1/2" x 16 ga.	1/2"	1" x 16 ga.	1/2"	1" x 16 ga.	3/8"	1" x 18 ga.	3/8"
P/2 = 192"		1/2"	1" x 16 ga.	1/2"	1" x 16 ga.	3/8"	1" x 16 ga.	3/8"
P/2 = 193" up	SPECIAL ANALYSIS REQUIRED							

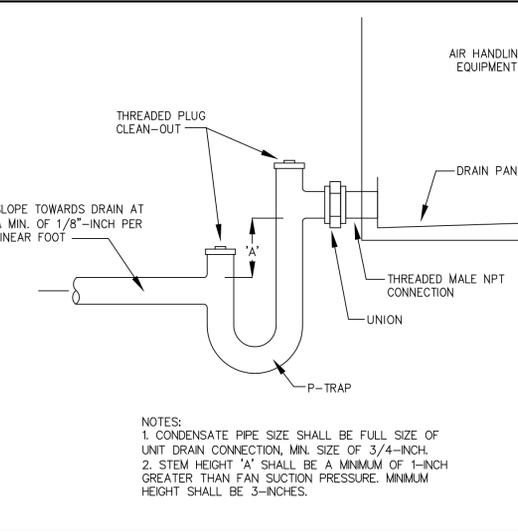
WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:

	SINGLE HANGER MAXIMUM ALLOWABLE LOAD	
	STRAP	WIRE OR ROD (Dia.)
1" x 18, 20, 22 ga.—two #10 or one 1/4" bolt	1" x 22 ga.—260 lbs.	0.105"—800 lbs.
1" x 16 ga.—two 1/4" dia.	1" x 20 ga.—320 lbs.	0.135"—120 lbs.
1" x 16 ga.—two 3/8" dia.	1" x 18 ga.—420 lbs.	0.162"—160 lbs.
Place fasteners in series, not side by side.	1" x 16 ga.—700 lbs.	1/4"—270 lbs.
	1 1/2" x 16 ga.—100 lbs.	3/4"—680 lbs.
		1"—1250 lbs.
		3/4"—2000 lbs.
		1/2"—3000 lbs.

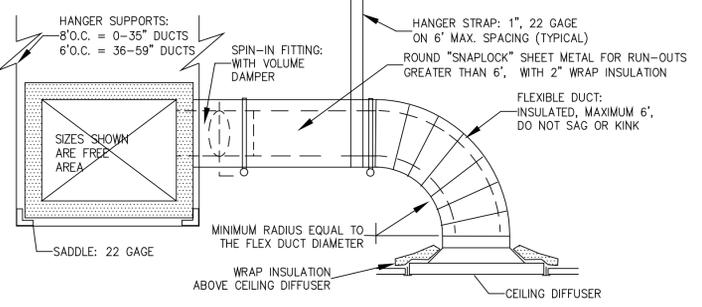
NOTES:
1. Dimensions other than gauge are in inches.
2. Tables show for duct weight, 1 lb./sf insulation weight and normal reinforcement and trapeze weight, but no external load!
3. For custom design of hangers, designers may consult SMACNA's rectangular industrial duct standards, the AISI Cold Formed Steel Design Manual and the AISI Steel Construction Manual.
4. Straps are galvanized steel, other materials are uncoated steel.
5. Allowable loads for P/2 assume that ducts are 16 ga. maximum, except that when maximum duct dimension (d) is over 60" then P/2 maximum is 125 in.
6. For upper attachments see Fig. 4-2.
7. For lower attachments see Fig. 4-4.
8. For trapeze sizes see Table 4-3 and Fig. 4-5.
9. 12, 10 or 8 ga. wire is steel of black annealed, bright basic or galvanized type.



DUCTWORK SUPPORT DETAILS
NOT TO SCALE

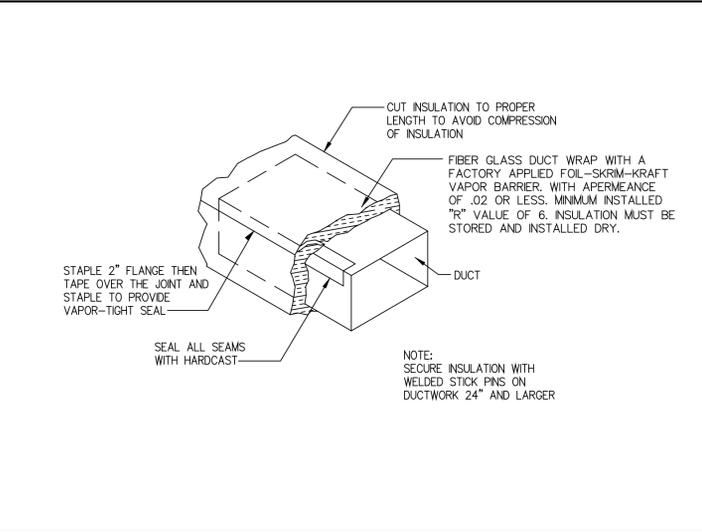


CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



- NOTES:
1. HANGER SUPPORTS SHALL BE AS NOTED ABOVE FOR DUCTS UP TO 24", AND WITH TRAPEZE HANGERS FOR DUCTS 25" AND ABOVE.
2. ELBOWS SHALL BE SQUARE NECK (SAME IN AND OUT DIMENSION) WITH 2" DOUBLE THICKNESS TURNING VANES.
3. OFFSETS SHALL NOT EXCEED 30 DEGREE ANGLE, AND SHALL NOT REDUCE THE FREE AREA OF THE DUCT.
4. TRANSITIONS SHALL NOT EXCEED 1:3 RATIO (4" TRANSITION PER FOOT SINGLE SIDED TRANSITION, AND 8" PER FOOT DOUBLE SIDED TRANSITION).
5. RECTANGULAR BRANCH CONNECTIONS SHALL BE 45 DEGREE ENTRY TYPE, WITH METAL SLEEVE & CLINCH LOCK CONNECTION. ENTRY LENGTH SHALL BE 25% OF BRANCH DUCT WIDTH.
6. ROUND BRANCH DUCT CONNECTIONS SHALL BE WITH "FLEXMASTER" FLDE SPIN-IN FITTINGS, WITH SCOOP, DAMPER AND HANDLE.
7. FLEXIBLE ROUND DUCT SHALL INCLUDE: HELIX COIL FLEXIBLE DUCTING, A 1-1/2" BLANKET INSULATION WITH MINIMUM 6.0 R VALUE, AND A ALUMINUM FOIL OUTER VAPOR BARRIER, AND BE UL-181 APPROVED, 25 OR LESS FLAME SPREAD AND 50 OR LESS SMOKE DEVELOPED. EQUAL TO "FLEXMASTER" TYPE 3M. TAPE INNER COIL OF FLEX TO THE DIFFUSER COLLAR. TAPE COMPLETELY AROUND AND SECURE WITH PANDUIT OR EQUAL STRAPPING SYSTEM TO ASSURE AN AIR TIGHT SEAL. USE STEEL STRAPS WHERE REQUIRED BY LOCAL JURISDICTION. PULL FLEX INSULATION AND OUTER COVER DOWN TIGHT OVER GRILLE COLLAR. DO NOT STRAP INSULATION. STRETCH FLEX TIGHT BETWEEN DUCT AND DIFFUSER TO AVOID KINKS, SUPPORT EVERY FOUR FEET WITH 2" STEEL STRAP.

SUPPLY DIFFUSER RUNOUT DETAIL
NOT TO SCALE



DUCT INSULATION DETAIL
NOT TO SCALE



CITY OF TAMPA
CONTRACT ADMINISTRATION
DEPARTMENT
PLANNING AND DESIGN DIVISION
305 E. JACKSON STREET 4 NORTH
TAMPA, FLORIDA 33602
p. 813. 274. 6456 -- f. 813. 274. 8080
url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
City Architect
Edward D. Rice, AIA
Project Architect
Kevin L. Herlika, AIA
Project Architect
Thomas A. Heister, Sr., AIA, NOMA
Project Architect
David R. Pagitt
Supervisor, Architectural Drafting
Kelsey C. Tillman
Drafting Technician
Jerry P. Sanders
Drafting Technician
Byron K. Thomas
Drafting Technician

MEP CONSULTANT
GRINER ENGINEERING, INC.
1628 1st. AVENUE NORTH
ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
ROGAL-TGA CONSULTING
ENGINEERS, INC.
124 5th AVENUE SOUTH, SUITE B
SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
GOLDER ASSOCIATES, INC.
5100 W. LEMON STREET #14
TAMPA, FL 33609

LANDSCAPE CONSULTANT
DAVID CONNER & ASSOCIATES
1509 W. SWANN AVENUE, SUITE 255
TAMPA, FL 33606

FIRE STATION 19
7910 INTERBAY BLVD.
TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD0118

ISSUE DATE
MAY 31, 2018

DRAWN BY

REVISIONS

SEAL

SCALE: NO SCALE

MECHANICAL DETAILS

SHEET NUMBER

M-6.0

XXX OF XXX

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ABC
	St. Petersburg, Florida 33713	Designed	ABC
	Phone: (727) 822-2355	FOR	JHG
	Fax: (727) 821-3161	Job no.	12032



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p. 813. 274. 8456 -- f. 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Herlika, AIA
 Project Architect
 Thomas A. Heister, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #14
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1503 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD0118

ISSUE DATE
MAY 31, 2018

DRAWN BY

REVISIONS

△	
△	
△	

SEAL

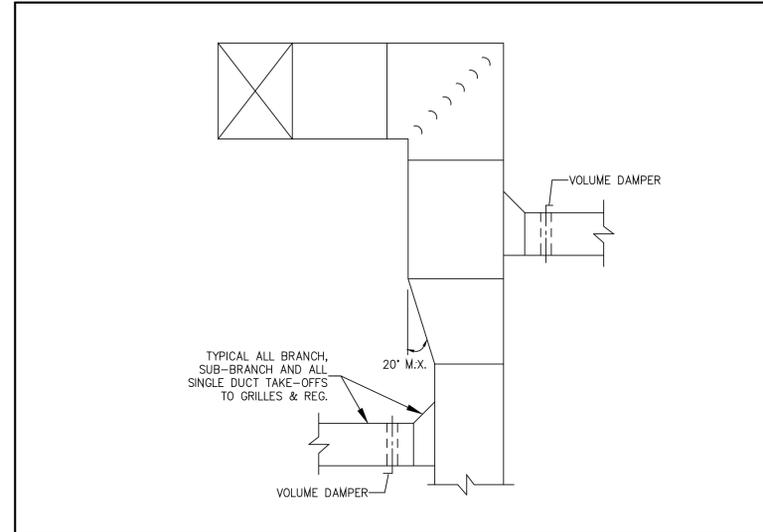
SCALE: NO SCALE

MECHANICAL DETAILS

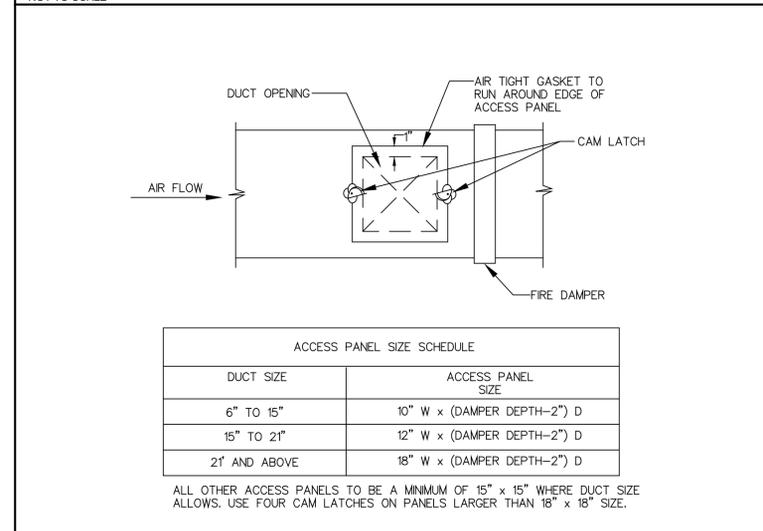
SHEET NUMBER

M-6.1

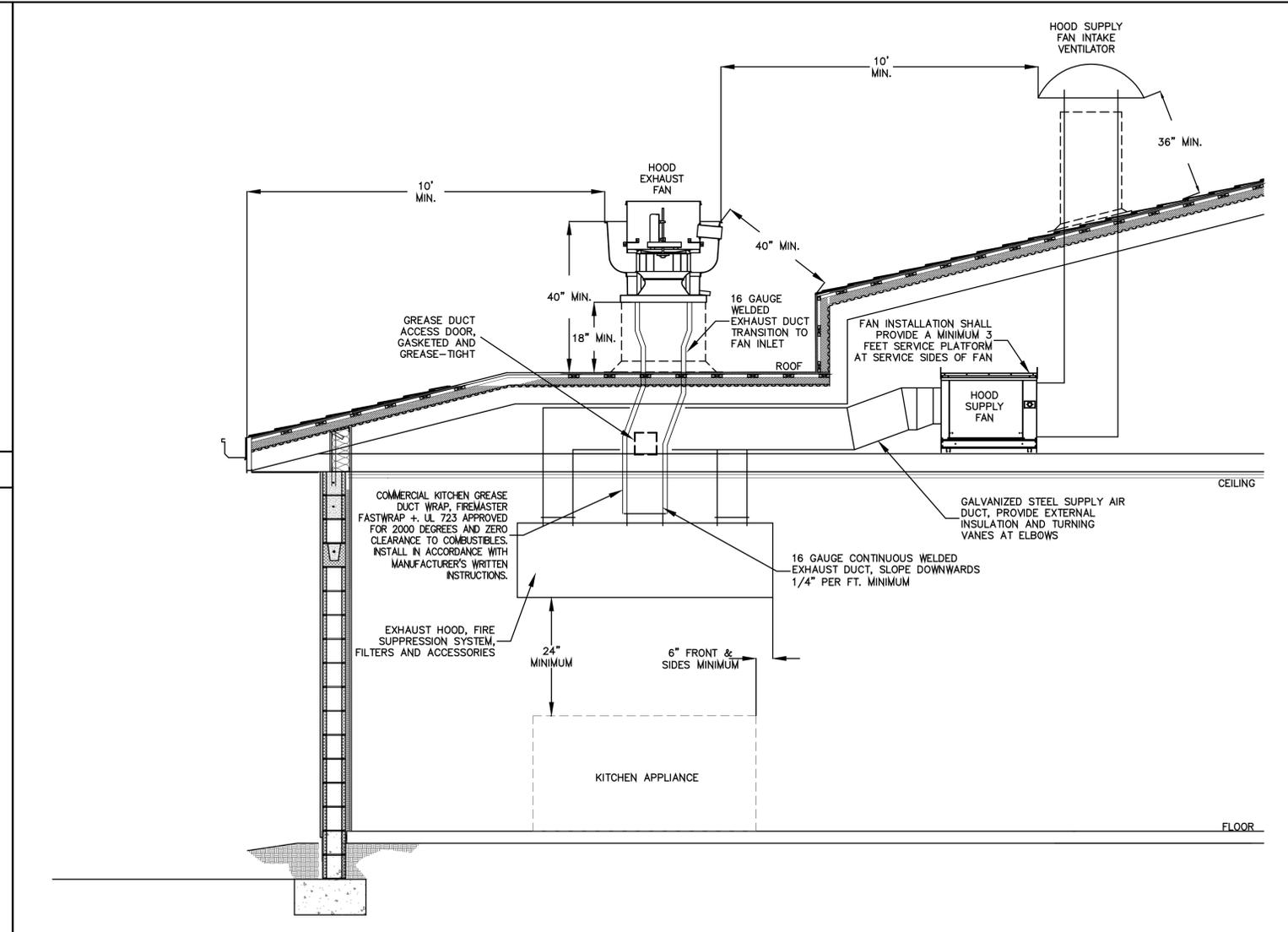
XXX OF XXX



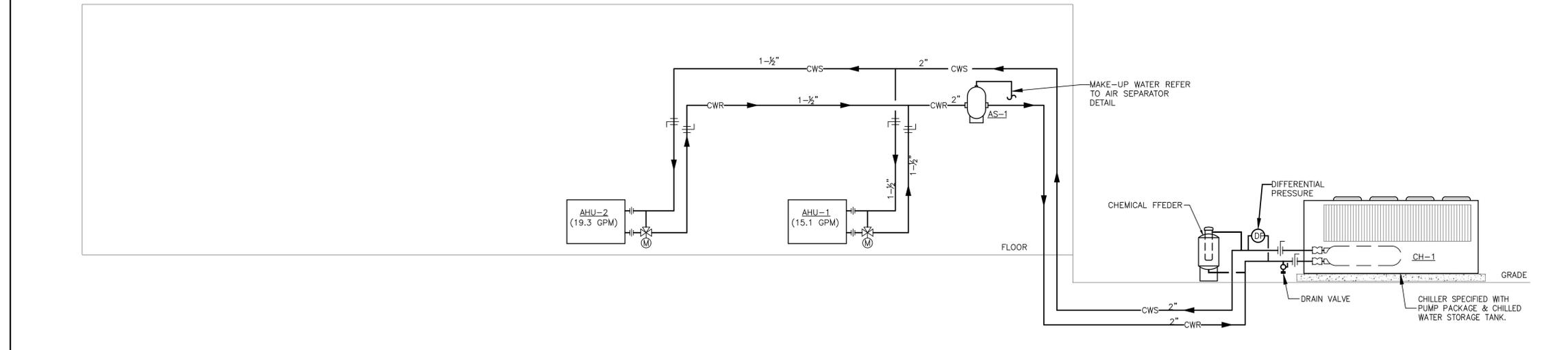
DUCT - TYPICAL
 NOT TO SCALE



ACCESS PANEL DETAIL
 NOT TO SCALE



KITCHEN HOOD DUCT CONNECTION DETAIL
 NOT TO SCALE



CHILLED WATER PIPING DETAIL
 NOT TO SCALE

G	GRINER ENGINEERING, INC.	Date	05/31/2018
	1628 First Avenue North	Drawn	ABC
	St. Petersburg, Florida 33713	Designed	ABC
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3161	Job no.	12032
Certificate of Authorization #3173			



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET, 4 NORTH
 TAMPA, FLORIDA 33602
 P. 813. 274. 8456 - F. 813. 274. 8080
 URL: www.tampagov.net

James E. Jackson, Jr., AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Herlika, AIA
 Project Architect
 Thomas A. Heister, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #14
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1503 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 F00118

ISSUE DATE
 MAY 31, 2018

DRAWN BY

REVISIONS

SEAL

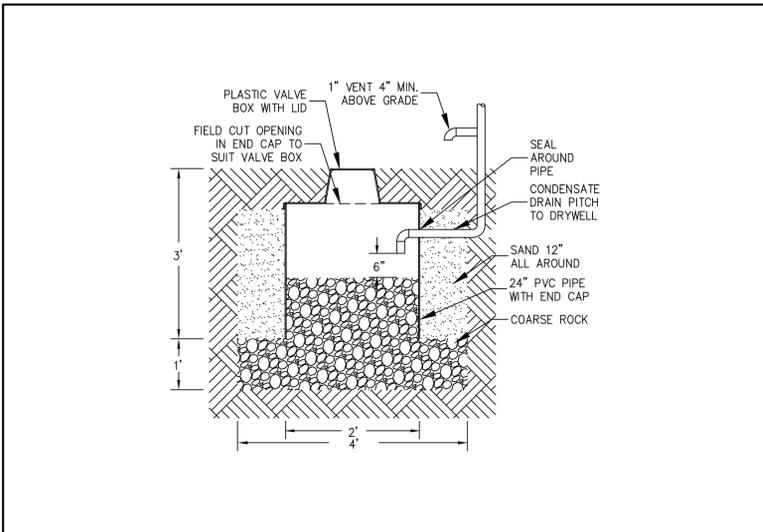
SCALE: NO SCALE

MECHANICAL DETAILS

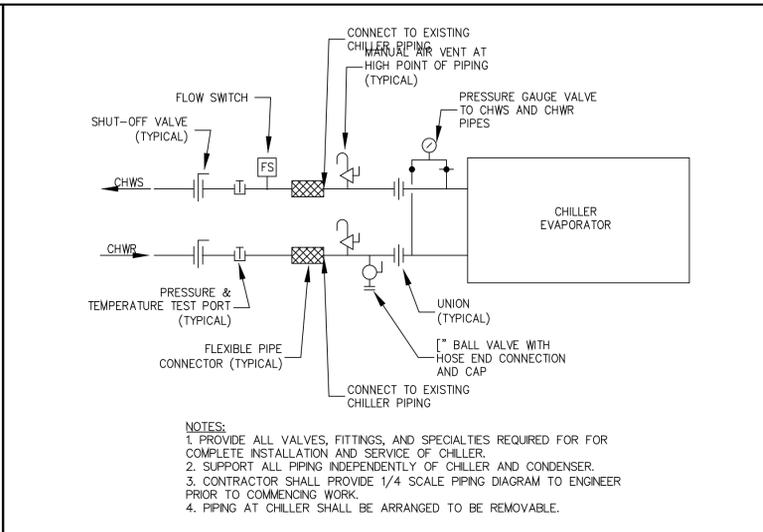
SHEET NUMBER

M-6.2

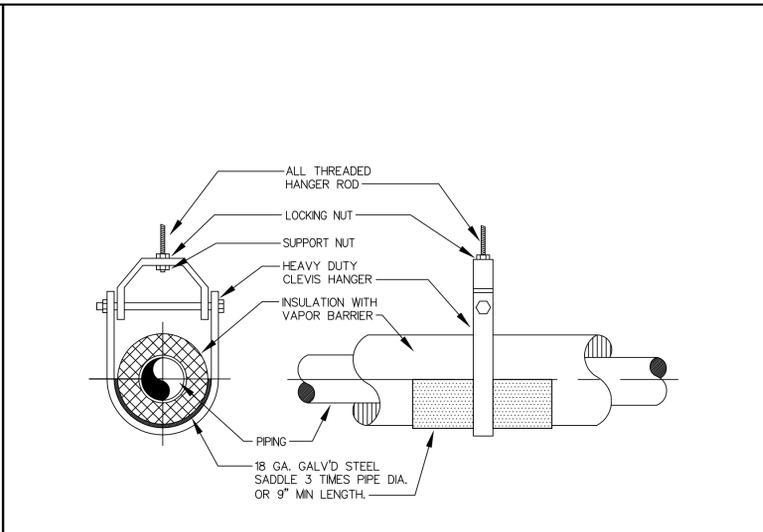
XXX OF XXX



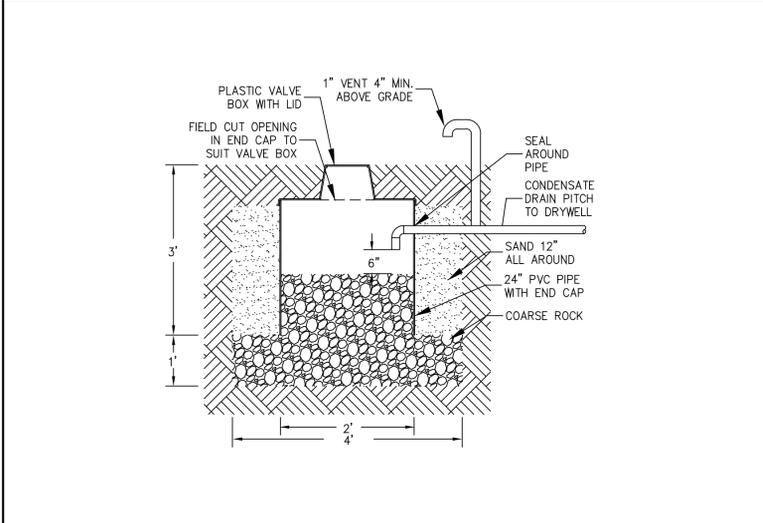
CONDENSATE DRYWELL DETAIL
 NOT TO SCALE



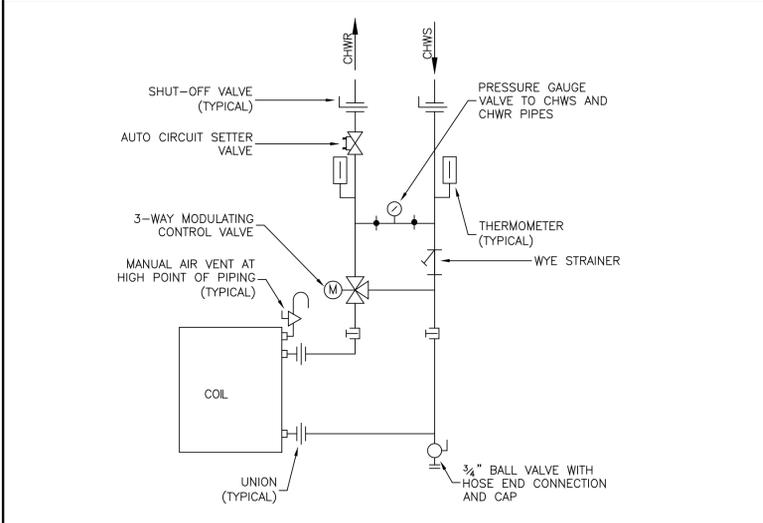
CHILLER PIPING DIAGRAM
 NOT TO SCALE



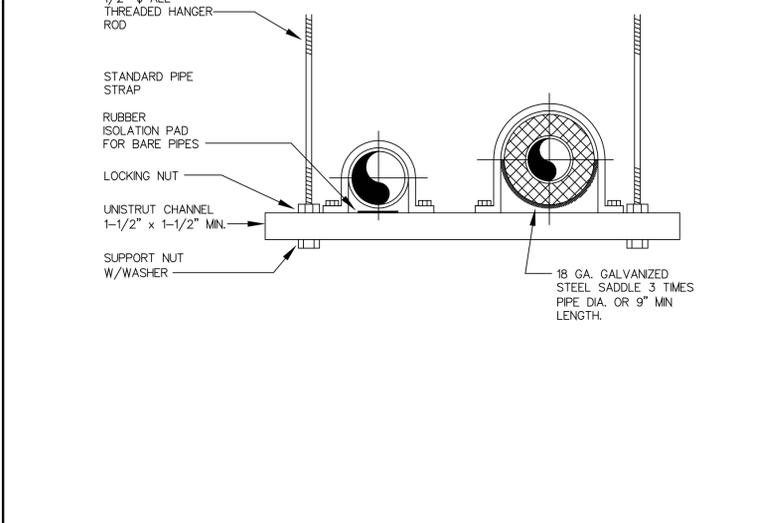
PIPE HANGERS DETAIL
 NOT TO SCALE



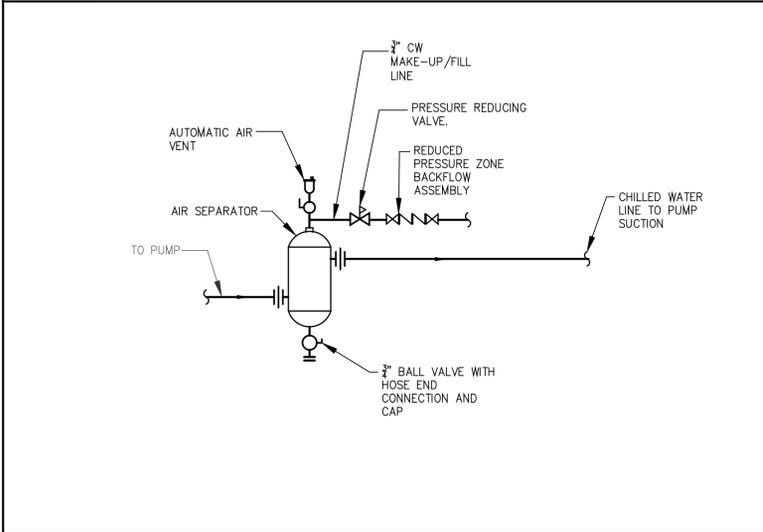
ALT CONDENSATE DRYWELL DETAIL
 NOT TO SCALE



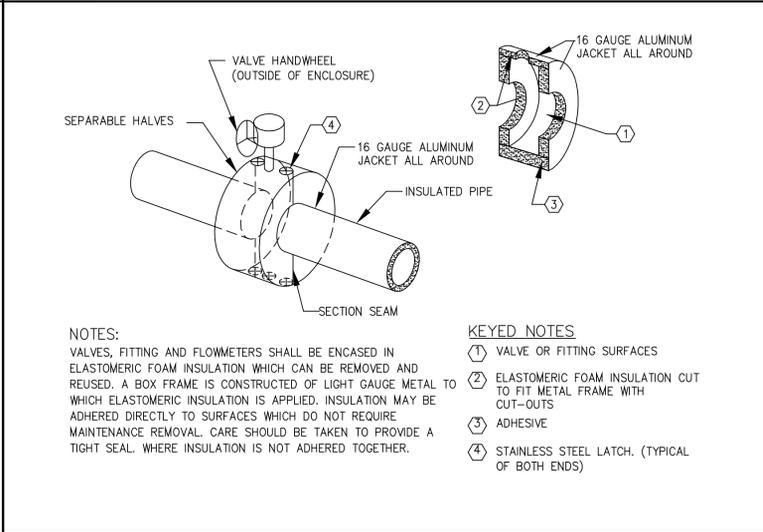
AIR HANDLER UNIT CHILLED WATER COIL PIPING DIAGRAM
 NOT TO SCALE



BURIED CHILLED WATER PIPE TRENCH DETAIL
 NOT TO SCALE

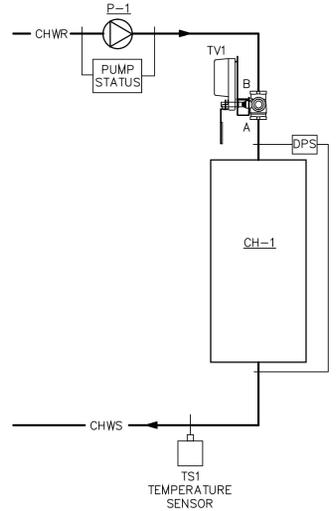
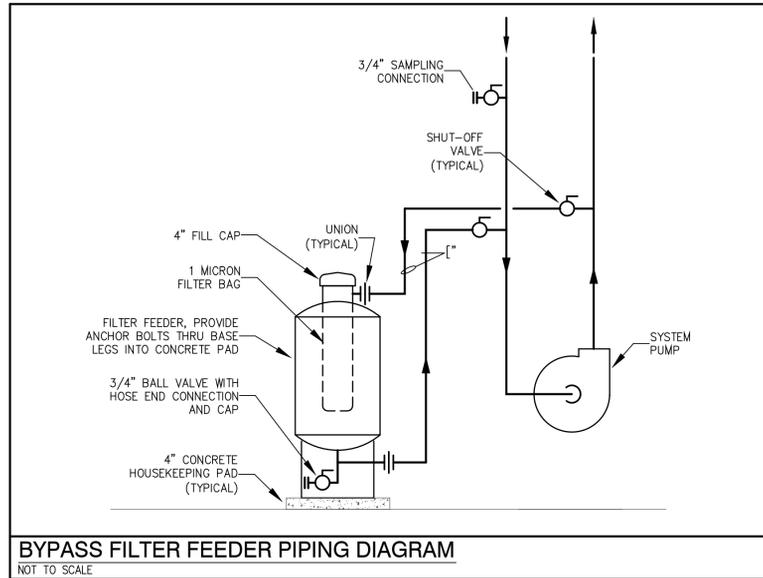


AIR SEPARATOR DETAIL
 NOT TO SCALE



REMOVABLE / REPLACEABLE COVER FOR VALVES/FITTINGS DETAIL
 NOT TO SCALE

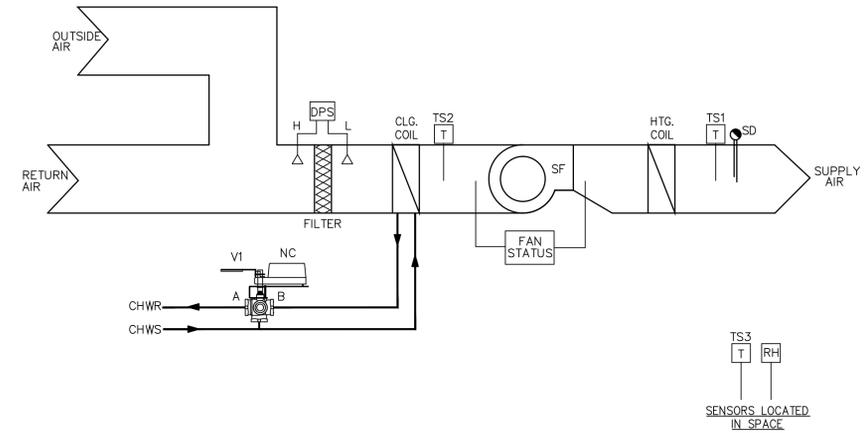
	GRINER ENGINEERING, INC.	Date	05/31/2018
	1628 First Avenue North	Drawn	RD/MBC
	St. Petersburg, Florida 33713	Designed	RD/MBC
	Phone: (727) 822-2355	FOR	JHG
Fax: (727) 821-3161	Job no.	12032	
Certificate of Authorization #3173			



	ANALOG				DIGITAL				SYSTEM POINTS	
	INPUT		OUTPUT		INPUT		OUTPUT		ALARM FAILURE	HIGH/LOW LIMIT
	TEMPERATURE	PRESSURE DIFFERENTIAL	SETPOINT ADJUSTMENT		STATUS	ENABLED				
CHILLED WATER SUPPLY	X	X								X
CHILLED WATER RETURN	X	X								X
PRIMARY PUMPS					X	X			X	X
CHILLERS		X			X	X			X	X

SEQUENCE OF OPERATION:
 THE CHILLED WATER PUMP SHALL BE COMMANDED TO START/STOP BASED ON AN 7-DAY TIME SCHEDULE, OR UNOCCUPIED MODE TEMPERATURE/HUMIDITY OVERRIDE.
 UPON VERIFICATION OF PUMP STATUS THE CHILLER SHALL BE COMMANDED TO OPERATE AND MAINTAIN A LEAVING CHILLED WATER TEMPERATURE OF 44 DEG. F.

CHILLER PLANT CONTROL SCHEMATIC
 N.T.S.



	CONTROL POINT MATRIX									
	ANALOG				DIGITAL				SYSTEM POINTS	
	INPUT		OUTPUT		INPUT		OUTPUT			
TEMPERATURE	HUMIDITY	CARBON DIOXIDE LEVEL	FILTER STATIC PRESSURE DIFFERENTIAL	SETPOINT ADJUSTMENT	VALVE POSITION	STATUS	ENABLED	DAMPER POSITION	ALARM FAILURE	HIGH/LOW LIMIT
OUTSIDE AIR DAMPER								X	X	X
FILTERS			X						X	X
COOLING COIL (TS2)	X				X				X	X
SUPPLY FAN						X	X	X	X	X
HEATING COIL (TS1)	X				X				X	X
SMOKE DETECTOR									X	
CONDITIONED SPACE (TS3)	X	X		X					X	X

SEQUENCE OF OPERATION:
 THE AIR HANDLER SHALL BE COMMANDED TO START/STOP BASED ON AN 7-DAY TIME SCHEDULE OR TEMPERATURE/HUMIDITY OVERRIDE.
 OCCUPIED MODE:
 UPON VERIFICATION OF SUPPLY FAN STATUS THE OUTSIDE AIR DAMPER (D1) SHALL OPEN TO THE SETPOINT POSITION.
 UPON VERIFICATION OF SUPPLY FAN STATUS THE CHILLED WATER VALVE (V1) SHALL MODULATE TOWARD THE OPEN POSITION TO MAINTAIN A SPACE TEMPERATURE SETPOINT (TS3) OF 75 DEG. F (ADJUSTABLE). WHEN SPACE TEMPERATURE SETPOINT (TS3) DROPS BELOW 75 DEG. F, THE CHILLED WATER VALVE (V1) SHALL BE COMMANDED TO MODULATE TOWARDS THE CLOSED POSITION TO MAINTAIN A SPACE TEMPERATURE SETPOINT (TS3) OF 75 DEG. F (ADJUSTABLE). UPON A FURTHER DROP IN SPACE TEMPERATURE THE ELECTRIC HEATING ELEMENT SHALL BE ACTIVATED TO MAINTAIN A SPACE HEATING TEMPERATURE SETPOINT (TS3) OF 70 DEG. F. (ADJUSTABLE).
 HUMIDITY OVERRIDE MODE:
 UPON A RISE IN SPACE HUMIDITY SETPOINT ABOVE 60% RH THE CHILLED WATER VALVE (V1) SHALL MODULATE TOWARD THE OPEN POSITION TO MAINTAIN A TEMPERATURE SETPOINT (TS2) OF 55 DEG. F (ADJUSTABLE) AND THE ELECTRIC HEATING ELEMENT SHALL BE ACTIVATED TO MAINTAIN A TEMPERATURE SETPOINT (TS1) OF 75 DEG. F. (ADJUSTABLE).
 UPON SATISFYING THE RETURN AIR HUMIDITY SETPOINT OF 60% RH (ADJUSTABLE) THE HUMIDITY OVERRIDE MODE SHALL END AND SHALL NOT BE ALLOWED TO RESTART FOR 15 MINUTES (ADJUSTABLE).

AHU-1 AIR HANDLER SCHEMATIC
 N.T.S.



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 305 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 P. 813. 274. 8456 -- F. 813. 274. 8080
 URL: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Herlika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #14
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1503 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 F00118

ISSUE DATE
 MAY 31, 2018

DRAWN BY

REVISIONS

- △
- △
- △

SEAL

SCALE: NO SCALE

MECHANICAL SCHEMATICS

SHEET NUMBER

M-6.3

XXX OF XXX

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	RDMSB
	St. Petersburg, Florida 33713	Designed	RDMSB
	Phone: (727) 822-2335	EOR	JHG
	Fax: (727) 821-3361	Job no.	12032
Certificate of Authorization #3173			



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 P. 813. 274. 8456 -- F. 813. 274. 8080
 URL: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Herlika, AIA
 Project Architect
 Thomas A. Heister, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #14
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
F00118

ISSUE DATE
MAY 31, 2018

DRAWN BY

REVISIONS
 △
 △
 △

SEAL

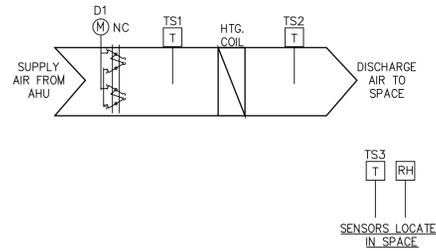
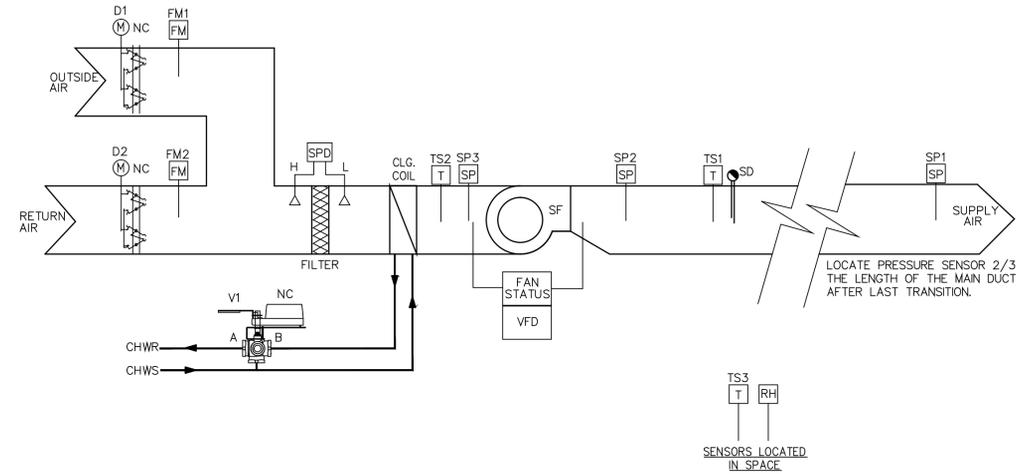
SCALE: NO SCALE

MECHANICAL SCHEMATICS

SHEET NUMBER

M-6.4

XXX OF XXX



	ANALOG				DIGITAL				SYSTEM POINTS		
	INPUT		OUTPUT		INPUT		OUTPUT		ALARM	FAILURE	HIGH/LOW LIMIT
	TEMPERATURE	HUMIDITY	HEATING ELEMENT	DAMPER POSITION	HEATING ELEMENT	DAMPER POSITION	ALARM	FAILURE			
VAV DAMPER (TS1)	X		X						X	X	X
HEATING COIL (TS2)	X		X						X	X	
CONDITIONED SPACE (TS3)	X	X	X						X	X	

SEQUENCE OF OPERATION:
 THE VARIABLE AIR VOLUME SINGLE DUCT TERMINAL UNIT SHALL BE CONTROLLED BASED ON AN 7-DAY TIME SCHEDULE WITH OCCUPIED AND UNOCCUPIED MODES OR TEMPERATURE/HUMIDITY OVERRIDE.
OCCUPIED MODE:
 THE VAV AIR DAMPER (D1) SHALL MODULATE TOWARD THE OPEN POSITION TO MAINTAIN A SPACE TEMPERATURE SETPOINT (TS3) OF 75 DEG.. F (ADJUSTABLE). WHEN SPACE TEMPERATURE SETPOINT (TS3) DROPS BELOW 74 DEG.. F, THE VAV AIR DAMPER (D1) SHALL BE COMMANDED TO MODULATE TOWARDS THE CLOSED POSITION. UPON A FURTHER DROP IN SPACE TEMPERATURE, THE ELECTRIC HEATING ELEMENT SHALL BE ACTIVATED TO MAINTAIN A SPACE HEATING TEMPERATURE SETPOINT (TS3) OF 70 DEG. F. (ADJUSTABLE).
HUMIDITY OVERRIDE MODE:
 UPON A RISE IN SPACE HUMIDITY SETPOINT ABOVE 60% RH THE VAV AIR DAMPER (D1) SHALL MODULATE TOWARD THE OPEN POSITION TO MAINTAIN A DISCHARGE AIR TEMPERATURE SETPOINT (TS2) OF 55 DEG. F (ADJUSTABLE) AND THE ELECTRIC HEATING ELEMENT SHALL BE ACTIVATED TO MAINTAIN A SPACE TEMPERATURE SETPOINT (TS3) OF 75 DEG.. F OCCUPIED OR 80 DEG., F UNOCCUPIED. (ADJUSTABLE).
 UPON SATISFYING THE SPACE AIR HUMIDITY SETPOINT OF 60% RH (ADJUSTABLE) THE HUMIDITY OVERRIDE MODE SHALL END AND SHALL NOT BE ALLOWED TO RESTART FOR 15 MINUTES (ADJUSTABLE).

VAV BOX w/ELECTRIC COIL SCHEMATIC
 N.T.S.

	CONTROL POINT MATRIX															
	ANALOG					DIGITAL					SYSTEM POINTS					
	INPUT		OUTPUT			INPUT		OUTPUT								
	AIR FLOW VOLUME	TEMPERATURE	HUMIDITY	FILTER STATIC PRESSURE DIFFERENTIAL	STATIC PRESSURE	DAMPER POSITION	VALVE POSITION	FAN SPEED	STATUS	---	---	---	---	ALARM	FAILURE	HIGH/LOW LIMIT
OUTSIDE AIR DAMPER (D1)						X								X	X	
FLOW METER (FM1)	X													X		
RETURN AIR DAMPER (D2)						X								X	X	
FLOW METER (FM2)	X													X		
AIR FILTERS				X										X	X	
COOLING COIL (TS2)		X				X								X	X	
LOW STATIC PRESSURE SENSOR (SP3)														X		
SUPPLY FAN								X	X					X	X	
HIGH STATIC PRESSURE SENSOR (SP2)														X		
SUPPLY AIR (TS1)		X												X	X	
SMOKE DETECTOR														X		
STATIC PRESSURE SENSOR (SP1)					X									X	X	

SEQUENCE OF OPERATION:
 THE AIR HANDLER SUPPLY FAN SHALL BE COMMANDED TO INCREASE/DECREASE FAN SPEED BASED ON A STATIC PRESSURE SENSOR (SP1). WHEN THE STATIC PRESSURE SENSOR (SP1) MEASURES A STATIC PRESSURE LESS THAN 1 INCH WATER PRESSURE (ADJUSTABLE) THE SUPPLY FAN SHALL INCREASE SPEED. WHEN THE STATIC PRESSURE SENSOR (SP1) MEASURES A STATIC PRESSURE GREATER THAN 1 INCH WATER PRESSURE (ADJUSTABLE) THE SUPPLY FAN SHALL DECREASE SPEED.
 WITH THE SUPPLY FAN ACTIVE AT ANY SPEED THE OUTSIDE AIR AND RETURN AIR DAMPERS SHALL BE MODULATED TO MAINTAIN AN OUTSIDE AIR VOLUME OF 475 CFM (ADJUSTABLE).
 UPON A CALL FOR COOLING FROM ANY OF THE SPACES OR VAV BOXES IN HUMIDITY OVERRIDE MODE THE RETURN AIR COIL CHILLED WATER VALVE (V1) SHALL MODULATE TO MAINTAIN A RETURN AIR COOLING TEMPERATURE SETPOINT (TS2) OF 55 DEG.. F (ADJUSTABLE).

AHU-2 AIR HANDLER w/VFD SCHEMATIC
 N.T.S.

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ABC
	St. Petersburg, Florida 33713	Designed	ABC
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3361	Job no.	12032
	Certificate of Authorization #3173		

MECHANICAL SPECIFICATION

SECTION 23 05 00

COMMON REQUIREMENTS FOR MECHANICAL WORK:

1.0 GENERAL

1.01 SCOPE OF DIVISION: WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR A COMPLETE AND PROPERLY FUNCTIONING MECHANICAL INSTALLATION IN ACCORDANCE WITH REQUIREMENTS OF: THE FLORIDA BUILDING CODE 2007 - BUILDING AND MECHANICAL CODE AND NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).

1.02 DRAWINGS: ARCHITECTURAL AND STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER MECHANICAL DRAWINGS WITH REFERENCE TO THE BUILDING CONSTRUCTION. MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT AND EXTENT OF WORK. EXACT LOCATIONS AND ARRANGEMENTS OF MATERIALS AND EQUIPMENT SHALL BE DETERMINED, WITH THE APPROVAL OF THE ENGINEER, AS WORK PROGRESSES TO CONFORM IN THE BEST POSSIBLE MANNER WITH THE SURROUNDINGS AND WITH THE ADJOINING WORK OF OTHER TRADES.

1.03 COORDINATION OF WORK: COORDINATE ALL WORK, PRIOR TO INSTALLATION, WITH WORK OF OTHER TRADES AND WITH ARCHITECTURAL AND STRUCTURAL FEATURES TO PRECLUDE INTERFERENCE'S BETWEEN THE WORK OF DIFFERENT TRADES AND TO INSURE NECESSARY CLEARANCES AT CROSSOVERS AND EQUIPMENT.

1.04 SHOP DRAWINGS: SUBMIT TO ENGINEER FOR APPROVAL, BEFORE COMMENCING WORK, SHOP DRAWINGS FOR ALL MECHANICAL MATERIALS AND EQUIPMENT TO BE PROVIDED.

A. PRESENT DATA IN DETAIL EQUAL TO OR GREATER THAN THAT GIVEN IN ITEM SPECIFICATIONS AND INCLUDE ALL WEIGHTS, DEFLECTIONS, SPEEDS, VELOCITIES, PRESSURE DROPS, OPERATING TEMPERATURES, OPERATING CURVES, TEMPERATURE RANGES, SOUND RATINGS, DIMENSIONS, SIZES, MANUFACTURERS' NAMES, MODEL NUMBERS, TYPES OF MATERIAL USED, OPERATING PRESSURES, FULL LOAD AMPERAGES, STARTING AMPERAGES, FOULING FACTORS, CAPACITIES, SETPOINTS, CHEMICAL COMPOSITIONS, CERTIFICATIONS AND ENDORSEMENTS, OPERATING VOLTAGES, THICKNESSES, GAUGES AND ALL OTHER RELATED.

1.05 RECORD DRAWINGS:

A. MAINTAIN ONE EXTRA SET OF BLACK LINE, WHITE PRINT DRAWINGS FOR USE AS RECORD DRAWINGS. RECORDS SHALL BE KEPT DAILY, USING COLORED PENCIL. AS THE WORK IS COMPLETED, RELEVANT INFORMATION SHALL BE TRANSFERRED TO A REPRODUCIBLE SET, AND COPIES MADE SHALL BE GIVEN TO THE ENGINEER.

1.06 FEES AND PERMIT:

A. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, INSPECTIONS, AND APPROVALS AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION

2.0 PRODUCTS

2.01 GENERAL:

A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT.

B. EQUIPMENT AND MATERIALS SHALL BE PRODUCTS WHICH WILL MEET WITH THE ACCEPTANCE OF THE AGENCY INSPECTING THE WORK. WHERE ACCEPTANCE IS CONTINGENT UPON HAVING THE PRODUCTS EXAMINED, TESTED, AND CERTIFIED BY UNDERWRITERS OR OTHER RECOGNIZED TESTING LABORATORY, THE PRODUCT SHALL BE SO EXAMINED, TESTED, AND CERTIFIED.

2.02 MOTORS: UNLESS SPECIFICALLY SPECIFIED OTHERWISE IN THE SECTION COVERING THE DRIVEN EQUIPMENT (OR THE EQUIPMENT DRIVES), MOTORS SHALL COMPLY WITH THE FOLLOWING:

A. THREE PHASE: NEMA DESIGN B, THREE-PHASE, SQUIRREL CAGE INDUCTION TYPE DESIGNED FOR 1800 RPM SYNCHRONOUS SPEED FOR OPERATION IN 40 DEGREE C AMBIENT AT 1.15 SERVICE FACTOR AT CONSTANT SPEED ON THE SCHEDULED VOLTAGE. MOTORS SHALL BE INSULATED WITH CLASS B INSULATION MATERIAL AND SHALL BE CAST IRON, DRIP PROOF, HORIZONTAL FOOT MOUNTED TYPE WITH BALL BEARINGS. TWO SPEED MOTORS SHALL BE PROVIDED AS SCHEDULED AND SHALL BE TWO WINDING TYPE.

B. SCHEDULED HORSEPOWER: THE HORSEPOWER SCHEDULED OR SPECIFIED ARE THOSE NOMINAL SIZES ESTIMATED TO BE REQUIRED BY THE EQUIPMENT WHEN OPERATING AT SPECIFIED DUTIES AND EFFICIENCIES. IF THE ACTUAL HORSEPOWER FOR THE EQUIPMENT FURNISHED DIFFERS FROM THAT SPECIFIED OR SHOWN ON THE DRAWINGS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT PROPER SIZE FEEDERS, BREAKERS, STARTERS, ETC. ARE PROVIDED AT NO CHANGE IN CONTRACT PRICE.

SECTION 23 05 03

PIPES AND TUBES FOR HVAC PIPING AND EQUIPMENT:

1.0 GENERAL

1.01 SCOPE: PROVIDE CONDENSATE DRAIN PIPING FROM COOLING COIL DRAIN PANS.

2.0 PRODUCTS

2.01 PIPE: PVC, SCHEDULE 40; ASTM D2665.

2.02 FITTINGS: SOLVENT WELD SOCKET TYPE PVC, STANDARD WEIGHT; ASTM 2466.

2.03 SOLDER: AS RECOMMENDED MY PIPE MANUFACTURER.

3.0 EXECUTION

3.01 GENERAL: PIPING SHALL BE SLOPED UNIFORMLY TOWARD DRAIN, AND PROVIDED WITH TRAP SEAL HAVING A DEPTH, IN INCHES, EQUIVALENT TO THE TOTAL STATIC PRESSURE OF THE RESPECTIVE FAN SYSTEM. TRAPS SHALL BE ASSEMBLED USING ELBOWS AND TEES WITH THREADED PLUGS TO PERMIT CLEANING OF TRAP AND DRAIN LINE. PIPING SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER AND SHALL BE NOT SMALLER THAN FULL SIZE OF THE EQUIPMENT DRAIN CONNECTION OR THREE-QUARTERS INCH (3/4"), WHICHEVER IS LARGER.

SECTION 23 05 53

INSTRUCTIONS AND MAINTENANCE MANUALS:

1.0 GENERAL:

1.01 PROVIDE COMPLETE WRITTEN AND VERBAL OPERATING AND MAINTENANCE INSTRUCTION TO THE OWNER FOR ALL MECHANICAL SYSTEMS.

2.0 DOCUMENTATION:

2.01 PROVIDE TWO (2) INSTRUCTIONS AND MAINTENANCE MANUALS, EACH COMPLETE AS FOLLOWS:

A. HARDBACK THREE RING LOOSE-LEAF BINDERS.

B. TITLE SHEET WITH JOB NAME, CONTRACTOR'S SUBCONTRACTOR'S CONTROL SUBCONTRACTOR AND RELATED CONTRACTOR'S OR MATERIAL SUPPLIERS NAMES, ADDRESSES AND PHONE NUMBERS.

C. INDEX OF CONTENTS.

D. A SIGNED COPY OF ACKNOWLEDGMENT OF INSTRUCTIONS TO THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. TWO ADDITIONAL COPIES OF THE SIGNED ACKNOWLEDGMENT SHALL BE SENT DIRECTLY TO THE ENGINEER AS SOON AS POSSIBLE AFTER RECEIPT.

E. TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING THE FOLLOWING FOR EACH PIECE OF EQUIPMENT AND SYSTEMS:

- 1. HOW TO START AND STOP EACH PIECE OF EQUIPMENT.
2. HOW TO SET EQUIPMENT AND SYSTEMS FOR NORMAL OPERATION.
3. NORMAL RESTARTING PROCEDURES BEFORE CONTACTING THE SERVICE CONTRACTOR.

4. COMPLETE DESCRIPTION OF FUNCTIONS AND OPERATIONS OF EACH PIECE OF EQUIPMENT INCLUDING DESCRIPTION OF HOW EQUIPMENT OPERATES IN CONJUNCTION WITH AUTOMATIC CONTROL SYSTEMS.

5. INSTRUCTIONS FOR CLEANING, OILING, GREASING, FUELING AND SIMILAR TASKS.

SECTION 23 05 48

VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. VIBRATION ISOLATORS.

1.02 SYSTEM DESCRIPTION

A. PROVIDE VIBRATION ISOLATION ON MOTOR DRIVEN EQUIPMENT OVER 0.5 HP, PLUS CONNECTED PIPING AND DUCTWORK

1.03 SUBMITTALS

A. PRODUCT DATA: SUBMIT SCHEDULE OF VIBRATION ISOLATOR TYPE.
B. MANUFACTURER'S INSTALLATION INSTRUCTIONS: SUBMIT SPECIAL PROCEDURES AND SETTING DIMENSIONS.

PART 2 PRODUCTS

2.01 VIBRATION ISOLATORS

A. MANUFACTURERS:

- 1. MASON INDUSTRIES
2. KINETICS

B. SPRING HANGER:

- 1. SPRING ISOLATORS:
A. FURNISH HOT DIPPED GALVANIZED HOUSINGS AND NEOPRENE COATED SPRINGS.
B. COLOR CODE, COLOR CODE SPRINGS FOR LOAD CARRYING CAPACITY.
2. SPRINGS: MINIMUM HORIZONTAL STIFFNESS EQUAL TO 75 PERCENT VERTICAL STIFFNESS, WITH WORKING DEFLECTION BETWEEN 0.3 AND 0.6 OF MAXIMUM DEFLECTION.
3. HOUSINGS: INCORPORATE NEOPRENE ISOLATION PAD MEETING REQUIREMENTS FOR NEOPRENE PAD ISOLATORS RUBBER HANGER WITH THREAD INSERT.
4. MISALIGNMENT: CAPABLE OF 20 DEGREE HANGER ROD MISALIGNMENT.

C. NEOPRENE PAD ISOLATORS:

- 1. RUBBER OR NEOPRENE-WAFFLE PADS.
A. 30 DUROMETER.
B. MINIMUM 1/2 INCH THICK.
C. MAXIMUM LOADING 40PSI.
D. HEIGHT OF RIBS: NOT TO EXCEED 0.7 TIMES WIDTH.
2. CONFIGURATION: SINGLE LAYER, 1/2 INCH THICK WAFFLE PADS BONDED EACH SIDE OF 1/4 INCH THICK STEEL PLATE.

PART 3 EXECUTION

3.01 EXAMINATION

A. VERIFY EQUIPMENT, DUCTWORK, AND PIPING IS INSTALLED BEFORE WORK ON THIS SECTION IS STARTED.

3.02 INSTALLATION

A. ADJUST EQUIPMENT LEVEL.

B. INSTALL SPRING HANGERS WITHOUT BINDING.

C. ON CLOSED SPRING ISOLATORS, ADJUST SO SIDE STABILIZERS ARE CLEAR UNDER NORMAL OPERATING CONDITIONS.

D. PRIOR TO MAKING PIPING CONNECTIONS TO EQUIPMENT WITH OPERATING WEIGHTS SUBSTANTIALLY DIFFERENT FROM INSTALLED WEIGHTS, BLOCK UP EQUIPMENT WITH TEMPORARY SHIMS TO FINAL HEIGHT. WHEN FULL LOAD IS APPLIED, ADJUST ISOLATORS TO ALLOW SHIM REMOVAL.

E. SUPPORT PIPING CONNECTIONS TO ISOLATE EQUIPMENT RESILIENTLY AS FOLLOWS:
1. UP TO 4 INCH DIAMETER: FIRST THREE POINTS OF SUPPORT.
2. SELECT THREE HANGERS CLOSEST TO VIBRATION SOURCE FOR MINIMUM 1.0 INCH STATIC DEFLECTION OR STATIC DEFLECTION OF ISOLATED EQUIPMENT. SELECT REMAINING ISOLATORS FOR MINIMUM 1.0 INCH STATIC DEFLECTION OR 1/2 STATIC DEFLECTION OF ISOLATED EQUIPMENT.

3.03 ISOLATOR SCHEDULE

Table with 2 columns: ITEM, ISOLATOR TYPE. Rows include Chilled Water Piping, Heating Hot Water Pipe, Pumps, Spring Hangers, and Neoprene Pad Isolators.

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING

1.0 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:
1. TESTING ADJUSTING, AND BALANCING OF AIR SYSTEMS.
2. TESTING ADJUSTING, AND BALANCING OF HYDRONIC SYSTEMS.
3. MEASUREMENT OF FINAL OPERATING CONDITION OF HVAC SYSTEMS.

1.2 REFERENCES

A. ASSOCIATED AIR BALANCE COUNCIL:
1. AABC MN-1 - NATIONAL STANDARDS FOR TESTING AND BALANCING HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS.

B. AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS:
1. ASHRAE 111 - PRACTICES FOR MEASUREMENT, TESTING, ADJUSTING AND BALANCING OF BUILDING HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION SYSTEMS.

C. NATURAL ENVIRONMENTAL BALANCING BUREAU:
1. NEBB - PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS.

1.3 CLOSEOUT SUBMITTALS

A. PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF BALANCING VALVES AND ROUGH SETTING.

B. OPERATION AND MAINTENANCE DATA: FURNISH FINAL COPY OF TESTING, ADJUSTING, AND BALANCING REPORT INCLUSION IN OPERATING AND MAINTENANCE MANUALS.

1.4 QUALITY ASSURANCE

A. PERFORM WORK IN ACCORDANCE WITH AABC MN-1 NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE.

B. GUARANTEE: THE TEST AND BALANCE AGENCY SHALL INCLUDE A WARRANTY PERIOD OF NINETY (90) DAYS AFTER COMPLETION AND ACCEPTABLE OF TEST AND BALANCE WORK. DURING THE WARRANTY PERIOD, THE ARCHITECT MAY REQUEST A RE-CHECK OR RE-SETTING OF ANY OUTLET AND SUPPLY FAN. THE TEST AND BALANCE AGENCY SHALL PROVIDE TECHNICIANS, INSTRUMENTS, AND TOOLS TO ASSIST THE ARCHITECT IN CONDUCTING ANY TEST THAT HE MAY REQUIRE DURING THIS TIME. THE FOREGOING SHALL BE IN ADDITION TO THE A.A.M.C. NATIONAL PROJECT CERTIFICATION PERFORMANCE GUARANTEE WHICH SHALL BE FORWARDED WITH SHOP DRAWING DATA SPECIFIED HEREINBEFORE.

1.5 QUALIFICATIONS

A. AGENCY: COMPANY SPECIALIZING IN TESTING, ADJUSTING, AND BALANCING OF SYSTEMS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE AND CERTIFIED BY AABC OR NEBB.

B. PERFORM WORK UNDER SUPERVISION OF AABC CERTIFIED TEST AND BALANCE ENGINEER.

A. ACCEPTABLE AGENCIES: TEST PHOENIX AGENCY, SOUTHERN INDEPENDENT TESTING AGENCY INC. OR OTHER AGENCY APPROVED BY ENGINEER.

2.0 PRODUCTS

A. NATIONAL STANDARDS: TESTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH A.A.B.C. NATIONAL STANDARDS.

3.0 EXECUTION

3.1 SCHEDULES

A. EQUIPMENT REQUIRING TESTING, ADJUSTING, AND BALANCING:

- 1. AIR COILS.
2. AIR HANDLING UNITS.
3. AIR TERMINAL UNITS.
4. FANS.
5. AIR INLETS AND OUTLETS.

B. REPORT FORMS

1. TITLE PAGE:

- A. NAME OF TESTING, ADJUSTING, AND BALANCING AGENCY
B. ADDRESS OF TESTING, ADJUSTING, AND BALANCING AGENCY
C. TELEPHONE AND FACSIMILE NUMBERS OF TESTING, ADJUSTING, AND BALANCING AGENCY
D. PROJECT NAME
E. PROJECT LOCATION
F. PROJECT ARCHITECT
G. PROJECT ENGINEER
H. PROJECT CONTRACTOR
I. REPORT DATE

2. SUMMARY COMMENTS:

- A. DESIGN VERSUS FINAL PERFORMANCE
B. NOTABLE CHARACTERISTICS OF SYSTEM
C. DESCRIPTION OF SYSTEMS OPERATION SEQUENCE
D. NOMENCLATURE USED THROUGHOUT REPORT
F. TEST CONDITIONS

3. INSTRUMENT LIST:

- A. INSTRUMENT
B. MANUFACTURER
C. MODEL NUMBER
D. SERIAL NUMBER
E. RANGE
F. CALIBRATION DATE
4. ELECTRIC MOTORS:
A. MANUFACTURER
B. MODEL/FRAME
C. HP/BHP AND KW
D. PHASE, VOLTAGE, AMPERAGE; NAMEPLATE, ACTUAL, NO LOAD
E. RPM
F. SERVICE FACTOR
G. STARTER SIZE, RATING, HEATER ELEMENTS
H. SHEAVE MAKE/SIZE/BORE

5. V-BELT DRIVE:

- A. IDENTIFICATION/LOCATION
B. REQUIRED DRIVEN RPM
C. DRIVEN SHEAVE, DIAMETER AND RPM
D. BELT, SIZE AND QUANTITY
E. MOTOR SHEAVE DIAMETER AND RPM
F. CENTER TO CENTER DISTANCE, MAXIMUM, MINIMUM, AND ACTUAL

6. COOLING COIL DATA:

- A. IDENTIFICATION/NUMBER
B. LOCATION
C. SERVICE
D. MANUFACTURER
E. AIR FLOW, DESIGN AND ACTUAL
F. ENTERING AIR DB TEMPERATURE, DESIGN AND ACTUAL
G. ENTERING AIR WB TEMPERATURE, DESIGN AND ACTUAL
H. LEAVING AIR DB TEMPERATURE, DESIGN AND ACTUAL
I. LEAVING AIR WB TEMPERATURE, DESIGN AND ACTUAL
J. WATER FLOW, DESIGN AND ACTUAL
K. WATER PRESSURE DROP, DESIGN AND ACTUAL
L. ENTERING WATER TEMPERATURE, DESIGN AND ACTUAL
M. LEAVING WATER TEMPERATURE, DESIGN AND ACTUAL
N. AIR PRESSURE DROP, DESIGN AND ACTUAL

7. AIR MOVING EQUIPMENT:

- A. LOCATION
B. MANUFACTURER
C. MODEL NUMBER
D. SERIAL NUMBER
E. ARRANGEMENT/CLASS/DISCHARGE
F. AIR FLOW, SPECIFIED AND ACTUAL
G. RETURN AIR FLOW, SPECIFIED AND ACTUAL
H. OUTSIDE AIR FLOW, SPECIFIED AND ACTUAL
I. TOTAL STATIC PRESSURE (TOTAL EXTERNAL), SPECIFIED AND ACTUAL
J. INLET PRESSURE
K. DISCHARGE PRESSURE
L. SHEAVE MAKE/SIZE/BORE
M. NUMBER OF BELTS/MAKE/SIZE
N. FAN RPM

8. AIR DISTRIBUTION TEST SHEET:

- A. AIR TERMINAL NUMBER
B. ROOM NUMBER/LOCATION
C. TERMINAL TYPE
D. TERMINAL SIZE
E. AREA FACTOR
F. DESIGN VELOCITY
G. DESIGN AIR FLOW
H. TEST (FINAL) VELOCITY
I. TEST (FINAL) AIR FLOW
J. PERCENT OF DESIGN AIR FLOW

SECTION 23 07 00

INSULATION: THERMAL

1.0 GENERAL

1.01 SCOPE: PROVIDE PLANT, LABOR, AND MATERIALS TO INSULATE EQUIPMENT, PIPING AND MISCELLANEOUS ITEMS IN THE PIPING AND DUCT SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.

1.02 NFPA 90A: ALL MATERIALS AND ADHESIVES USED IN OR ON DUCTWORK SHALL CONFORM TO THE REQUIREMENTS OF NFPA 90A AS TO FLAME SPREAD AND SMOKE DEVELOPED RATINGS.

2.0 PRODUCTS

2.01 INSULATION MATERIALS, GENERAL: INSULATION MATERIALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, THE FOLLOWING:

2.01 DUCTWORK INSULATION MATERIALS:

A. FIBERGLASS BLANKET INSULATION: FIBERGLASS DUCT INSULATION, ONE AND ONE-HALF (1-1/2) INCH THICK, ONE (1) POUND PER CUBIC FOOT DENSITY WITH REINFORCED FOIL SCRIM KRAFT VAPOR BARRIER, MINIMUM THERMAL RESISTANCE OF R-6.

B. FIBERGLASS RIGID BOARD INSULATION: FIBERGLASS DUCT BOARD, STIFFNESS OF 800 EI, HEAVY DUTY FOIL FACING ON EXPOSED SURFACE CONSISTING OF FOIL, FIBERGLASS SCRIM REINFORCEMENT AND TWO LAYERS OF KRAFT PAPER IN A OIL-KRAFT-SCRIM-KRAFT PATTERN, WITH A THERMAL RESISTANCE OF 6.0.

2.02 PIPE INSULATION MATERIALS:

A. CELLULAR GLASS: ASTM C552; K FACTOR OF 0.29 AT 75 DEGREES F (KSI VALUE OF 0.047 AT 24 DEGREES C); 8.0 LB/CU FT (128 KG/CU M) DENSITY.

B. CELLULAR FOAM: ASTM C534; FLEXIBLE, CELLULAR ELASTOMERIC, MOLDED.
1. K (KSI) VALUE: 0.27 AT 75 DEGREES F.
2. MAXIMUM SERVICE TEMPERATURE: 220 DEGREES F.
3. CONNECTION: WATERPROOF VAPOR RETARDER ADHESIVE.

C. GLASS FIBER: ASTM C547; MINERAL FIBER PIPE INSULATION.
1. K (KSI) VALUE: 0.27 AT 150 DEGREES F.
2. MAXIMUM SERVICE TEMPERATURE: 220 DEGREES F.
3. CONNECTION: WATERPROOF VAPOR RETARDER ADHESIVE.

D. JACKETS:

A. PVC PLASTIC PIPE JACKET:
1. PRODUCT DESCRIPTION: ASTM D1784, ONE PIECE MOLDED TYPE FITTING COVERS AND SHEET MATERIAL, OFF-WHITE COLOR.
3. THICKNESS: 10 MIL.
4. CONNECTIONS: TACKS.

2.03 ADHESIVES, MASTICS, SEALANTS: ADHESIVES, MASTICS, SEALANTS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING:

A. GLASS FIBER INSULATION (FABRIC AND MASTIC):

1. ADHESIVE: FOSTER 85-20.

2. MASTIC: FOSTER 35--00.

3.0 EXECUTION

3.01 DUCTWORK:

A. INTERIOR CONCEALED: DUCTWORK SHALL BE INSULATED EXTERNALLY WITH FIBERGLASS BLANKET WRAP OVERLAP INTERNAL INSULATION A MINIMUM OF ONE FOOT BEYOND ANY SUCH INTERNAL INSULATION, AND VAPOR SEAL RAW END AS SPECIFIED HEREIN FOR JOINTS. ADHERE DUCT INSULATION USING ADHESIVE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE DUCT WIDTH EXCEEDS TWENTY-FOUR INCHES (24"), THE INSULATION SHALL BE ADDITIONALLY SECURED TO THE BOTTOM OF THE DUCT USING MECHANICAL FASTENERS SPACED ONE FOOT (1') ON CENTER. INSULATION SHALL BE APPLIED WITH EDGES TIGHTLY BUTTED, AND ALL JOINTS AND BREAKS IN THE VAPOR BARRIER SEALED USING GLASS FABRIC AND MASTIC APPLIED IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.

B. INTERIOR EXPOSED: DUCTWORK SHALL BE INSULATED EXTERNALLY WITH FIBERGLASS DUCTBOARD INSULATION. INSULATION SHALL BE APPLIED WITH EDGES TIGHTLY BUTTED, AND ALL JOINTS AND BREAKS IN THE VAPOR BARRIER SEALED USING GLASS FABRIC AND MASTIC APPLIED IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.



CITY OF TAMPA
CONTRACT ADMINISTRATION
DEPARTMENT
PLANNING AND DESIGN DIVISION
305 E. JACKSON STREET 4 NORTH
TAMPA, FLORIDA 33602
P: 813.274.8456 -- F: 813.274.8080
URL: WWW.TAMPA.GOV/NET

James E. Jackson, Jr. AIA, NOMA
City Architect
Edward D. Rice, AIA
Project Architect
Kevin L. Herlika, AIA
Project Architect
Thomas A. Heister, Sr., AIA, NOMA
Project Architect
David R. Pagitt
Supervisor, Architectural Drafting
Kinsey C. Tillman
Drafting Technician
Jerry P. Sanders
Drafting Technician
Byron K. Thomas
Drafting Technician

MEP CONSULTANT
GRINER ENGINEERING, INC.
1628 1st. AVENUE NORTH
ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
ROGAL-TGA CONSULTING
ENGINEERS, INC.
124 5th AVENUE SOUTH, SUITE B
SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
GOLDER ASSOCIATES, INC.
5100 W. LEMON STREET #14
TAMPA, FL 33609

LANDSCAPE CONSULTANT
DAVID CONNER & ASSOCIATES
1503 W. SWANN AVENUE, SUITE 255
TAMPA, FL 33606

FIRE STATION 19
7910 INTERBAY BLVD.
TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD018

ISSUE DATE
MAY 31, 2018

DRAWN BY

REVISIONS
List of revision symbols and numbers

SEAL

SCALE: NOT TO SCALE

MECHANICAL SPECIFICATIONS

SHEET NUMBER

M-7.0

XXX OF XXX

Table with 2 columns: Field (Date, Drawn, Designed, EOR, Job no.) and Value (05/31/2013, ABC, ABC, JHG, 12032)

MECHANICAL SPECIFICATION CONTINUED

3.02 PIPING:

A. CHILLED WATER PIPING: INSULATE WITH CELLULAR GLASS INSULATION, INSULATION THICKNESS SHALL BE 2 INCHES. PROVIDE PVC JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. PROVIDE WITH VAPOR BARRIER.

B. HOT WATER PIPING: INSULATE WITH PREFORMED FIBERGLASS PIPE INSULATION, INSULATION THICKNESS SHALL BE 2 INCHES. PROVIDE PVC JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. PROVIDE WITH VAPOR BARRIER.

C. CONDENSATE DRAIN PIPING: INSULATE WITH CELLULAR FOAM ELASTOMERIC PIPE INSULATION, SECURED WITH ADHESIVE. INSULATION THICKNESS SHALL BE THREE QUARTER INCH (3/4").

SECTION 23 09 23

HVAC CONTROLS

1.0 - GENERAL

A. THE CONTROL SYSTEM SHALL BE TIED-IN TO THE EXISTING KMC TOTAL CONTROL FRONT-END SERVER. PROVIDE GRAPHICS, TRENDDING, ALARMS AND PROGRAMMING MODIFICATION CAPABILITIES FROM THE EXISTING KMC SERVER LOCATED AT DPW FACILITIES AT CLARK AVENUE AND SPRUCE STREET TO THE NEW FIR STATION.

1.01 DESCRIPTION

A. THE HVAC CONTROLS SHALL BE COMPRISED OF A NETWORK OF INTEROPERABLE, STAND-ALONE DIGITAL CONTROLLERS. B. THE SYSTEM WILL DIRECTLY CONTROL EACH PIECE OF MECHANICAL EQUIPMENT AS INDICATED IN THE SCHEMATIC DRAWINGS AND SEQUENCE OF OPERATIONS.

B. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICE NECESSARY FOR A COMPLETE AND OPERATING (O&C), UTILIZING DIRECT DIGITAL CONTROLS AS SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN. DRAWINGS ARE DIAGRAMMATIC ONLY.

2.0 - PRODUCTS

2.01 MANUFACTURERS
A. KMC CONTROLS.

2.02 GENERAL

A. THE CONTROL SYSTEM SHALL TIE INTO EXISTING KMC TOTAL CONTROL FRONT END SERVER. PROVIDE GRAPHICS TRENDDING, ALARMS AND PROGRAMMING MODIFICATION CAPABILITIES FROM THE EXISTING KMC SERVER, LOCATED AT DPW FACILITIES AT CLARK AVE AND SPRUCE STREET TO THE FIRE STATION.
B. PROVIDE INTERFACE TO THE DIGITAL MASTER LIGHTING CONTROL PANEL.

2.03 CUSTOM APPLICATION CONTROLLERS

A. GENERAL: PROVIDE AN ADEQUATE NUMBER OF CUSTOM APPLICATION CONTROLLERS TO ACHIEVE THE PERFORMANCE SPECIFIED. EACH OF THESE PANELS SHALL MEET THE FOLLOWING REQUIREMENTS.

1. CUSTOM APPLICATION CONTROLLERS SHALL BE PROVIDED FOR AIR HANDLING UNITS. CONTROLS SHALL BE MICROPROCESSOR BASED INTEROPERABLE LOWWORKS DIGITAL CONTROLLERS, PROVIDING INTEROPERABILITY WITH ALL LOWMARK AND LOWWORKS DEVICES THE APPLICATION CONTROL PROGRAM SHALL BE RESIDENT WITHIN THE SAME ENCLOSURE AS THE INPUT/OUTPUT CIRCUITRY, WHICH TRANSLATES THE SENSOR SIGNALS.

2. ALL INPUT/OUTPUT SIGNALS SHALL BE DIRECTLY HARDWIRED. ALL CONTROLLERS SHALL EMPLOY A UNIVERSAL INPUT CONFIGURATION THAT ALLOWS FOR FLEXIBILITY IN APPLICATION RANGING FROM DRY CONTACT, RESISTIVE AND VOLTAGE/CURRENT-SOURCE INPUTS. IF UNIVERSAL POINTS ARE NOT AVAILABLE, A MINIMUM OF ONE SPARE INPUT POINT (EACH) OF THE DRY CONTACT, RESISTIVE AND ANALOG VOLTAGE/CURRENT TYPES MUST BE PROVIDED FOR EACH INPUT POINT UTILIZED. CONTROLLERS SHALL PROVIDE DIGITAL AND ANALOG OUTPUT TYPES AND QUANTITIES CONSISTENT WITH THE REQUIREMENTS OF THE APPLICATION REQUIREMENTS.

3. THE CUSTOM APPLICATION CONTROLLER SHALL HAVE SUFFICIENT MEMORY TO SUPPORT ITS OPERATING SYSTEM, DATABASE, AND PROGRAMMING REQUIREMENTS. ALL CONTROLLERS SHALL BE FULLY APPLICATION PROGRAMMABLE UTILIZING GRAPHICAL OBJECTS. ALL CONTROL SEQUENCES PROGRAMMED SHALL BE STORED IN NON-VOLATILE MEMORY, WHICH IS NOT DEPENDENT UPON THE PRESENCE OF A BATTERY, TO BE RETAINED. SYSTEMS THAT ONLY ALLOW SELECTION OF SEQUENCES FROM A LIBRARY OR TABLE ARE NOT ACCEPTABLE.
4. DATA SHALL BE SHARED BETWEEN NETWORKED CUSTOM APPLICATION CONTROLLERS.

5. THE OPERATING SYSTEM OF THE CONTROLLER SHALL MANAGE THE INPUT AND OUTPUT COMMUNICATION SIGNALS TO ALLOW DISTRIBUTED CONTROLLERS TO SHARE REAL AND VIRTUAL OBJECT INFORMATION, AND ALLOW CENTRAL MONITORING AND ALARMS.

6. CONTROLLERS THAT PERFORM SCHEDULING SHALL HAVE A REAL-TIME CLOCK.
7. THE CUSTOM APPLICATION CONTROLLER SHALL CONTINUALLY CHECK THE STATUS OF ITS PROCESSOR AND MEMORY CIRCUITS. IF AN ABNORMAL OPERATION IS DETECTED, THE CONTROLLER SHALL:

A. ASSUME A PREDETERMINED FAILURE MODE.
B. GENERATE AN ALARM NOTIFICATION.
C. ENVIRONMENT CONTROLLER HARDWARE SHALL BE SUITABLE FOR THE ANTICIPATED AMBIENT CONDITIONS.

8. CONTROLLERS USED IN CONDITIONED SPACE SHALL BE MOUNTED IN DUST-PROOF ENCLOSURES, AND SHALL BE RATED FOR OPERATION AT 0°C TO 50°C [32°F TO 120°F].

C. KEYPAD: A LOCAL KEYPAD AND DISPLAY SHALL BE PROVIDED. THE KEYPAD SHALL BE PROVIDED FOR INTERROGATING AND EDITING DATA. AN OPTIONAL SYSTEM SECURITY PASSWORD SHALL BE AVAILABLE TO PREVENT UNAUTHORIZED USE OF THE KEYPAD AND DISPLAY.

D. SERVICEABILITY: PROVIDE DIAGNOSTIC LED'S FOR POWER, COMMUNICATION, AND PROCESSOR. ALL WIRING CONNECTIONS SHALL BE MADE TO FIELD-REMOVABLE, MODULAR TERMINAL STRIPS--OR TO A TERMINATION CARD CONNECTED BY A RIBBON CABLE.

E. MEMORY: THE CUSTOM APPLICATION CONTROLLER SHALL MAINTAIN ALL BIOS AND PROGRAMMING INFORMATION IN THE EVENT OF A POWER LOSS FOR AT LEAST 72 HOURS.

F. IMMUNITY TO POWER AND NOISE: CONTROLLER SHALL BE ABLE TO OPERATE AT 90% TO 110% OF NOMINAL VOLTAGE RATING AND SHALL PERFORM AN ORDERLY SHUTDOWN BELOW 80% NOMINAL VOLTAGE. OPERATION SHALL BE PROTECTED AGAINST ELECTRICAL NOISE OF 5 TO 120 HZ AND FROM KEYED RADIOS UP TO 5 W AT FT.

2.04 AUXILIARY CONTROL DEVICES (AS SHOWN ON THE DRAWINGS)

A. MOTORIZED CONTROL DAMPERS, UNLESS OTHERWISE SPECIFIED ELSEWHERE, SHALL BE AS FOLLOWS:
1. TWO-POSITION SHUTOFF DAMPERS SHALL BE OPPOSED BLADE TYPE WITH BLADE AND SIDE SEALS.

2. DAMPER FRAMES SHALL BE 13 GAUGE GALVANIZED STEEL CHANNEL OR 1/8" EXTRUDED ALUMINUM WITH REINFORCED CORNER BRACING.

3. DAMPER BLADES SHALL NOT EXCEED 8" IN WIDTH OR 48" IN LENGTH. BLADES ARE TO BE SUITABLE FOR MEDIUM VELOCITY PERFORMANCE (2,000 FPM). BLADES SHALL BE NOT LESS THAN 1/8 GAUGE.

4. DAMPER SHAFT BEARINGS SHALL BE AS RECOMMENDED BY MANUFACTURER FOR APPLICATION. OILITE OR BETTER.

5. ALL BLADE EDGES AND TOP AND BOTTOM OF THE FRAME SHALL BE PROVIDED WITH REPLACEABLE BUTYL RUBBER OR NEOPRENE SEALS. SIDE SEALS SHALL BE SPRING-LOADED STAINLESS STEEL. THE BLADE SEALS SHALL PROVIDE FOR A MAXIMUM LEAKAGE RATE OF 10 CFM PER SQ. FT. AT 1000 4" W.C. DIFFERENTIAL PRESSURE. PROVIDE AIR FOIL BLADES SUITABLE FOR A WIDE-OPEN FEA VELOCITY OF 1,500 FPM.

6. INDIVIDUAL DAMPER SECTIONS SHALL NOT BE LARGER THAN 48" x 60". PROVIDE A MINIMUM OF ONE DAMPER ACTUATOR PER SECTION. DAMPERS SHALL HAVE EXPOSED LINKAGES.

SECTION 23 21 13

HYDRONIC PIPING

PART 1 GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:
1. CHILLED WATER PIPING.
2. HOT WATER PIPING.
3. CONDENSATE DRAINS.
4. UNIONS.
4. VALVES.

1.02 SYSTEM DESCRIPTION

A. WHERE MORE THAN ONE PIPING SYSTEM MATERIAL IS SPECIFIED, PROVIDE COMPATIBLE SYSTEM COMPONENTS AND JOINTS. USE NON-CONDUCTING DIELECTRIC CONNECTIONS WHENEVER JOINTING DISSIMILAR METALS IN OPEN SYSTEMS.

B. PROVIDE UNIONS AND COUPLINGS AT LOCATIONS REQUIRING SERVICING. USE UNIONS AND COUPLINGS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTIONS. DO NOT USE DIRECT WELDED OR THREADED CONNECTIONS TO VALVES, EQUIPMENT OR OTHER APPARATUS.

C. USE BALL VALVES FOR SHUT-OFF AND TO ISOLATE EQUIPMENT.

D. USE 3/4 INCH BALL VALVES WITH CAP FOR DRAINS AT EQUIPMENT.

1.03 SUBMITTALS

A. PRODUCT DATA:
1. PIPING: SUBMIT DATA ON PIPE MATERIALS, FITTINGS, AND ACCESSORIES. SUBMIT MANUFACTURERS CATALOG INFORMATION.
2. VALVES: SUBMIT MANUFACTURERS CATALOG INFORMATION WITH VALVE DATA AND RATINGS FOR EACH SERVICE.

PART 2 PRODUCTS

2.01 CHILLED WATER PIPING

A. STEEL PIPE: ASTM A53/A53M, SCHEDULE 40.
1. FITTINGS: ASME B16.3, MALLEABLE IRON OR ASTM A234/A234M, FORGED STEEL WELDING TYPE.
2. JOINTS: THREADED FOR PIPE 2 INCHES AND SMALLER; WELDED FOR PIPE 2-1/2 INCHES AND LARGER.

2.02 HOT WATER PIPING

A. COPPER PIPE: TYPE K.
1. FITTINGS: BRAZED.
2. JOINTS: BRAZED.

2.03 CONDENSATE DRAIN

A. COPPER TUBING: ASTM B88, TYPE L, HARD DRAWN.
1. FITTINGS: ASME B16.18, CAST BRASS, OR ASME B16.22 SOLDER WROUGHT COPPER.
2. JOINTS: SOLDER, LEAD FREE, 95-5 TIN-ANTIMONY, OR TIN AND SILVER, WITH MELTING RANGE 430 TO 535 DEGREES F.

2.04 UNIONS AND FLANGES

A. UNIONS FOR PIPE 2 INCHES AND SMALLER:
1. FERROUS PIPING: CLASS 150, MALLEABLE IRON, THREADED.
2. COPPER PIPING: CLASS 150, BRONZE UNIONS WITH BRAZED JOINTS.
3. DIELECTRIC CONNECTIONS: UNION WITH GALVANIZED OR PLATED STEEL THREADED END, COPPER SOLDER END, WATER IMPERVIOUS ISOLATION BARRIER.

2.05 BALL VALVES

A. 3 INCHES AND SMALLER: MSS SP 110, TWO PIECE BRONZE BODY, CHROME PLATED BRASS BALL, FULL PORT, TEFLOW SEATS, BLOW-OUT PROOF STEM, SOLDER OR THREADED ENDS WITH UNION, LOCKING LEVER HANDLE WITH BALANCING STOPS.

PART 3 EXECUTION

3.01 PREPARATION

A. REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN END FERROUS PIPE.
B. REMOVE SCALE AND DIRT ON INSIDE AND OUTSIDE BEFORE ASSEMBLY.
C. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH UNIONS.

3.02 INSTALLATION

A. INSTALL CHILLED WATER PIPING IN ACCORDANCE WITH ASME B31.1
B. INSTALL PIPING TO CONSERVE BUILDING SPACE, AND NOT INTERFERE WITH USE OF SPACE.
C. INSULATE PIPING.

SECTION 23 21 16

HYDRONIC PIPING SPECIALTIES

PART 1 GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:
1. PRESSURE GAGES.
2. PRESSURE GAGE TAPS.
3. THERMOMETERS.
4. THERMOMETER SUPPORTS.
5. TEST PLUGS.
6. FLEXIBLE CONNECTORS.
7. DIAPHRAGM-TYPE EXPANSION TANKS.
8. AIR VENTS.
9. AIR SEPARATORS.
10. STRAINERS.
11. PUMP SUCTION FITTINGS.
12. COMBINATION PUMP DISCHARGE VALVES.

1.02 PERFORMANCE REQUIREMENTS

A. FLEXIBLE CONNECTORS: PROVIDE AT OR NEAR PUMPS.

1.03 SUBMITTALS

A. PRODUCT DATA: SUBMIT FOR MANUFACTURED PRODUCTS AND ASSEMBLIES USED IN THIS PROJECT.
1. MANUFACTURERS DATA INDICATING USE, OPERATING RANGE, TOTAL RANGE, ACCURACY, AND LOCATION FOR MANUFACTURED COMPONENTS.
2. SUBMIT PRODUCT DESCRIPTION, MODEL, DIMENSIONS, COMPONENT SIZES, ROUGH-IN REQUIREMENTS, SERVICE SIZES, AND FINISHES.
3. SUBMIT SCHEDULE INDICATING MANUFACTURER, MODEL NUMBER, SIZE, LOCATION, RATED CAPACITY, LOAD SERVED, AND FEATURES FOR EACH PIPING SPECIALTY.
B. MANUFACTURER'S INSTALLATION INSTRUCTIONS: SUBMIT HANGING AND SUPPORT METHODS, JOINING PROCEDURES, APPLICATION, SELECTION, AND HOOKUP CONFIGURATION. INCLUDE PIPE AND ACCESSORY ELEVATIONS.

PART 2 PRODUCTS

2.01 PRESSURE GAGES

A. GAGE: ASME B40.1, WITH BOURDON TUBE, ROTARY BRASS MOVEMENT, BRASS SOCKET, FRONT CALIBRATION ADJUSTMENT, BLACK SCALE ON WHITE BACKGROUND.
1. CASE: CAST ALUMINUM BOURDON TUBE: TYPE 316 STAINLESS STEEL.
2. DIAL SIZE: 3-1/2 INCH DIAMETER.
3. MID-SCALE ACCURACY: ONE PERCENT.
4. SCALE: PSI.

2.02 PRESSURE GAGE TAPS

A. NEEDLE VALVE: BRASS 1/4 INCH NPT FOR MINIMUM 300 PSI.
B. PULSATION DAMPER: PRESSURE SNUBBER, BRASS WITH 1/4 INCH NPT CONNECTIONS.
C. SIPHON: BRASS 1/4 INCH NPT ANGLE OR STRAIGHT PATTERN.

2.03 STEM TYPE THERMOMETERS

A. THERMOMETER: ASTM E1, ADJUSTABLE ANGLE, RED APPEARING MERCURY, LENS FRONT TUBE, CAST ALUMINUM CASE WITH ENAMEL FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE.
1. SIZE: 7 INCH SCALE.
2. WINDOW: CLEAR GLASS.
3. STEM: BRASS, 3/4 INCH NPT, 3-1/2 INCH LONG.
4. ACCURACY: 2 PERCENT.
5. CALIBRATION: DEGREES F.

2.04 THERMOMETER SUPPORTS

A. SOCKET: BRASS SEPARABLE SOCKETS FOR THERMOMETER STEMS WITH OR WITHOUT EXTENSIONS.
B. FLANGE: 3 INCH OUTSIDE DIAMETER REVERSIBLE FLANGE, DESIGNED TO FASTEN TO SHEET METAL AIR DUCTS, WITH BRASS PERFORATED STEM.

2.05 TEST PLUGS

A. 1/2 INCH NPT BRASS FITTING AND CAP FOR RECEIVING 1/8 INCH OUTSIDE DIAMETER PRESSURE OR TEMPERATURE PROBE WITH:
1. NEOPRENE CORE FOR TEMPERATURES UP TO 200 DEGREES F.
B. TEST KIT:
1. CARRYING CASE, INTERNALLY PADDED AND FITTED CONTAINING:
A. TWO 3-1/2 INCH DIAMETER PRESSURE GAGES.
1) SCALE RANGE: 0 TO 100 PSI
B. ONE GAGE ADAPTERS WITH 1/8 INCH PROBES.
C. TWO 1 INCH DIAL THERMOMETERS.
1) SCALE RANGE: 20 TO 180 DEGREES F.

2.06 FLEXIBLE CONNECTORS

A. CORRUGATED STAINLESS STEEL HOSE WITH SINGLE LAYER OF STAINLESS STEEL EXTERIOR BRAIDING, MINIMUM 9 INCHES LONG WITH COPPER TUBE ENDS; FOR MAXIMUM WORKING PRESSURE 300 PSIG.
2.07 DIAPHRAGM-TYPE EXPANSION TANKS
A. CONSTRUCTION: WELDED STEEL, TESTED AND STAMPED IN ACCORDANCE WITH ASME SECTION VIII; SUPPLIED WITH NATIONAL BOARD FORM U-1, RATED FOR WORKING PRESSURE OF 125 PSIG, WITH FLEXIBLE BUTYL DIAPHRAGM SEALED INTO TANK, AND STEEL SUPPORT.
B. ACCESSORIES: PRESSURE GAGE AND AIR-CHARGING FITTING, TANK DRAIN; PRE-CHARGE TO 12 PSIG.
C. AUTOMATIC COLD WATER FILL ASSEMBLY: PRESSURE REDUCING VALVE, REDUCED PRESSURE DOUBLE CHECK BACK FLOW PREVENTION DEVICE, TEST COCKS, STRAINER, VACUUM BREAKER, AND BY-PASS VALVES.

2.08 AIR VENTS

A. MANUAL TYPE: SHORT VERTICAL SECTIONS OF 2 INCH DIAMETER PIPE TO FORM AIR CHAMBER, WITH 1/8 INCH BRASS NEEDLE VALVE AT TOP OF CHAMBER.

2.09 AIR SEPARATORS

A. DIP TUBE FITTING: FOR 125 PSIG OPERATING PRESSURE; TO PREVENT FREE AIR COLLECTED IN BOILER FROM RISING INTO SYSTEM.
B. IN-LINE AIR SEPARATORS: CAST IRON FOR SIZES 1-1/2 INCH AND SMALLER, OR STEEL FOR SIZES 2 INCH AND LARGER; TESTED AND STAMPED IN ACCORDANCE WITH ASME SECTION VIII; FOR 125 PSIG OPERATING PRESSURE.
C. COMBINATION AIR SEPARATORS/STRAINERS: STEEL, TESTED AND STAMPED IN ACCORDANCE WITH ASME SECTION VIII; FOR 125 PSIG OPERATING PRESSURE, WITH INTEGRAL BRONZE STRAINER, TANGENTIAL INLET AND OUTLET CONNECTIONS, AND INTERNAL STAINLESS STEEL AIR COLLECTOR TUBE.

2.10 PUMP SUCTION FITTINGS

A. FITTING: ANGLE PATTERN, CAST-IRON BODY. THREADED FOR 2 INCH AND SMALLER, FLANGED FOR 2-1/2 INCH AND LARGER. RATED FOR 175 PSIG WORKING PRESSURE, WITH INLET VANES, CYLINDER STRAINER WITH 3/16 INCH DIAMETER OPENINGS, DISPOSABLE FINE MESH STRAINER TO FIT OVER CYLINDER STRAINER, AND PERMANENT MAGNET LOCATED IN FLOW STREAM AND REMOVABLE FOR CLEANING.
B. ACCESSORIES: ADJUSTABLE FOOT SUPPORT, BLOW-DOWN TAPPING IN BOTTOM, GAGE TAPPING IN SIDE.

2.11 COMBINATION PUMP DISCHARGE VALVES

A. VALVES: STRAIGHT OR ANGLE PATTERN, FLANGED CAST-IRON VALVE BODY WITH BOLT-ON BONNET FOR 175 PSIG OPERATING PRESSURE, NON-SLAM CHECK VALVE WITH SPRING-LOADED BRONZE DISC AND SEAT, STAINLESS STEEL STEM, AND CALIBRATED ADJUSTMENT PERMITTING FLOW REGULATION.

2.12 FLOW CONTROLS

A. CONSTRUCTION: BRASS OR BRONZE BODY WITH UNION ON INLET AND OUTLET, TEMPERATURE AND PRESSURE TEST PLUG ON INLET AND OUTLET COMBINATION BLOW-DOWN AND BACK-FLUSH DRAIN.
B. CALIBRATION: CONTROL WITHIN 5 PERCENT OF DESIGN FLOW OVER ENTIRE OPERATING PRESSURE.
C. CONTROL MECHANISM: STAINLESS STEEL OR NICKEL PLATED BRASS PISTON OR REGULATOR CUP, OPERATING AGAINST STAINLESS STEEL HELICAL OR WAVE FORMED SPRING.
D. ACCESSORIES: IN-LINE STRAINER ON INLET AND BALL VALVE ON OUTLET.

2.13 RELIEF VALVES

A. BRONZE BODY, TEFLOW SEAT, STAINLESS STEEL STEM AND SPRINGS, AUTOMATIC, DIRECT PRESSURE ACTUATED CAPACITIES ASME CERTIFIED AND LABELED.

3.01 INSTALLATION - THERMOMETERS AND GAGES

A. INSTALL ONE PRESSURE GAGE FOR EACH PUMP, LOCATE TAPS BEFORE STRAINERS AND ON SUCTION AND DISCHARGE OF PUMP; PIPE TO GAGE.
B. INSTALL GAGE TAPS IN PIPING.
C. INSTALL PRESSURE GAGES WITH PULSATION DAMPERS. PROVIDE NEEDLE VALVE TO ISOLATE EACH GAGE. EXTEND NIPPLES TO ALLOW CLEARANCE FROM INSULATION.
D. INSTALL THERMOMETERS IN PIPING SYSTEMS IN SOCKETS IN SHORT COUPLINGS. ENLARGE PIPES SMALLER THAN 2-1/2 INCHES FOR INSTALLATION OF THERMOMETER SOCKETS. ALLOW CLEARANCE FROM INSULATION.
E. INSTALL THERMOMETER SOCKETS ADJACENT TO CONTROLS SYSTEMS THERMOSTAT, TRANSMITTER, OR SENSOR SOCKETS. COIL AND CONCEAL EXCESS CAPILLARY ON REMOTE ELEMENT INSTRUMENTS.
F. PROVIDE INSTRUMENTS WITH SCALE RANGES SELECTED ACCORDING TO SERVICE WITH LARGEST APPROPRIATE SCALE.
G. INSTALL GAGES AND THERMOMETERS IN LOCATIONS WHERE THEY ARE EASILY READ FROM NORMAL OPERATING LEVEL. INSTALL VERTICAL TO 45 DEGREES OFF VERTICAL.
H. ADJUST GAGES AND THERMOMETERS TO FINAL ANGLE, CLEAN WINDOWS AND LENSES, AND CALIBRATE TO ZERO.

3.02 INSTALLATION - HYDRONIC PIPING SPECIALTIES

A. LOCATE TEST PLUGS AS INDICATED ON DRAWINGS.
B. INSTALL MANUAL AIR VENTS AT SYSTEM HIGH POINTS.
C. PROVIDE AIR SEPARATOR ON SUCTION SIDE OF SYSTEM CIRCULATION PUMP AND CONNECT TO EXPANSION TANK.
D. PROVIDE DRAIN AND HOSE CONNECTION WITH VALVE ON STRAINER BLOW DOWN CONNECTION.
E. PROVIDE PUMP SUCTION FITTING ON SUCTION SIDE OF BASE MOUNTED CENTRIFUGAL PUMPS. REMOVE TEMPORARY STRAINERS AFTER CLEANING SYSTEMS.
F. PROVIDE COMBINATION PUMP DISCHARGE VALVE ON DISCHARGE SIDE OF BASE MOUNTED CENTRIFUGAL PUMPS.
G. SUPPORT PUMP FITTINGS WITH FLOOR MOUNTED PIPE AND FLANGE SUPPORTS.
H. PROVIDE RELIEF VALVES ON PRESSURE TANKS, LOW-PRESSURE SIDE OF REDUCING VALVES, HEAT EXCHANGERS, AND EXPANSION TANKS.
I. SELECT SYSTEM RELIEF VALVE CAPACITY GREATER THAN MAKE-UP PRESSURE REDUCING VALVE CAPACITY. SELECT EQUIPMENT RELIEF VALVE CAPACITY TO EXCEED RATING OF CONNECTED EQUIPMENT.
J. PIPE RELIEF VALVE OUTLET TO NEAREST FLOOR DRAIN.

3.03 PROTECTION OF INSTALLED CONSTRUCTION

A. DO NOT INSTALL HYDRONIC PRESSURE GAUGES UNTIL AFTER SYSTEMS ARE PRESSURE TESTED.

SECTION 23 25 00

HVAC WATER TREATMENT EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. SYSTEM CLEANER.
2. CLOSED SYSTEM TREATMENT (WATER).
3. CHEMICAL FEEDER EQUIPMENT INCLUDING ASSOCIATED FEEDERS, PUMPS, TANKS, CONTROLS, METERS AND VALVES.
4. TEST EQUIPMENT.

1.02 PERFORMANCE REQUIREMENTS

A. PROVIDE SYSTEM TO TREAT WATER AVAILABLE AT PROJECT SITE TO MAINTAIN THE FOLLOWING CHARACTERISTICS OF WATER IN CLOSED SYSTEMS:
1. HARDNESS.
2. IRON.
3. TOTAL DISSOLVED SOLIDS.
4. TOTAL ALKALINITY.
5. SILICA.
6. PH.

1.03 MANUFACTURERS

A. NALCO

1.04 SUBMITTALS

A. SHOP DRAWINGS: INDICATE SYSTEM SCHEMATIC, EQUIPMENT LOCATIONS, AND CONTROLS SCHEMATICS, ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.
B. PRODUCT DATA: SUBMIT CHEMICAL TREATMENT MATERIALS, CHEMICALS, AND EQUIPMENT INCLUDING ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.
C. MANUFACTURER'S INSTALLATION INSTRUCTIONS: SUBMIT PLACEMENT OF EQUIPMENT IN SYSTEMS, PIPING CONFIGURATION, AND CONNECTION REQUIREMENTS.
D. MANUFACTURER'S CERTIFICATE: CERTIFY PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.
E. MANUFACTURERS FIELD REPORTS: INDICATE START-UP OF TREATMENT SYSTEMS WHEN COMPLETED AND OPERATING PROPERLY. INDICATE ANALYSIS OF SYSTEM WATER AFTER CLEANING AND AFTER TREATMENT.

1.05 CLOSEOUT SUBMITTALS

A. PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF EQUIPMENT AND PIPING INCLUDING SAMPLING POINTS AND LOCATION OF CHEMICAL INJECTORS.
B. OPERATION AND MAINTENANCE DATA: SUBMIT DATA ON CHEMICAL FEED PUMPS, AGITATORS, AND OTHER EQUIPMENT INCLUDING SPARE PARTS LISTS, PROCEDURES, AND TREATMENT PROGRAMS. INCLUDE STEP BY STEP INSTRUCTIONS ON TEST PROCEDURES INCLUDING TARGET CONCENTRATIONS.

1.06 MAINTENANCE SERVICE

A. FURNISH MONTHLY TECHNICAL SERVICE VISITS, FOR ONE YEARS STARTING AT DATE OF SUBSTANTIAL COMPLETION, TO PERFORM FIELD INSPECTIONS AND MAKE WATER ANALYSIS ON SITE. DETAIL FINDINGS IN WRITING ON PROPER PRACTICES, CHEMICAL TREATING REQUIREMENTS AND CORRECTIVE ACTIONS NEEDED. SUBMIT TWO COPIES OF FIELD SERVICE REPORT AFTER EACH VISIT.
B. FURNISH LABORATORY AND TECHNICAL ASSISTANCE SERVICES DURING THIS MAINTENANCE PERIOD.
C. FURNISH ON SITE INSPECTIONS OF EQUIPMENT DURING SCHEDULED OR EMERGENCY SHUTDOWN TO PROPERLY EVALUATE SUCCESS OF WATER TREATMENT PROGRAM, AND MAKE RECOMMENDATIONS IN WRITING BASED UPON THESE INSPECTIONS.

1.07 MAINTENANCE MATERIALS

A. FURNISH CHEMICALS FOR TREATMENT AND TESTING DURING WARRANTY PERIOD.

PART 2 PRODUCTS

2.01 SYSTEM CLEANER

A. PRODUCT DESCRIPTION: LIQUID ALKALINE COMPOUND WITH EMULSIFYING AGENTS AND DETERGENTS TO REMOVE GREASE AND PETROLEUM PRODUCTS; SODIUM TRI-POLY PHOSPHATE AND SODIUM MOLYBDATE.
B. BIOCIDES: CHLORINE RELEASE AGENTS INCLUDING SODIUM HYPOCHLORITE OR CALCIUM HYPOCHLORITE, OR MICROBIOCIDES INCLUDING QUATERNARY AMMONIA COMPOUNDS, TRIBUTYL TIN OXIDE, METHYLENE BIS (THIOCYANATE), OR ISOTHIAZOLONES.

2.02 CLOSED SYSTEM TREATMENT (WATER)

A. SEQUESTERING AGENT TO REDUCE DEPOSITS AND ADJUST PH; POLYPHOSPHATE.
B. CORROSION INHIBITORS; LIQUID BORON-NITRITE, SODIUM NITRATE AND BORAX, SODIUM TOTYLTRIAZOLE, LOW MOLECULAR WEIGHT POLYMERS, PHOSPHONATES, SODIUM MOLYBDATE, OR SULFITES.
C. CONDUCTIVITY ENHANCERS; PHOSPHATES OR PHOSPHONATES.

PART 3 EXECUTION

3.01 PREPARATION

A. OPERATE, FILL, START AND VENT SYSTEMS PRIOR TO CLEANING. USE WATER METER TO RECORD CAPACITY IN EACH SYSTEM. PLACE TERMINAL CONTROL VALVES IN OPEN POSITION DURING CLEANING.

3.02 CLEANING

A. CONCENTRATION:
1. AS RECOMMENDED BY MANUFACTURER.
B. CHILLED WATER SYSTEMS:
1. CIRCULATE FOR 48 HOURS, THEN DRAIN SYSTEMS AS QUICKLY AS POSSIBLE.
2. REFILL WITH CLEAN WATER, CIRCULATE FOR 24 HOURS, THEN DRAIN.
3. REFILL WITH CLEAN WATER AND REPEAT UNTIL SYSTEM CLEANER IS REMOVED.
C. USE NEUTRALIZER AGENTS ON RECOMMENDATION OF SYSTEM CLEANER SUPPLIER AND ACCEPTANCE OF ARCHITECT/ENGINEER.
D. REMOVE, CLEAN, AND REPLACE STRAINER SCREENS.
E. INSPECT, REMOVE SLUDGE, AND FLUSH LOW POINTS WITH CLEAN WATER AFTER CLEANING PROCESS IS COMPLETED. INCLUDE DISASSEMBLY OF COMPONENTS AS REQUIRED.

GRINER ENGINEERING, INC. 1629 First Avenue North St. Petersburg, Florida 33713 Phone: (727) 432-2335 Fax: (727) 421-3361 EOR: JHG Certificate of Authorization #3173 Date: 05/31/2013 Drawn: ABC Design: ABC Job no.: 12032



CITY OF TAMPA CONTRACT ADMINISTRATION DEPARTMENT PLANNING AND DESIGN DIVISION 305 E JACKSON STREET 4 NORTH TAMPA, FLORIDA 33602 P. 813. 274. 8456 -- F. 813. 274. 8080 URL: WWW.TAMPA.GOV/NET

James E. Jackson, Jr. AIA, NOMA City Architect Edward D. Rice, AIA Project Architect Kevin L. Herlika, AIA Project Architect Thomas A. Heister, Sr., AIA, NOMA Project Architect David R. Pagitt Supervisor, Architectural Drafting Kinsey C. Tillman Drafting Technician Jerry P. Sanders Drafting Technician Byron K. Thomas Drafting Technician

MEP CONSULTANT GRINER ENGINEERING, INC. 1628 1st. AVENUE NORTH ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT ROGAL-TGA CONSULTING ENGINEERS, INC. 124 5th AVENUE SOUTH, SUITE B SAFETY HARBOR, FL 34695

CIVIL CONSULTANT GOLDBER ASSOCIATES, INC. 1502 W. LEMON STREET #14 TAMPA, FL 33609

LANDSCAPE CONSULTANT DAVID CONNER & ASSOCIATES 1503 W. SWANN AVENUE, SUITE 255 TAMPA, FL 33606

FIRE STATION 19 7910 INTERBAY BLVD. TAMPA, FL

DPW FILE NUMBER

DPW NUMBER FDD018

ISSUE DATE MAY 31, 2018

DRAWN BY

REVISIONS with triangle symbols

SEAL

SCALE: NOT TO SCALE

MECHANICAL SPECIFICATIONS

SHEET NUMBER

M-7.1 XXX OF XXX

MECHANICAL SPECIFICATION CONTINUED

3.03 CLOSED SYSTEM TREATMENT

- A. PROVIDE ONE SHOT FEEDER ON EACH SYSTEM. INSTALL ISOLATING AND DRAIN VALVES AND INTERCONNECTING PIPING. INSTALL AROUND BALANCING VALVE DOWNSTREAM OF CIRCULATING PUMPS AS INDICATED ON DRAWINGS.
- B. INTRODUCE CLOSED SYSTEM TREATMENT THROUGH SHOT FEEDER WHEN REQUIRED OR INDICATED BY TEST.
- C. INSTALL 3/4 INCH WATER COUPON RACK AROUND CIRCULATING PUMPS WITH SPACE FOR 12 TEST SPECIMENS.

SECTION 23 30 00

HVAC AIR DISTRIBUTION:

1.0 GENERAL

- 1.01 SCOPE: PROVIDE ALL AIR DISTRIBUTION DEVICES AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN FOR A COMPLETE AND OPERABLE SYSTEM.

1.02 RELATION TO OTHER WORK: COORDINATE WITH WORK OF THE CEILING, DRYWALL, AND PLASTERING TRADES AS REQUIRED TO INSURE AN ORDERLY PROGRESSION OF WORK AND A FIRST CLASS FINISHED SYSTEM WITH RESPECT TO PLACEMENT, ALIGNMENT, FINISH, GENERAL FIT, AND ABSENCE OF CONFLICT WITH LIGHTING SYSTEMS AND FIRE PROTECTION SYSTEMS.

1.03 DESIGN CONDITIONS:

- A. ACUSTICAL: NOISE PRODUCED AT EACH DIFFUSER, REGISTER, GRILLE, OR OTHER AIR DISTRIBUTION DEVICE SHALL NOT EXCEED A NOISE CRITERIA LEVEL OF 25 NC.

- B. PRESSURE DROP ACROSS ANY AIR DISTRIBUTION DEVICE SHALL NOT EXCEED 0.10 IN W.G. STATIC.

C. GUARANTEE: AIR DISTRIBUTION EQUIPMENT SHALL BE GUARANTEED BY THE MANUFACTURER TO OPERATE WITHOUT EXCESSIVE NOISE AND WITH VELOCITIES IN THE FIVE FOOT OCCUPANCY ZONE, WHEN HANDLING AIR WITH TEMPERATURE DIFFERENTIALS AS HIGH AS 25 DEGREES, NOT TO EXCEED 30 FPM AT 2 DEGREE DIFFERENCE, 50 FPM AT 1-1/2 DEGREE DIFFERENCE, OR 75 FPM AT A 1 DEGREE DIFFERENCE WHEN OPERATING WITH AN AVERAGE 75 DEGREE ROOM TEMPERATURE AND MEASURED NO CLOSER THAN 6 INCHES FROM A WALL SURFACE.

1.04 MANUFACTURER: TITUS, PRICE, METAL AIRE, OR OTHER APPROVED PRIOR TO BID. MANUFACTURERS STYLE AND SERIES NUMBERS INDICATED ARE EXAMPLES OF PRODUCTS TO BE PROVIDED.

1.05 APPEARANCE: EACH AIR DISTRIBUTION DEVICE WHICH HAS A PORTION THEREOF (FRAME, CORE, ETC.) EXPOSED TO VIEW IN THE FINISHED AREA SHALL HAVE A FACTORY APPLIED FINISH WHICH MATCHES AND IS COMPATIBLE WITH THE COLOR OF THE SURROUNDING SURFACE ON WHICH THE DEVICE IS INSTALLED. COLORS MUST BE APPROVED BY ARCHITECT PRIOR TO DEVICE FABRICATION.

2.0 PRODUCTS

- 2.01 CEILING & WALL MOUNTED CONDITIONED AIR SUPPLY DIFFUSERS, RETURN AIR AND EXHAUST AIR REGISTERS.

A. DESIGNATED ON DRAWINGS BY THE MANNER OF INDICATED SYSTEM FUNCTION FOR THE DEVICE.

B. SPONGE RUBBER GASKETS.

C. ALUMINUM OR STEEL, AS SPECIFIED.

D. COMPANION ADJUSTABLE VOLUME DAMPERS.

E. PROVIDED WITH INSULATED BACKS.

3.0 EXECUTION

3.01 GENERAL:

A. INSTALL NEATLY WHERE INDICATED IN ACCORD WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORD WITH SMACNA RECOMMENDATIONS AND AS OTHERWISE INDICATED.

B. PROPERLY TEST, BALANCE AND ADJUST TO PRODUCE QUIET, DRAFTLESS OPERATING TO BEST DEGREE POSSIBLE.

3.02 SQUARE AIR DEVICES: WHERE DIFFUSERS ARE IN LAY-IN TYPE, THEY SHALL BE SUPPORTED BY THE INVERTED T-BAR SUSPENSION SYSTEM, BUT ALL DUCTS CONNECTED THERETO SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING AS SPECIFIED UNDER SECTION ENTITLED "DUCTWORK". SURFACE MOUNTED DIFFUSERS SHALL BE SUPPORTED BY THE DUCT RUNOUTS OR DROPS WHERE SHEET METAL DUCTS ARE INDICATED AND BY SEPARATE HANGERS WHERE FLEX RUNOUTS ARE INDICATED. ALL RECTANGULAR CEILING DIFFUSERS SHALL BE INSTALLED WITH THEIR LINES PARALLEL AND PERPENDICULAR TO THE BUILDING LINE AND PROPERLY ALIGNED WITH CEILING.

SECTION 23 31 00

HVAC DUCTS AND CASINGS:

1.0 GENERAL

1.01 SCOPE: PROVIDE COMPLETE DUCT SYSTEMS AS INDICATED. SYSTEMS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING: OUTSIDE AIR, EXHAUST AIR, AND AIR CONDITIONING SUPPLY AND RETURN AIR DUCT SYSTEMS AS SHOWN ON DRAWINGS. DRAWING SCALES PROHIBIT THE INDICATION OF ALL OFFSETS, FITTINGS, AND LIKE ITEMS; HOWEVER, THESE ITEMS SHALL BE INSTALLED AS REQUIRED FOR THE ACTUAL PROJECT CONDITIONS AT NO CHANGE IN CONTRACT PRICE.

A. ITEMS INCLUDED: THIS SECTION GENERALLY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING MAJOR ITEMS:

1. SHEET METAL DUCTWORK.

2. DUCT SYSTEM ACCESSORIES.

A. FLEXIBLE DUCT CONNECTIONS.

B. TURNING VANES.

C. MANUAL VOLUME DAMPERS.

D. ACCESS DOORS.

1.02 SHOP DRAWINGS: REFER TO SECTION ENTITLED "COMMON REQUIREMENTS FOR MECHANICAL WORK". INCLUDE COMPLETE DATA FOR: FLEXIBLE DUCT, FLEXIBLE CONNECTORS, TURNING VANES, MANUAL VOLUME DAMPERS; ACCESS DOORS; FLEXIBLE CONNECTORS; MANUAL VOLUME DAMPERS AND ADHESIVES.

1.03 DEFINITIONS:

A. "SMACNA" MEANS "SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC."

B. LOW PRESSURE DUCTWORK: ANY AND ALL DUCTWORK CONVEYING AIR OR OTHER GASES AT VELOCITIES LESS THAN 2000 FPM AND STATIC PRESSURE LESS THAN 2.0 INCHES W.G. THIS DUCTWORK MAY ALSO BE REFERRED TO IN THESE SPECIFICATIONS AS "LOW VELOCITY DUCTWORK". SMACNA "HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE," THIRD EDITION, 2005, SHALL GOVERN CONSTRUCTION OF THIS DUCTWORK UNLESS OTHERWISE SPECIFIED; CONSTRUCT DUCT IN ACCORD THEREWITH.

2.0 PRODUCTS

2.01 LOW PRESSURE SHEET METAL DUCTWORK: SYSTEMS OPERATING AT TWO INCHES OF WATER STATIC PRESSURE OR LESS, SHALL, UNLESS SPECIFICALLY SPECIFIED OTHERWISE, CONFORM TO THE FOLLOWING REQUIREMENTS:

A. MATERIAL: PRIME QUALITY FORTY-EIGHT INCH WIDE, TIGHT COAT GALVANIZED STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A-526.

B. REINFORCING, CROSS BREAKING, SEAMS, JOINTS: BE IN ACCORDANCE WITH LATEST SMACNA CONSTRUCTION STANDARD FOR LOW PRESSURE SHEET METAL DUCT.

2.02 LOW PRESSURE ROUND DUCTWORK: DUCT SHALL BE MADE USING GALVANIZED STEEL AS PER ASTM A-527 G-90 WITH LONGITUDINAL SNAP-LOCK.

2.03 INSULATED FLEXIBLE DUCTS: FLEXIBLE DUCT SHALL CONSIST OF SPIRAL WOUND HELIX COIL WITH TRILAMINATE INNER FABRIC. CORE SHALL BE COVERED WITH FACTORY APPLIED ONE INCH, ONE POUND PER CUBIC FOOT FIBERGLASS INSULATION OF 0.23 THERMAL CONDUCTANCE SHEATHED IN A SEAMLESS EXTERIOR CLASS 1 VAPOR BARRIER JACKET REINFORCED ALUMINUM FOIL METALIZED JACKET. CONNECTIONS SHALL BE MADE USING QUADRANT DAMPERED TWIST-IN TYPE FITTINGS WITH EXTRACTOR SCOOPS AND VOLUME DAMPER. DUCT SHALL BE NFPA 90A, CLASS 1 (UL 181), FLAME SPREAD LESS THAN 25 AND SMOKE DEVELOPED LESS THAN 50. PROVIDE IN FACTORY FINISHED LENGTHS NOT IN EXCESS OF 6'-0" TO MAKE SUITABLE CONNECTIONS WITH MINIMUM PRESSURE DROP WITH "SPIN-IN" FITTING WITH INTEGRAL DAMPER AT CONNECTION TO MAIN DUCT BRANCH.

2.04 KITCHEN HOOD EXHAUST DUCT: 16 GAUGE CARBON STEEL WITH CONTINUOUS LIQUID TIGHT EXTERNALLY WELDED SEAMS AND JOINTS.

2.05 DUCT SYSTEM ACCESSORIES:

A. GENERAL:

1. PROVIDE ALL NECESSARY DUCT SYSTEM ACCESSORIES TO ASSURE PROPER BALANCE, QUIET AND DRAFTLESS DISTRIBUTION AND CONVEYANCE, AND MINIMIZATION OF TURBULENCE, NOISE AND PRESSURE DROP FOR ALL SUPPLY, RETURN, EXHAUST, AND VENTILATION AIR QUANTITIES INDICATED.

B. FLEXIBLE DUCT CONNECTIONS:

1. PROVIDED WHERE AIR HANDLERS, FANS AND BLOWERS CONNECT TO DUCTWORK WHEN NOT INTERNALLY ISOLATED.

2. AT LEAST 4 INCHES LONG.

3. CONNECTED ON EACH SIDE TO METAL (METAL DUCTWORK, AIR HANDLING APPARATUS, OR HEAVY GAUGE STEEL SLEEVES).

4. FOR USE IN LOW PRESSURE DUCT SYSTEMS.

C. LOW PRESSURE METAL TURNING VANES: PROVIDE IN ALL ELBOWS, BENDS AND TEES OF ALL LOW VELOCITY SUPPLY AIR DUCTS WHETHER OR NOT SHOWN IN DETAIL; PROVIDE IN ALL ELBOWS, BENDS AND TEES OF ALL OTHER LOW VELOCITY DUCTS WHERE PORTIONS OF SUCH DUCTS CONVEY AIR AT GREATER THAN 700 FPM AVERAGE VELOCITY. ADEQUATE RIGIDITY AND STRENGTH TO BE COMPLETE FLUTTER-PROOF; PROPERLY DESIGNED; PERMANENTLY FIXED TYPE. ALUMINUM, STEEL WITH CORROSION RESISTANT COATING, OR GALVANIZED STEEL. AIR FOIL TYPE IN ALL MITERED ELBOWS, MITERED BENDS AND MITERED TEES. AIR FOIL TYPE MUST BE MANUFACTURED BY TITUS, TUTTLE & BAILEY, ANEMOSTAT, WATERLOO, METAL-AIRE, BARBER-COLMAN, "AIRTURN", TUTTLE & BAILEY "DUCTURNS", OR DURA-DYNE "VR" WITH 24 GAUGE RAILS AND HOLLOW VANES.

D. MANUAL VOLUME DAMPERS: (OTHER THAN THOSE SPECIFIED AS BEING INTEGRAL WITH EACH REGISTER, DIFFUSER AND OTHER AIR OUTLET OR INLET):

1. PROVIDE WHERE INDICATED IN THE COMPLETE AIR DISTRIBUTION SYSTEM(S) (INCLUDING DUCTWORK, RETURN AIR PLENUMS, ETC.) TO ALLOW COMPLETE BALANCING OF THE AIR SUPPLY, RETURN, VENTILATION AND EXHAUST SYSTEM(S).

2. OPPOSED BLADE TYPE.

3. AN 8" MAXIMUM BLADE WIDTH.

4. MADE OF GALVANIZED STEEL OR STEEL WITH A SPRAYED OR DIPPED ALUMINUM RUST RESISTANT FINISH; FLUTTER-PROOF.

5. PROVIDED SO THAT ALL DAMPER ADJUSTMENTS CAN BE MADE FROM OUTSIDE THE COMPLETED DUCTWORK WITHOUT NECESSITY FOR PUNCTURING OR OTHERWISE PENETRATING DUCTWORK AND/OR ITS VAPOR BARRIER.

6. FULLY ADJUSTABLE AND WITH LOCKING DEVICE.

7. PROVIDED AT A POINT IN THE DUCTWORK WHICH IS A SUFFICIENT DISTANCE UPSTREAM FROM AN OUTLET (OR DOWNSTREAM FROM AN INLET) TO ATTENUATE OBJECTIONABLE NOISE DUE TO DAMPER THROTTLING AND TO PRECLUDE ADVERSE AFFECTS ON THE DISTRIBUTION CHARACTERISTICS (THROW, DROP, PATTERN, ETC.) OF THE AIR DISTRIBUTION DEVICE.

E. LOW PRESSURE DUCT ACCESS DOORS:

1. PROVIDED FOR: FIRE DAMPER AND WHERE ACCESS IS OTHERWISE NECESSARY.

2. FACTORY PREFABRICATED DOUBLE WALL INSULATED TYPE OF 24 US GAUGE GALVANIZED STEEL (OF SAME OR THICKER GAUGE THAN DUCTWORK PANEL IN WHICH INSTALLED, WHICHEVER IS GREATER).

3. MINIMUM SIZE SHALL BE AS LARGE AS IS COMPATIBLE WITH DUCT SIZE

4. DOORS SHALL BE PROVIDED WITH HAND OPERATED ADJUSTABLE TENSION CATCHES AND SHALL BE COMPLETELY GASKETED AROUND THEIR PERIMETERS. DOORS SHALL BE VENTLOCK "ACCESS DOORS". INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING VENTLOCK #360 SEALANT.

3.0 EXECUTION

3.01 GENERAL:

A. CONSTRUCT ALL DUCTWORK AND ACCESSORIES IN ACCORDANCE WITH THE LATEST INDICATED EDITIONS OF APPLICABLE SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION CONSTRUCTION STANDARDS.

B. STREAMLINE ALL DUCTWORK TO THE FULL EXTENT PRACTICAL AND EQUIP WITH PROPER AND ADEQUATE DEVICES TO ASSURE PROPER BALANCE AND QUIET DRAFT LESS DISTRIBUTION OF INDICATED AIR QUANTITIES.

C. PROTECT ALL DUCTWORK AND SYSTEM ACCESSORIES FROM DAMAGE DURING CONSTRUCTION UNTIL ARCHITECT'S FINAL ACCEPTANCE OF PROJECT.

D. PRIOR TO DUCTWORK FABRICATION, VERIFY IF ALL DUCTWORK AS DIMENSIONED AND GENERALLY SHOWN WILL SATISFACTORILY FIT ALLOCATED SPACES. TAKE PRECAUTIONS TO AVOID SPACE INTERFERENCES WITH BEAMS, COLUMNS, JOISTS, PIPES, LIGHTS, CONDUIT, OTHER DUCTS, EQUIPMENT, ETC. NOTIFY ARCHITECT IF ANY SPATIAL CONFLICTS EXIST, AND THEN OBTAIN ARCHITECT'S APPROVAL OF NECESSARY ROUTING. MAKE ANY SUCH NECESSARY REVISIONS WHICH ARE MINOR AT NO ADDITIONAL COST.

E. CAREFULLY CORRELATE ALL DUCT CONNECTIONS TO AIR HANDLING UNITS AND FANS TO PROVIDE PROPER CONNECTIONS, ELBOWS AND BENDS WHICH MINIMIZE NOISE AND PRESSURE DROP.

F. PROPERLY SUSPEND ALL DUCTWORK SO THAT NO OBJECTIONABLE CONDITIONS RESULT (SUCH AS VIBRATION, SAGGING, ETC.).

G. INSTALL HORIZONTAL RIGID DUCTWORK AS HIGH AS PRACTICAL ABOVE SUSPENDED CEILINGS SO THAT MOVABLE LIGHT FIXTURES MAY BE RELOCATED WITHOUT INTERFERENCE TO MEET ANY FUTURE PARTITION RELOCATION REQUIREMENTS.

H. INSTALL ALL FLEXIBLE ROUND DUCTS WITHOUT KINKS OR SIMILAR OBSTRUCTIONS SO THAT PRESSURE DROP IS MINIMIZED. CUT AND REMOVE EXCESS LENGTHS AS NECESSARY.

3.02 HANGERS AND SUPPORTS:

A. GENERAL: COMPLY WITH LATEST APPLICABLE SMACNA CONSTRUCTION STANDARDS.

B. SUPPORTS: VERTICAL RISERS AND OTHER DUCT RUNS WHERE THE METHOD OF SUPPORT SPECIFIED ABOVE IS NOT APPLICABLE SHALL BE SUPPORTED BY SUBSTANTIAL ANGLE BRACKETS DESIGNED TO MEET FIELD CONDITIONS AND INSTALLED TO ALLOW FOR DUCT EXPANSION.

C. FASTENERS: SECURE HANGERS TO STEEL BEAMS OR METAL DECK WITH BEAM CLAMPS TO DROP THROUGH CONNECTIONS FROM METAL OR CONCRETE DECK. REFER TO THE REQUIREMENTS OF THE SECTION ENTITLED "COMMON REQUIREMENTS FOR MECHANICAL WORK".

3.03 INSULATED DUCT: WHERE DUCTS WILL BE INSULATED, MAKE PROVISION FOR NEAT INSULATION FINISH AROUND DAMPER OPERATING QUADRANTS, SPLITTER ADJUSTMENT CLAMPS, ACCESS DOORS, AND SIMILAR OPERATING DEVICES. A METAL COLLAR EQUIVALENT IN DEPTH TO INSULATION THICKNESS AND OF SUITABLE SIZE TO WHICH INSULATION MAY BE FINISHED SHALL BE MOUNTED ON DUCT.

3.03 OTHER REQUIREMENTS:

A. IF DUCTWORK MATERIALS ARE INSTALLED WHICH DO NOT MEET THESE SPECIFICATIONS, CONTRACTOR SHALL REMOVE SUCH DUCTWORK MATERIALS AND REPLACE THEM WITH THE SPECIFIED MATERIALS. ANY DELAY IN JOB PROGRESS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

SECTION 23 34 00

HVAC FANS:

1.01 CEILING MOUNTED CABINET EXHAUST FANS:

A. MANUFACTURERS: GREENHECK CORP., LOREN COOK COMPANY, PENN VENTILATION OR OTHER APPROVED PRIOR TO BID.

B. CENTRIFUGAL FAN UNIT: DIRECT DRIVEN WITH INJECTION MOLDED RESIN GALVANIZED STEEL HOUSING LINED WITH 1/2 INCH ACOUSTIC INSULATION, RESILIENT MOUNTED MOTOR, GRAVITY BACKDRAFT DAMPER IN DISCHARGE OPENING, INTEGRAL OUTLET DUCT COLLAR, DISCHARGE POSITION CONVERTIBLE BY MOVING INTERCHANGEABLE PANELS.

1. DISCONNECT SWITCH: CORD AND PLUG IN HOUSING FAN MOUNTED TOGGLE SWITCH FOR THERMAL OVERLOAD PROTECTED MOTOR.

2. GRILLE: MOLDED WHITE PLASTIC ALUMINUM WITH BAKED WHITE ENAMEL FINISH PAINTED STEEL.

3. WHEEL: DWI CENTRIFUGAL FORWARD CURVED TYPE CONSTRUCTED OF INJECTION MOLDED OR POLYPROPYLENE RESIN.

4. MOTOR: OPEN DRIP PROOF TYPE WITH PERMANENTLY LUBRICATED SEALED BEARINGS AND THERMAL OVERLOAD PROTECTION.

2.01 CENTRIFUGAL ROOF EXHAUST FANS:

A. MANUFACTURERS: GREENHECK CORP., LOREN COOK COMPANY, PENN VENTILATION OR APPROVED EQUAL.

B. DESCRIPTION

1. HOUSING: REMOVABLE SPUN ALUMINUM FAN SHROUD WITH STAINLESS STEEL HARDWARE/ALUMINUM CURB CAP AND WINDBAND WITH ALUMINUM BIRDSCREEN.

2. DISCONNECT SWITCH: NEMA 1 SWITCH FACTORY MOUNTED WITHIN THE MOTOR COMPARTMENT AND ACCESSIBLE THRU THE REMOVABLE FAN SHROUD.

3. WHEEL: CENTRIFUGAL BACKWARD INCLINED CONSTRUCTED OF ALUMINUM. WHEEL SHALL BE STATICALLY AND DYNAMICALLY BALANCED.

4. MOTOR: OPEN DRIP PROOF TYPE WITH PERMANENTLY LUBRICATED SEALED BEARINGS AND THERMAL OVERLOAD PROTECTION.

C. ROOF CURBS

1. CONTRACTOR SHALL PROVIDE FACTORY SUPPLIED ROOF CURB, 16 GAUGE PERIMETER MADE OF ZINC COATED STEEL WITH SUPPLY AND RETURN AIR GASKETING AND WOOD NAILER STRIPS. SHIP KNOCKED DOWN AND PROVIDED WITH INSTRUCTIONS FOR EASY ASSEMBLY.

2. CURB SHALL BE MANUFACTURED IN ACCORDANCE WITH THE NATIONAL ROOFING CONTRACTORS ASSOCIATION GUIDELINES.

SECTION 23 36 00

AIR TERMINAL UNITS:

1.0 GENERAL

1.01 SCOPE: PROVIDE TERMINAL UNITS WHERE INDICATED ON DRAWINGS. UNIT CAPACITY AND OPERATING CONDITIONS SHALL BE AS SCHEDULED ON THE DRAWINGS.

1.03 MANUFACTURER: BASIS OF DESIGN IS CARRIER, ACCEPTABLE MANUFACTURER'S ARE ENVIRO-TEC, TITUS, AND PRICE OR OTHER APPROVED PRIOR TO BID.

1.04 NOISE CRITERIA: UNLESS OTHERWISE INDICATED ON DRAWINGS, THE MAXIMUM ALLOWABLE NC LEVEL IN ANY OCCUPIED SPACE (UNLESS OTHERWISE INDICATED) SHALL NOT EXCEED NC-30 AS A RESULT OF RADIATED OR DISCHARGED NOISE FROM ANY TERMINAL UNIT.

2.0 PRODUCTS

2.01 FRAME: COMPLETELY FACTORY ASSEMBLED.

2.02 CASING: CASING SHALL BE NOT LESS THAN 22 GAUGE GALVANIZED STEEL INTERNALLY INSULATED WITH FIBERGLASS MEETING REQUIREMENTS OF NFPA 90A.

2.03 FANS: DOUBLE WIDTH DOUBLE INLET FORWARD CURVED BLADE TYPE STATICALLY AND DYNAMICALLY BALANCED. FANS SHALL BE OF THE DIRECT DRIVE TYPE WITH PERMANENTLY LUBRICATED SPLIT CAPACITOR TYPE MOTOR SUITABLE FOR THE POWER SUPPLY SCHEDULED. FAN ASSEMBLY SHALL BE INTERNALLY ISOLATED USING RUBBER IN SHEAR ISOLATORS.

A. FAN PORTION OF THE ASSEMBLY SHALL BE CONFIGURED TO OPERATE IN A PARALLEL AIRFLOW MADE WITH THE PRIMARY AIR VOLUME DAMPER. FAN PORTION SHALL NOT BE IN SERIES WITH THE PRIMARY COLD AIR INLET VOLUME DAMPER DEVICE.

2.04 VOLUME DAMPER: SHALL BE A PRESSURE INDEPENDENT, VARIABLE CONSTANT VOLUME CONTROL DEVICE.

2.05 CONTROL REQUIREMENT:

A. FAN TERMINAL UNITS MUST BE INDEPENDENT OF INLET PRESSURE FLUCTUATION IN THE MAIN OR BRANCH DUCT SYSTEM. UNITS MUST HAVE CONTROLS WHICH ARE FACTORY INSTALLED, FACTORY CALIBRATED AND FACTORY TESTED TO BE PRESSURE-INDEPENDENT.

1. UNITS SHALL MAINTAIN CONSTANT DISCHARGE FLOW FOR ANY GIVEN SETPOINT WITH ANY VARIATION IN INLET STATIC PRESSURE BETWEEN 0.2 INCH W.G. AND 6.0 INCH W.G.

2. ALL FAN TERMINAL UNITS MUST BE FACTORY SET FOR DESIGN AIR FLOWS.

3. THE MAXIMUM AIR PRESSURE DROP ACROSS THE FAN TERMINAL UNIT AT MAXIMUM DESIGN COOLING AIR FLOW AND AT WHICH THE UNIT WILL OPERATE UNDER PROPER CONTROL SHALL NOT EXCEED STATIC PRESSURES AS INDICATED ON DRAWINGS.

B. UNIT MUST HAVE CAPABILITY FOR EASY FIELD ADJUSTMENT OF MAXIMUM AND MINIMUM AIR QUANTITIES BY RESETTING OF CONTROLLER ON TERMINAL UNIT.

C. DISCHARGE VOLUME SETTING CONTROLLED THROUGHOUT INDICATED VARIABLE OPERATING RANGE BY OPERATION UNDER THERMOSTATIC CONTROL.

D. DIRECT DIGITAL CONTROLLER FOR THE TERMINAL UNIT SHALL BE PROVIDED BY THE BUILDING CONTROLS MANUFACTURER.

E. CONTROLS MUST BE COMPLETELY COMPATIBLE IN ALL RESPECTS WITH THE RELATED COMPONENTS OF THE BUILDING TEMPERATURE CONTROL SYSTEM.

2.06 OPERATING SEQUENCE: TERMINAL UNITS SHALL HAVE ALL NECESSARY CONTROLS AND ACCESSORIES TO OPERATE AS FOLLOWS: TU SHALL FUNCTION AS A SINGLE INLET VAV TERMINAL UNIT SUCH THAT AT MAXIMUM COOLING DEMAND, TU PASSES MAXIMUM COLD AIR. AS COOLING DEMAND DECREASES, TU WILL THROTTLE DOWN DISCHARGE AIR TO SPACE IN RESPONSE TO ROOM THERMOSTAT UNTIL IT REACHES A PRESET MINIMUM. AS DEMAND FOR HEATING TAKES OVER IN RESPONSE TO THERMOSTAT SIGNAL, ELECTRIC HEATING COIL SHALL BE ACTUATED TO HEAT THE AIR BEING CONVEYED BY THE TU.

2.07 ACCESS: A GASKETED ACCESS PANEL SHALL BE PROVIDED IN THE UNIT CASING TO ALLOW REMOVAL OF THE FAN DRIVE MOTOR FOR SERVICE.

2.08 ELECTRIC HEATING COIL: EACH FAN TERMINAL UNIT SHALL BE PROVIDED WITH AN INTEGRAL, FACTORY MOUNTED ELECTRIC HEATING COIL. HEATING COILS SHALL HAVE ALL OPERATING CHARACTERISTICS AND INSULATION COMPLETELY COORDINATED TO FUNCTION SATISFACTORY AS AN INTEGRAL PART OF THE FAN TERMINAL UNIT.

A. OTHER REQUIREMENTS:

1. MEET ALL APPLICABLE REQUIREMENTS OF THE CURRENT NEC.

2. UL LISTED INCLUDING ALL BUILT-IN COMPONENTS.

3. COORDINATED WITH THE SPECIFIED REQUIREMENTS OF THE MECHANICAL SYSTEM CONTROL SYSTEM.

B. MATERIALS:

1. OPEN COIL TYPE.

2. FULL FINE BREAK MERCURY CONTACTORS WHICH WILL BREAK ALL UNGROUNDED CONDUCTORS (NOTE HORIZONTAL, VERTICAL OR OBLIQUE POSITION OF EACH HEATER ASSEMBLY AS SHOWN ON DRAWINGS).

3. TRANSFORMER WITH PRIMARY FUSING IF CONTROL VOLTAGE IS DIFFERENT FROM SUPPLY VOLTAGE.

4. OVERCURRENT PROTECTION IN ACCORD WITH NEC REQUIREMENTS.

5. CONTROL TERMINALS AND POWER TERMINALS.

6. BUILT-IN OR REMOTE PRESSURE TYPE AIR FLOW SWITCH. INSTALL IN SERIES WITH AUTOMATIC RESET THERMAL CUTOFF.

C. WIRING DIAGRAMS: PROVIDE COMPLETE CONTROL WIRING DIAGRAMS FURNISHED BY THE HEATING COIL MANUFACTURER TO THE MECHANICAL SYSTEMS CONTROL MANUFACTURER AND THE ELECTRICAL CONTRACTOR. THIS WIRING DIAGRAM SHALL COMPLETELY INDICATE IN FULL DETAIL ALL ELECTRICAL AND CONTROL WIRING REQUIREMENTS, TERMINAL, ETC. NECESSARY TO ALLOW THE CONTROL MANUFACTURER AND ELECTRICAL CONTRACTOR TO COMPLETELY COORDINATE THEIR RESPECTIVE WIRING PORTIONS OF THE TERMINAL UNIT SYSTEM INSTALLATION.

3.0 EXECUTION

3.01 UNIT LOCATION: UNIT LOCATION SHALL ESSENTIALLY BE AS SHOWN ON THE DRAWINGS; HOWEVER, ACTUAL PLACEMENT OF THE UNIT SHALL BE DETERMINED USING FIELD MEASUREMENTS AND DATA RELATING TO THE EQUIPMENT APPROVED FOR ACTUAL INSTALLATION ON THIS PROJECT. COORDINATE LOCATION WITH ALL DUCTS, BEAMS, JOISTS, CONDUIT, LIGHTS, PIPING, AIR DISTRIBUTION DEVICES AND OTHER ITEMS IN IMMEDIATE VICINITY OF INDICATED LOCATIONS. MAKE MINOR ADJUSTMENTS IN EXACT LOCATIONS SHOWN TO BEST FIT AVAILABLE SPACE.

3.02 ADDITIONAL INSTALLATION REQUIREMENTS:

A. LOCATE BOXES SO THAT ACCESS FOR REPAIR, MAINTENANCE AND ADJUSTMENT IS EASILY FACILITATED WITHOUT REMOVAL OF OTHER PERMANENTLY LOCATED ITEMS WHICH ARE IN THE IMMEDIATE VICINITY OF BOXES (THIS EXCLUDES REMOVABLE CEILING PANELS, REMOVABLE AIR DISTRIBUTION DEVICES ATTACHED TO FLEXIBLE DUCTWORK AND OTHER SIMILAR ITEMS).

B. NO TERMINAL UNIT OUTLET SHALL BE NEARER THAN 60 INCHES FROM THE FIRST FLEXIBLE DUCT CONNECTION TAKE-OFF TO THE FIRST DOWNSTREAM AIR DISTRIBUTION DEVICE.

SECTION 23 64 11

PACKAGED WATER CHILLERS-RECIPROCATING, SCROLL, AND SCREW:

1.0 GENERAL

1.01 SUMMARY

A. SECTION INCLUDES DESIGN, PERFORMANCE CRITERIA, REFRIGERANTS, CONTROLS, AND INSTALLATION REQUIREMENTS FOR AIR-COOLED ROTARY SCREW PACKAGED CHILLERS

B. COMPLY WITH APPLICABLE STANDARDS/CODES OF ARI 550/590, ANSI/ASHRAE 15, ASHRAE 90.1 AND ASME SECTION VIII DIV 1.

1.03 SUBMITTALS

A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA IN ACCORDANCE WITH SPECIFICATION REQUIREMENTS

B. SUBMITTALS SHALL INCLUDE THE FOLLOWING:

1. DIMENSIONED PLAN AND ELEVATION VIEW DRAWINGS, REQUIRED CLEARANCES, AND LOCATION OF ALL FIELD CONNECTIONS.

2. SUMMARY OF ALL AUXILIARY UTILITY REQUIREMENTS SUCH AS ELECTRICITY, WATER, COMPRESSED AIR, ETC. SUMMARY SHALL INDICATE QUALITY AND QUANTITY OF EACH REQUIRED UTILITY.

3. SINGLE LINE SCHEMATIC DRAWING OF THE POWER FIELD HOOKUP REQUIREMENTS, INDICATING ALL ITEMS THAT ARE FURNISHED.

4. SCHEMATIC DIAGRAM OF CONTROL SYSTEM INDICATING POINTS FOR FIELD CONNECTION. DIAGRAM SHALL FULLY DELINEATE FIELD AND FACTORY WIRING.

5. CERTIFICATION OF FACTORY RUN TEST OF CHILLER UNIT SIGNED BY COMPANY OFFICER.

6. INSTALLATION MANUALS.



CITY OF TAMPA CONTRACT ADMINISTRATION DEPARTMENT PLANNING AND DESIGN DIVISION

306 E. JACKSON STREET 4 NORTH
TAMPA, FLORIDA 33602
P. 813. 274. 8456 -- F. 813. 274. 8080
URL: WWW.TAMPA.GOV/NET

James E. Jackson, Jr. AIA, NOMA
City Architect
Edward D. Rice, AIA
Project Architect
Kevin L. Herlika, AIA
Project Architect
Thomas A. Heister, Sr., AIA, NOMA
Project Architect
David R. Pagitt
Supervisor, Architectural Drafting
Kelsey C. Tillman
Drafting Technician
Jerry P. Sanders
Drafting Technician
Byron K. Thomas
Drafting Technician

MEP CONSULTANT

GRINER ENGINEERING, INC.
1628 1st. AVENUE NORTH
ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT

ROGAL-TGA CONSULTING
ENGINEERS, INC.
124 5th AVENUE SOUTH, SUITE B
SAFETY HARBOR, FL 34695

CIVIL CONSULTANT

GOLDER ASSOCIATES, INC.
5100 W. LEMON STREET #14
TAMPA, FL 33609

LANDSCAPE CONSULTANT

DAVID CONNER & ASSOCIATES
1503 W. SWANN AVENUE, SUITE 255
TAMPA, FL 33606

FIRE STATION 19
7910 INTERBAY BLVD.
TAMPA, FL

DPW FILE NUMBER

MECHANICAL SPECIFICATION CONTINUED

1.04 QUALITY ASSURANCE

A. QUALIFICATIONS: EQUIPMENT MANUFACTURER MUST SPECIALIZE IN THE MANUFACTURE OF THE PRODUCTS SPECIFIED AND HAVE FIVE YEARS EXPERIENCE WITH THE EQUIPMENT AND REFRIGERANT OFFERED.

B. CHILLER MANUFACTURER MUST BE ISO 9001:2000 REGISTERED.

1.05 DELIVERY AND HANDLING

A. CHILLERS SHALL BE DELIVERED TO THE JOB SITE COMPLETELY ASSEMBLED AND CHARGED WITH REFRIGERANT AND OIL BY THE MANUFACTURER

B. COMPLY WITH THE MANUFACTURER INSTRUCTIONS FOR RIGGING AND HANDLING EQUIPMENT.

1.06 WARRANTY

A. THE REFRIGERATION EQUIPMENT MANUFACTURER'S WARRANTY SHALL BE FOR A PERIOD OF ONE YEAR FROM DATE OF EQUIPMENT START UP. IT SHALL COVER DEFECTS IN MATERIAL AND WORKMANSHIP THAT HAVE PROVEN DEFECTIVE WITHIN THE ABOVE PERIOD, INCLUDING REFRIGERANT LOST DUE TO A WARRANTY FAILURE.

B. THE COMPRESSOR PARTS WARRANTY SHALL BE EXTENDED FOR AN ADDITIONAL 48 MONTHS.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. YORK INTERNATIONAL, CARRIER AND TRANE OR APPROVED EQUAL.

2.02 UNIT DESCRIPTION

A. PROVIDE AND INSTALL AS SHOWN ON THE PLANS FACTORY ASSEMBLED, FACTORY CHARGED AND FACTORY RUN TESTED AIR-COOLED SCROLL COMPRESSOR PACKAGED CHILLER(S) IN THE QUANTITY SPECIFIED. EACH CHILLER SHALL CONSIST OF HERMETIC SCROLL COMPRESSORS, FLOODED EVAPORATOR, AIR-COOLED CONDENSER SECTION, CONTROL SYSTEM, PUMP SYSTEM AND ALL COMPONENTS NECESSARY FOR SAFE AND CONTROLLED UNIT OPERATION.

2.03 DESIGN REQUIREMENTS

A. GENERAL: PROVIDE A COMPLETE PACKAGED CHILLER AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS.

2.04 CONTROLS, SAFETIES, AND DIAGNOSTICS

1. CONTROLS

- UNIT CONTROLS SHALL INCLUDE THE FOLLOWING MINIMUM COMPONENTS:
 - MICROPROCESSOR WITH NONVOLATILE MEMORY. BATTERY BACKUP SYSTEM NOT TO BE ACCEPTED.
 - SINGLE TERMINAL BLOCK FOR POWER AND CONTROLS.
 - CONTROL TRANSFORMER TO SERVE ALL CONTROLLERS, RELAYS, AND CONTROL COMPONENTS.
 - ON/OFF CONTROL SWITCH.
 - REPLACEABLE SOLID-STATE RELAY PANELS AND CONTROLLERS.
 - PRESSURE SENSORS INSTALLED TO MEASURE COOLER ENTERING AND LEAVING SATURATED TEMPERATURES AND OUTSIDE AIR TEMPERATURE. THERMISTORS INSTALLED TO MEASURE COOLER ENTERING AND LEAVING FLUID TEMPERATURES. PROVISION FOR FIELD INSTALLATION OF ACCESSORY SENSOR TO MEASURE COMPRESSOR RETURN GAS TEMPERATURE.

2.05 UNIT CONTROLS SHALL INCLUDE THE FOLLOWING FUNCTIONS:

- AUTOMATIC CIRCUIT LEAD/LAG FOR DUAL CIRCUIT CHILLERS.
- CAPACITY CONTROL BASED ON LEAVING CHILLED FLUID TEMPERATURE AND COMPENSATED BY RATE OF CHANGE OF RETURN-FLOW TEMPERATURE WITH TEMPERATURE SET POINT ACCURACY TO 0.1°F.
- LIMITING THE CHILLED FLUID TEMPERATURE PULL DOWN RATE AT START-UP TO AN ADJUSTABLE RANGE OF 0.2°F TO 2°F PER MINUTE TO PREVENT EXCESSIVE DEMAND SPIKES AT START-UP.
- SEVEN DAY TIME SCHEDULE.
- LEAVING CHILLED WATER PUMP START/STOP CONTROL AND PRIMARY/STANDBY SEQUENCING TO ENSURE EQUAL PUMP RUN TIME.
- CHILLED WATER PUMP START/STOP CONTROL AND PRIMARY/STANDBY SEQUENCING TO ENSURE EQUAL PUMP RUN TIME.
- DUAL CHILLER CONTROL FOR PARALLEL CHILLER APPLICATIONS WITHOUT ADDITION OF HARDWARE MODULES AND CONTROLS PANELS (ADDITIONAL THERMISTOR AND WELL SHALL BE REQUIRED).
- UNOCCUPIED LOW SOUND OPERATION TO LIMIT CONDENSER FAN SOUND DURING SCHEDULED PERIODS.
- TIMED MAINTENANCE SCHEDULING TO SIGNAL MAINTENANCE ACTIVITIES FOR PUMPS, CONDENSER COIL CLEANING, STRAINER MAINTENANCE AND USER DEFINED MAINTENANCE ACTIVITIES.
- BOILER ENABLE SIGNAL TO INITIATE SYSTEM HEATING MODE.
- LOW AMBIENT PROTECTION TO ENERGIZE COOLER AND HYDRONIC SYSTEM HEATERS.
- PERIODIC PUMP START TO ENSURE PUMP SEALS ARE PROPERLY MAINTAINED DURING OFF-SEASON PERIODS.

2. DIAGNOSTICS:

A. THE CONTROL PANEL SHALL INCLUDE, AS STANDARD, A SCROLLING MARQUEE DISPLAY CAPABLE OF INDICATING THE SAFETY LOCKOUT CONDITION BY DISPLAYING A CODE FOR WHICH AN EXPLANATION MAY BE SCROLLED AT THE DISPLAY.

B. INFORMATION INCLUDED FOR DISPLAY SHALL BE:

- COMPRESSOR LOCKOUT.
- LOSS OF CHARGE.
- LOW FLUID FLOW.
- COOLER FREEZE PROTECTION.
- THERMISTOR MALFUNCTION.
- ENTERING AND LEAVING FLUID TEMPERATURE.
- EVAPORATOR AND CONDENSER PRESSURE.
- TIME OF DAY:

(A) DISPLAY MODULE, IN CONJUNCTION WITH THE MICROPROCESSOR, MUST ALSO BE CAPABLE OF DISPLAYING THE OUTPUT (RESULTS) OF A SERVICE TEST. SERVICE TEST SHALL VERIFY OPERATION OF EVERY SWITCH, THERMISTOR, FAN, AND COMPRESSOR BEFORE CHILLER IS STARTED.

(B) DIAGNOSTICS SHALL INCLUDE THE ABILITY TO REVIEW A LIST OF THE 20 MOST RECENT ALARMS WITH CLEAR LANGUAGE DESCRIPTIONS OF THE ALARM EVENT. DISPLAY OF ALARM CODES WITHOUT THE ABILITY FOR CLEAR LANGUAGE DESCRIPTIONS SHALL BE PROHIBITED.

(C) AN ALARM HISTORY BUFFER SHALL ALLOW THE USER TO STORE NO LESS THAN 20 ALARM EVENTS WITH CLEAR LANGUAGE DESCRIPTIONS, TIME AND DATE STAMP EVENT ENTRY.

(D) THE CHILLER CONTROLLER SHALL INCLUDE MULTIPLE CONNECTION PORTS FOR COMMUNICATING WITH THE LOCAL EQUIPMENT NETWORK, THE CARRIER COMFORT NETWORK® (CCN) SYSTEM AND THE ABILITY TO ACCESS ALL CHILLER CONTROL FUNCTIONS FROM ANY POINT ON THE CHILLER.

(E) THE CONTROL SYSTEM SHALL ALLOW SOFTWARE UPGRADE WITHOUT THE NEED FOR NEW HARDWARE MODULES.

3. SAFETIES:

A. UNIT SHALL BE EQUIPPED WITH THERMISTORS AND ALL NECESSARY COMPONENTS IN CONJUNCTION WITH THE CONTROL SYSTEM TO PROVIDE THE UNIT WITH THE FOLLOWING PROTECTIONS:

- LOSS OF REFRIGERANT CHARGE.
- REVERSE ROTATION.
- LOW CHILLED FLUID TEMPERATURE.
- THERMAL OVERLOAD.
- HIGH PRESSURE.
- ELECTRICAL OVERLOAD.
- LOSS OF PHASE.

B. CONDENSER FAN AND FACTORY PUMP MOTORS SHALL HAVE EXTERNAL OVERCURRENT PROTECTION.

2.06 ELECTRICAL REQUIREMENTS

- UNIT PRIMARY ELECTRICAL POWER SUPPLY SHALL ENTER THE UNIT AT A SINGLE LOCATION.
- PRIMARY ELECTRICAL POWER SUPPLY SHALL BE RATED TO WITHSTAND 120°F OPERATING AMBIENT.
- UNIT SHALL OPERATE ON 3-PHASE POWER AT THE VOLTAGE SHOWN IN THE EQUIPMENT SCHEDULE.
- CONTROL POINTS SHALL BE ACCESSED THROUGH TERMINAL BLOCK.
- UNIT SHALL BE SHIPPED WITH FACTORY CONTROL AND POWER WIRING INSTALLED.
- ACCESSORY STORAGE TANK COOLER HEATER REQUIRES A SEPARATE POWER SOURCE.

2.07 CHILLED WATER CIRCUIT:

- CHILLED WATER CIRCUIT SHALL BE RATED FOR 300 PSIG. UNITS WITH OPTIONAL PUMP PACKAGE ARE RATED FOR 150 PSIG WORKING PRESSURE.
- SOLID STATE FLOW MONITOR WITH INTEGRAL RELAY SHALL BE FACTORY INSTALLED AND WIRED.
- BRASS BODY STRAINER WITH 20 MESH SCREEN AND BALL TYPE BLOW DOWN.
- OPTIONAL HYDRONIC PACKAGE:
 - FIELD PIPE CONNECTIONS SHALL BE COPPER FTP TYPE.
 - OPTIONAL SINGLE OR PRIMARY/STAND-BY OPERATION PUMP SYSTEMS. DUAL PUMP SYSTEMS SHALL HAVE A PUMP DISCHARGE CHECK VALVE.
 - PUMPS SHALL BE SINGLE STAGE DESIGN, FOR INSTALLATION IN VERTICAL POSITION AND CAPABLE OF BEING SERVICED WITHOUT DISTURBING PIPING CONNECTIONS.

- PUMP CASING SHALL BE OF CLASS 30 CAST IRON.
- THE IMPELLER SHALL BE OF CAST BRONZE, CLOSED TYPE, DYNAMICALLY BALANCED, KEYS TO THE SHAFT AND SECURED BY LOCKING CAP SCREW.
- THE HYDRONIC KIT WILL BE PROVIDED WITH A FLUSH LINE CONNECTION TO ENSURE LUBRICATION AT THE SEAL FACE AND ALLOW FOR POSITIVE VENTING OF THE SEAL CHAMBER.
- PUMP SHALL BE RATED FOR 150 PSIG WORKING PRESSURE.
- THE PUMP CASE SHALL HAVE GAGE TAPPINGS AT THE SUCTION AND DISCHARGE NOZZLES AND INCLUDE DRAIN PORTS.
- MOTORS SHALL TOTALLY ENCLOSED 3-PHASE TYPE WITH GREASE LUBRICATED BALL BEARINGS.
- EACH PUMP SHALL BE FACTORY TESTED PER HYDRAULIC INSTITUTE STANDARDS.
- FLUID EXPANSION TANK SHALL BE FACTORY INSTALLED WITHIN THE CHILLER CABINET INSULATED, PRE-CHARGED AND RATED FOR A MAXIMUM WORKING PRESSURE OF 150 PSIG.
- WATER PRESSURE TAPS (2) SHALL BE FACTORY INSTALLED ACROSS THE COOLER AND RATED FOR 150 PSIG.
- BALANCING VALVE SHALL BE FACTORY INSTALLED TO SET FLOW GAGE PORTS, SHALL BE FACTORY INSTALLED AND RATED FOR 300 PSIG.
- HYDRONIC ASSEMBLY SHALL HAVE FACTORY SUPPLIED ELECTRIC FREEZE PROTECTION TO -20°F WHEN OPTIONAL HEATERS ARE USED.
- PIPING SHALL BE TYPE-L SEAMLESS COPPER TUBING.

PART 3: EXECUTION

3.01 INSTALLATION

A. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, SHOP DRAWINGS, AND CONTRACT DOCUMENTS.

B. ADJUST AND LEVEL CHILLER IN ALIGNMENT ON SUPPORTS.

C. COORDINATE ELECTRICAL INSTALLATION WITH ELECTRICAL CONTRACTOR.

D. COORDINATE CONTROLS WITH CONTROL CONTRACTOR.

E. PROVIDE ALL APPURTENANCES REQUIRED ALLOWING A FULLY OPERATIONAL AND FUNCTIONAL CHILLER.

3.02 START-UP

A. ENSURE PROPER CHARGE OF REFRIGERANT AND OIL.

B. PROVIDE AUTHORIZED FACTORY START-UP BY FACTORY TRAINED TECHNICIANS FOR EACH CHILLER. TECHNICIAN SHALL PROVIDE INSTRUCTION TO THE OWNER ON PROPER OPERATION AND MAINTENANCE DURING START-UP.

SECTION 23 73 00

INDOOR CENTRAL-STATION AIR-HANDLING UNITS

PART 1 GENERAL

1.01 SUMMARY

A. SECTION INCLUDES MODULAR FACTORY FABRICATED AIR-HANDLING UNITS AND ACCESSORIES.1.02 SUBMITTALS

A. SHOP DRAWINGS: INDICATE ASSEMBLY, UNIT DIMENSIONS, WEIGHT LOADING, REQUIRED CLEARANCES, CONSTRUCTION DETAILS, FIELD CONNECTION DETAILS, AND ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.

B. PRODUCT DATA, SUBMIT THE FOLLOWING:

- PUBLISHED LITERATURE: INDICATE CAPACITIES, RATINGS, GAGES AND FINISHES OF MATERIALS, AND ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.
- FILTERS: DATA FOR FILTER MEDIA, FILTER PERFORMANCE DATA, FILTER ASSEMBLY, AND FILTER FRAMES.
- FANS: PERFORMANCE AND FAN CURVES WITH SPECIFIED OPERATING POINT PLOTTED, POWER, RPM.
- SOUND POWER LEVEL DATA: FAN OUTLET AND CASING RADIATION AT RATED CAPACITY.
- ELECTRICAL REQUIREMENTS: POWER SUPPLY WIRING INCLUDING WIRING DIAGRAMS FOR INTERLOCK AND CONTROL WIRING. INDICATE FACTORY INSTALLED AND FIELD INSTALLED WIRING.

C. MANUFACTURER'S INSTALLATION INSTRUCTIONS: SUBMIT.

1.03 CLOSEOUT SUBMITTALS

A. OPERATION AND MAINTENANCE DATA: SUBMIT INSTRUCTIONS FOR LUBRICATION, FILTER REPLACEMENT, MOTOR AND DRIVE REPLACEMENT, SPARE PARTS LISTS, AND WIRING DIAGRAMS.

1.04 WARRANTY

A. FURNISH ONE YEAR MANUFACTURER WARRANTY FOR AIR HANDLING UNITS.

PART 2 PRODUCTS

2.01 AIR HANDLING UNITS

- A. MANUFACTURERS:
- THE TRANE COMPANY.
 - CARRIER CORP.
 - YORK BY JOHNSON CONTROLS.

B. CONFIGURATION: FAN SECTION PLUS ACCESSORIES, INCLUDING:

- VERTICAL COOLING COIL SECTION.

C. PERFORMANCE BASE: SEA LEVEL PRESSURE OR ALTITUDE.

D. FABRICATION: CONFORM TO AMCA 99 AND ARI 430.

2.02 CASING

A. CHANNEL BASE OF WELDED STEEL. ASSEMBLE SECTIONS WITH GASKETS AND BOLTS.

B. OUTSIDE CASING:

- GALVANIZED STEEL: 18 GAUGE.

C. INSIDE CASING:

- GALVANIZED STEEL: 18 GAUGE.

D. INSULATION: FOAM INJECTED BETWEEN INSIDE AND OUTSIDE CASINGS.

- K FACTOR AT 75 DEGREES F: MAXIMUM 0.26 BTUH INCH/ SQ FT/ DEGREES F.
- DENSITY: 2 INCH THICK.

E. INSPECTION DOORS: GALVANIZED STEEL FOR FLUSH MOUNTING, WITH GASKET, LATCH, AND HANDLE ASSEMBLY.

F. DRAIN PANS: DOUBLE THICKNESS STAINLESS STEEL WITH INSULATION BETWEEN LAYERS WITH WELDED CORNERS, CROSS BREAK AND PITCH TO DRAIN CONNECTION. FURNISH DRAIN PANS UNDER COOLING COIL SECTION.

- STRENGTH: FURNISH STRUCTURE TO BRACE CASINGS FOR SUCTION PRESSURE OF 4 INCH WG, WITH MAXIMUM DEFLECTION OF 1 IN 200.

2.03 FANS

A. TYPE: FORWARD CURVED.

B. PERFORMANCE RATINGS: CONFORM TO AMCA 210 AND LABEL WITH AMCA CERTIFIED RATING SEAL.

C. SOUND RATINGS: AMCA 301, TESTED TO AMCA 300 AND LABEL WITH AMCA CERTIFIED SOUND RATING SEAL.

D. BEARINGS: SELF-ALIGNING, GREASE LUBRICATED, BALL OR ROLLER BEARINGS WITH LUBRICATION FITTINGS EXTENDED TO EXTERIOR OF CASING WITH COPPER TUBE AND GREASE FITTING RIGIDLY ATTACHED TO CASING.

E. MOUNTING: LOCATE FAN AND MOTOR INTERNALLY ON WELDED STEEL BASE COATED WITH CORROSION RESISTANT PAINT. FACTORY MOUNT MOTOR ON SLIDE RAILS. FURNISH ACCESS TO MOTOR, DRIVE, AND BEARINGS THROUGH HINGED ACCESS DOORS. MOUNT BASE ON VIBRATION ISOLATORS.

2.04 MOTORS

A. FACTORY INSTALL ALL MOTORS ON SLIDE BASE TO PERMIT ADJUSTMENTS OF BELT TENSION.

B. FAN MOTORS SHALL BE HEAVY DUTY, HIGH EFFICIENCY, OPEN DRIP-PROOF, OPERABLE AT SCHEDULED VOLTAGE.

2.05 BEARINGS AND DRIVES

A. BEARINGS: PILLOW BLOCK TYPE, SELF-ALIGNING, GREASE-LUBRICATED L-50 LIFE AT 200,000 HOURS WITH EXTENDED LUBE LINES.

B. SHAFTS: SOLID, HOT ROLLED STEEL, GROUND AND POLISHED, WITH KEY-WAY, AND PROTECTIVELY COATED WITH LUBRICATING OIL.

C. V-BELT DRIVE: CAST IRON OR STEEL SHEAVES, DYNAMICALLY BALANCED, BORED TO FIT SHAFTS, AND KEYS. VARIABLE AND ADJUSTABLE PITCH SHEAVES FOR MOTORS 15 HP AND UNDER SELECTED SO REQUIRED RPM IS OBTAINED WITH SHEAVES SET AT MID-POSITION; MATCHED BELTS, AND DRIVE RATED AS RECOMMENDED BY MANUFACTURER OR MINIMUM 1.5 TIMES NAMEPLATE RATING OF MOTOR.

2.06 COILS

A. STAINLESS STEEL CASING WITH ACCESS TO BOTH SIDES OF COILS. ENCLOSE COILS WITH HEADERS AND RETURN BENDS FULLY CONTAINED WITHIN CASING. SLIDE COILS INTO CASING THROUGH REMOVABLE END PANEL WITH BLANK OFF SHEETS AND SEALING COLLARS AT CONNECTION PENETRATIONS.

B. AIR COILS: CERTIFY CAPACITIES, PRESSURE DROPS, AND SELECTION PROCEDURES IN ACCORDANCE WITH ARI 410.C. FABRICATION:

- TUBES: 5/8 INCH OD SEAMLESS COPPER EXPANDED INTO FINS, BRAZED JOINTS.
- FINS: ALUMINUM.
- CASING: DIE FORMED CHANNEL FRAME OF GALVANIZED STEEL.

C. WATER COOLING AND HEATING COILS:

- HEADERS: STAINLESS STEEL.
- CONFIGURATION: DRAINABLE, WITH THREADED PLUGS FOR DRAIN AND VENT; THREADED PLUGS IN RETURN BENDS AND IN HEADERS OPPOSITE EACH TUBE.

2.07 FILTERS

A. FILTER BOX: SECTION WITH FILTER GUIDES, ACCESS DOORS FROM BOTH SIDES, FOR SIDE LOADING WITH GASKETS AND BLANK-OFF PLATES.

B. FILTERS: 2-INCH PLEATED, MERV 7.

C. FILTER GAUGES: MAGNAHELIC GAUGE.

PART 3 EXECUTION

3.01 INSTALLATION

A. INSTALL IN ACCORDANCE WITH ARI 430.

B. INSTALL FLOOR MOUNTED UNITS ON CONCRETE HOUSEKEEPING PADS AT LEAST 3-1/2 INCHES HIGH AND 6 INCHES WIDER THAN UNIT.

C. INSULATE COIL HEADERS LOCATED OUTSIDE AIRFLOW AS SPECIFIED FOR PIPING. REFER TO SECTION 15081.

D. INSTALL CONDENSATE PIPING WITH TRAP AND ROUTE FROM DRAIN PAN THROUGH FLOOR SLAB AND SPILL ON GRADE BELOW SLAB.

3.02 INSTALLATION OF CHILLED WATER AND HOT WATER COOLING COILS

A. MAKE CONNECTIONS TO COILS WITH UNIONS.

B. CONNECT WATER SUPPLY TO LEAVING AIRSIDE OF COIL (COUNTER FLOW ARRANGEMENT).

C. LOCATE WATER SUPPLY AT BOTTOM OF SUPPLY HEADER AND RETURN WATER CONNECTION AT TOP.

D. INSTALL WATER COILS TO ALLOW DRAINING AND INSTALL DRAIN CONNECTION AT LOW POINTS.

E. INSTALL VALVES AND PIPING SPECIALTIES IN ACCORDANCE WITH DETAILS AS INDICATED ON DRAWINGS.

F. INSTALL MANUAL AIR VENTS AT HIGH POINTS COMPLETE WITH SHUTOFF VALVE.

3.03 DEMONSTRATION

A. DEMONSTRATE UNIT OPERATION AND MAINTENANCE.

3.04 PROTECTION OF FINISHED WORK

A. DO NOT OPERATE UNITS UNTIL DUCTWORK IS CLEAN, FILTERS ARE IN PLACE, BEARINGS LUBRICATED, AND FAN HAS BEEN TEST RUN UNDER OBSERVATION.

SECTION 23 81 51

KITCHEN HOOD(S):

1.0 KITCHEN VENTILATION HOOD(S) SHALL BE THE TYPE I, FULL COMPENSATING WALL CANOPY GROUP WITH THE CAPABILITY TO REPLACE 90% OF THE EXHAUSTED AIR WITH FRESH OUTSIDE AIR. THE HOOD(S) SHALL BE U.L. LISTED WITHOUT (WITH) FIRE DAMPER FOR 400F, 600F, OR 700F RATED COOKING APPLIANCES. AIR SHALL BE SUPPLIED THROUGH PERFORATED PANELS IN A MANNER THAT DOES NOT INTERFERE WITH THE COOKING OPERATIONS BENEATH THE HOOD(S).

THE HOOD(S) EXTERIOR SHALL BE CONSTRUCTED OF A MINIMUM OF 18 GAUGE STAINLESS STEEL. THE HOOD(S) SHALL BE CONSTRUCTED USING THE STANDING SEAM METHOD FOR OPTIMUM STRENGTH. AN INTEGRAL 3 INCH AIR SPACE IS PROVIDED TO MEET NFPA 96 CLEARANCE REQUIREMENTS AGAINST LIMITED COMBUSTIBLE WALLS. ALL SEAMS, JOINTS AND PENETRATIONS OF THE HOOD ENCLOSURE SHALL BE WELDED AND/OR LIQUID TIGHT. LIGHTER MATERIAL GAUGES, ALTERNATE MATERIAL TYPES AND FINISHES ARE NOT ACCEPTABLE. ALL UNEXPOSED INTERIOR SURFACES SHALL BE CONSTRUCTED OF A MINIMUM 18 GAUGE CORROSION RESISTANT STEEL INCLUDING, BUT NOT LIMITED TO DUCTS, PLENUM, AND BRACKETS.

VAPORPROOF, U.L. LISTED INCANDESCENT LIGHT FIXTURES SHALL BE PREWIRED TO A JUNCTION BOX SITUATED AT THE TOP OF THE HOOD FOR FIELD CONNECTION. WIRING SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NFPA #70-LATEST EDITION).

THE CANOPY HOOD(S) SHALL BE BUILT IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) BULLETIN #96, INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO), BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA), SOUTHERN BUILDING CODE CONGRESS INTERNATIONAL (SBCCI), AND BEAR THE NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL. THE HOOD MANUFACTURER SHALL PROVIDE, ON REQUEST, THE NECESSARY DATA THAT CONFIRMS COMPLIANCE WITH THE CODE AUTHORITIES LISTED ABOVE.

2.0 THE HOOD(S) SHALL CONTAIN A FACTORY ENGINEERED AND PRE-PIPED, UL LISTED, WET CHEMICAL, ANSUL R-102 FIRE SUPPRESSION SYSTEM. THE SYSTEM PIPING SHALL BE INSTALLED IN THE HOOD AT THE TIME OF CONSTRUCTION ABOVE THE HOOD OR WITHIN THE SUPPLY PLENUM, AND SHALL BE CONCEALED FROM VIEW, NO EXPOSED PIPING IS ACCEPTABLE, WITH THE EXCEPTION OF APPLIANCE DROPS. A CERTIFIED LOCAL ANSUL DISTRIBUTOR SHALL BE SELECTED BY THE FACTORY FOR FINAL SYSTEM HOOK-UP.

THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION AND/OR REMOTE MANUAL ACTUATION. THE SYSTEM SHALL HAVE THE FIRE SUPPRESSION CAPABILITIES TO PROTECT THE DUCT(S), PLENUM(S), FILTER AREA(S) AND COOKING EQUIPMENT. ACCESSORIES SHALL BE AVAILABLE FOR MECHANICAL OR ELECTRICAL GAS LINE SHUT-OFF APPLICATIONS AND A DOUBLE-POLE, DOUBLE-THROW MICROSWITCH FOR ACTIVATION OF A SHUNT TRIP BREAKER (PROVIDED BY OTHERS) FOR ELECTRICAL EQUIPMENT. THE SYSTEM SHALL ALSO INCLUDE THE RELEASE ASSEMBLY, AGENT TANK, DETECTORS, FUSIBLE LINKS, LIQUIDTIGHT FITTINGS, REMOTE MANUAL PULL STATION, AND SCHEDULE 40 BLACK IRON PIPE WITH CHROME SLEEVING FOR EXPOSED AREAS.

THE PRE-PIPE ONLY SYSTEM INCLUDES SCHEDULE 40 BLACK IRON PIPE, DETECTORS, NOZZLES, AND CHROME APPLIANCE DROPS. THE REMAINDER OF THE SYSTEM IS NOT INCLUDED AND IS UNDER SEPARATE CONTRACT BY OTHERS.



CITY OF TAMPA
CONTRACT ADMINISTRATION
DEPARTMENT
PLANNING AND DESIGN DIVISION
305 E. JACKSON STREET 4 NORTH
TAMPA, FLORIDA 33602
P: 813.274.8456 -- F: 813.274.8080
URL: WWW.TAMPA.GOV/NET

James E. Jackson, Jr. AIA, NOMA
City Architect
Edward D. Rice, AIA
Project Architect
Kevin L. Herlika, AIA
Project Architect
Thomas A. Heister, Sr., AIA, NOMA
Project Architect
David R. Pagitt
Supervisor, Architectural Drafting
Kinsey C. Tillman
Drafting Technician
Jerry P. Sanders
Drafting Technician
Byron K. Thomas
Drafting Technician

MEP CONSULTANT
GRINER ENGINEERING, INC.
1628 1st AVENUE NORTH
ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
ROGAL-TGA CONSULTING
ENGINEERS, INC.
124 5th AVENUE SOUTH, SUITE B
SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
GOLDER ASSOCIATES, INC.
5102 W. LEMON STREET #14
TAMPA, FL 33609

LANDSCAPE CONSULTANT
DAVID CONNER & ASSOCIATES
1503 W. SWANN AVENUE, SUITE 255
TAMPA, FL 33606

FIRE STATION 19
7910 INTERBAY BLVD.
TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD018

ISSUE DATE
MAY 31, 2018

DRAWN BY

REVISIONS

△
△
△

SEAL

SCALE: NOT TO SCALE

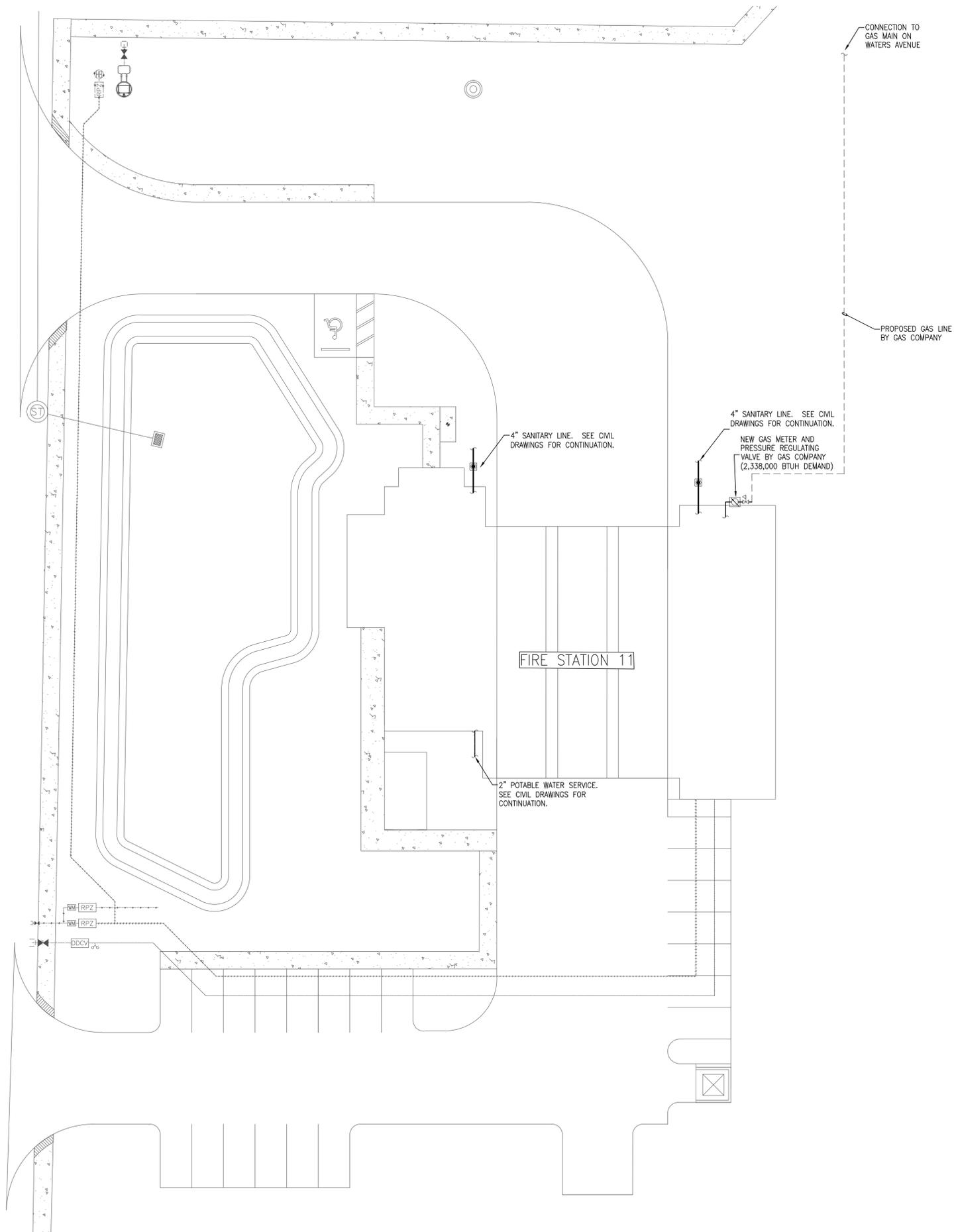
MECHANICAL SPECIFICATIONS

SHEET NUMBER

M-7.3

XXX OF XXX

	GRINER ENGINEERING, INC.	Date	05/31/2018
	1628 First Avenue North	Drawn	ABC
	St. Petersburg, Florida 33713	Designed	ABC
	Phone: (727) 832-2355	FOR	JHG
	Fax: (727) 821-3361	Job no.	12032
Certificate of Authorization #3173			



N
PLUMBING SITE PLAN
 SCALE: 1/16" = 1'-0"



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS

- △
- △
- △

SEAL

SCALE: 1/8" = 1'-0"

PLUMBING SITE PLAN

SHEET NUMBER

P-2.0
 X OF X

G	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727)-822-2335	EOR	JHG
	Fax: (727)-821-3361	Job no.	12032
	Certificate of Authorization #3173		



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8089
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS

△	
△	
△	

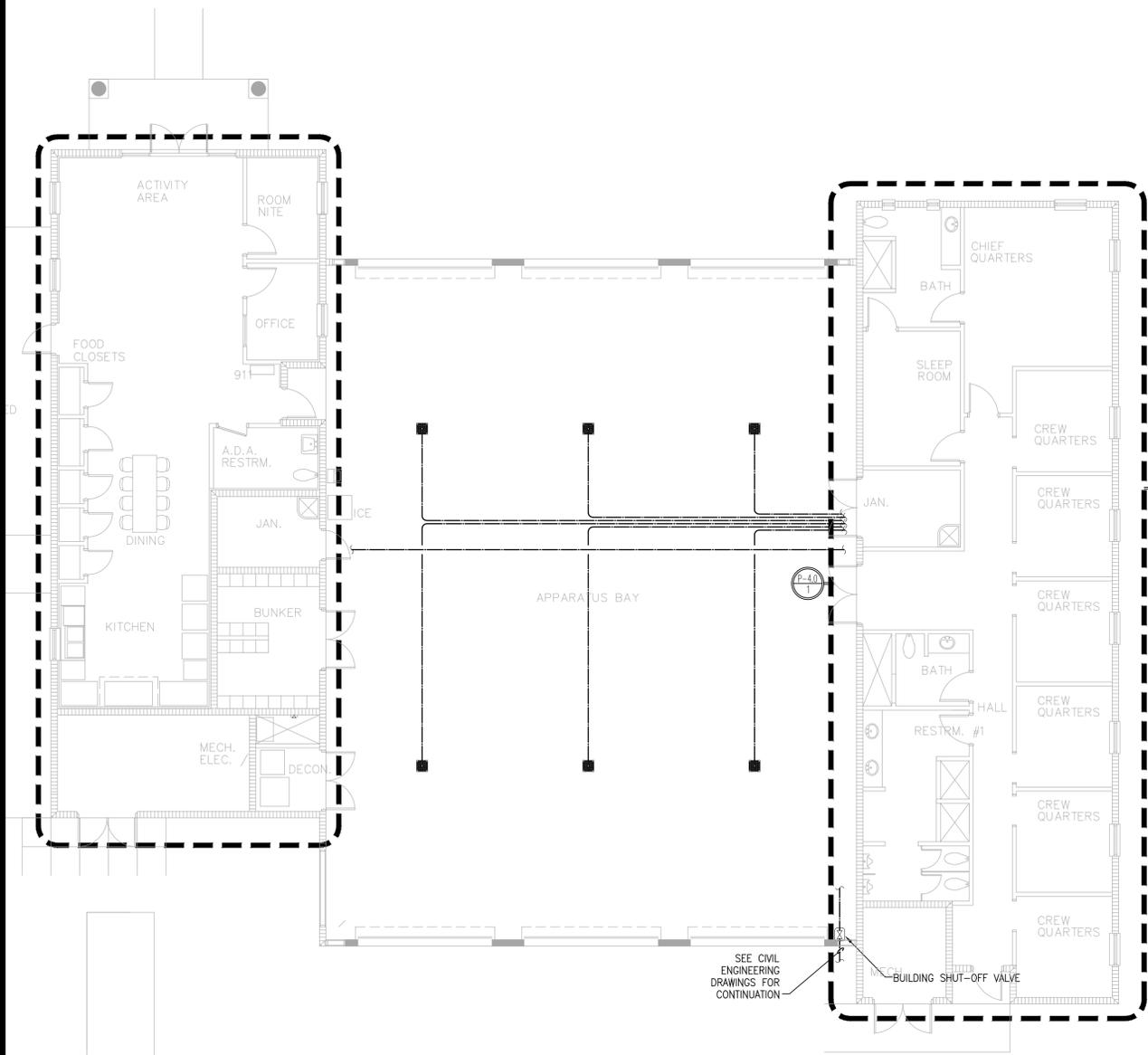
SEAL

SCALE: 1/8" = 1'-0"

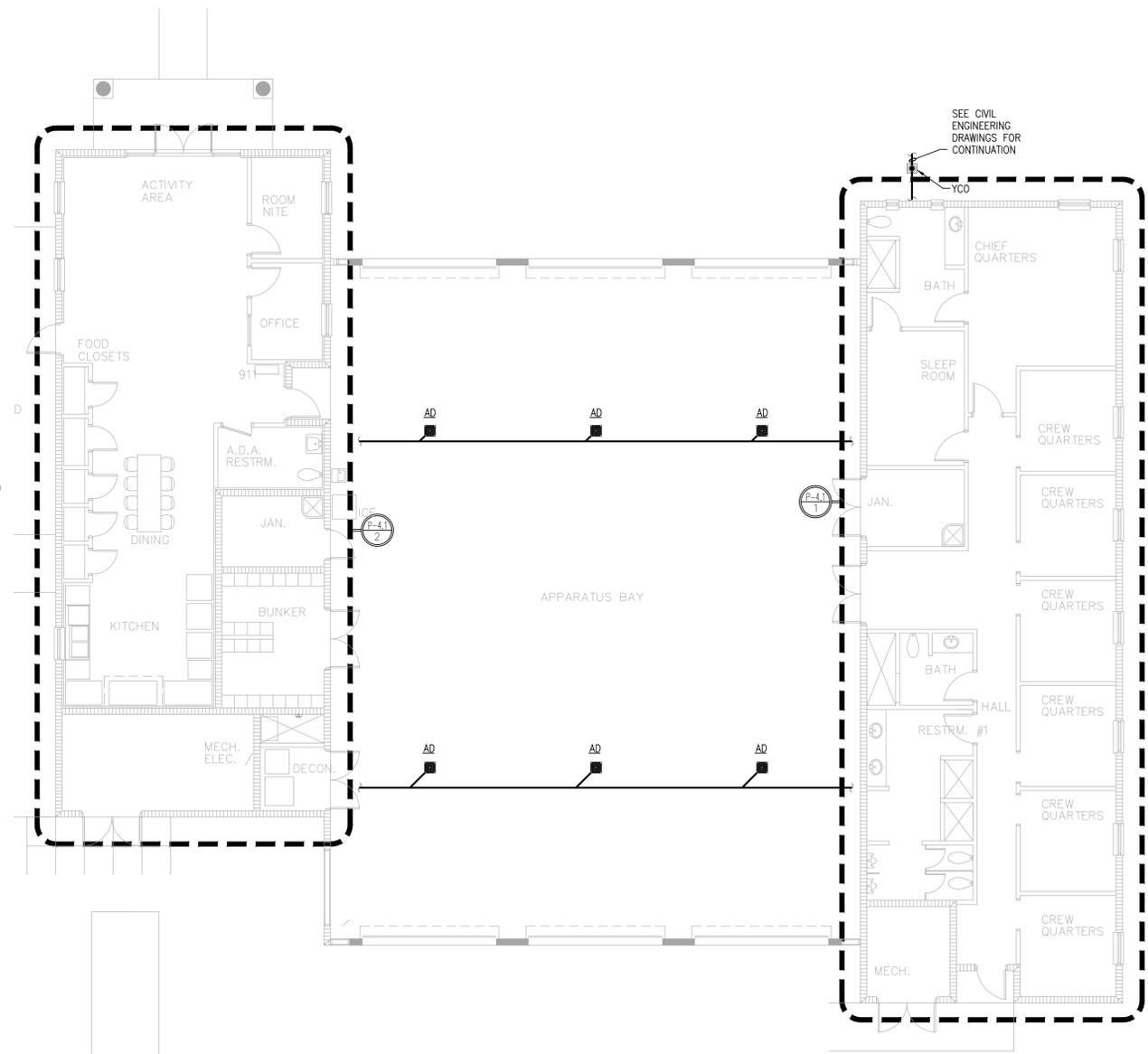
OVERALL PLUMBING SUPPLY AND SANITARY PLANS

SHEET NUMBER

P-3.0
 X OF X

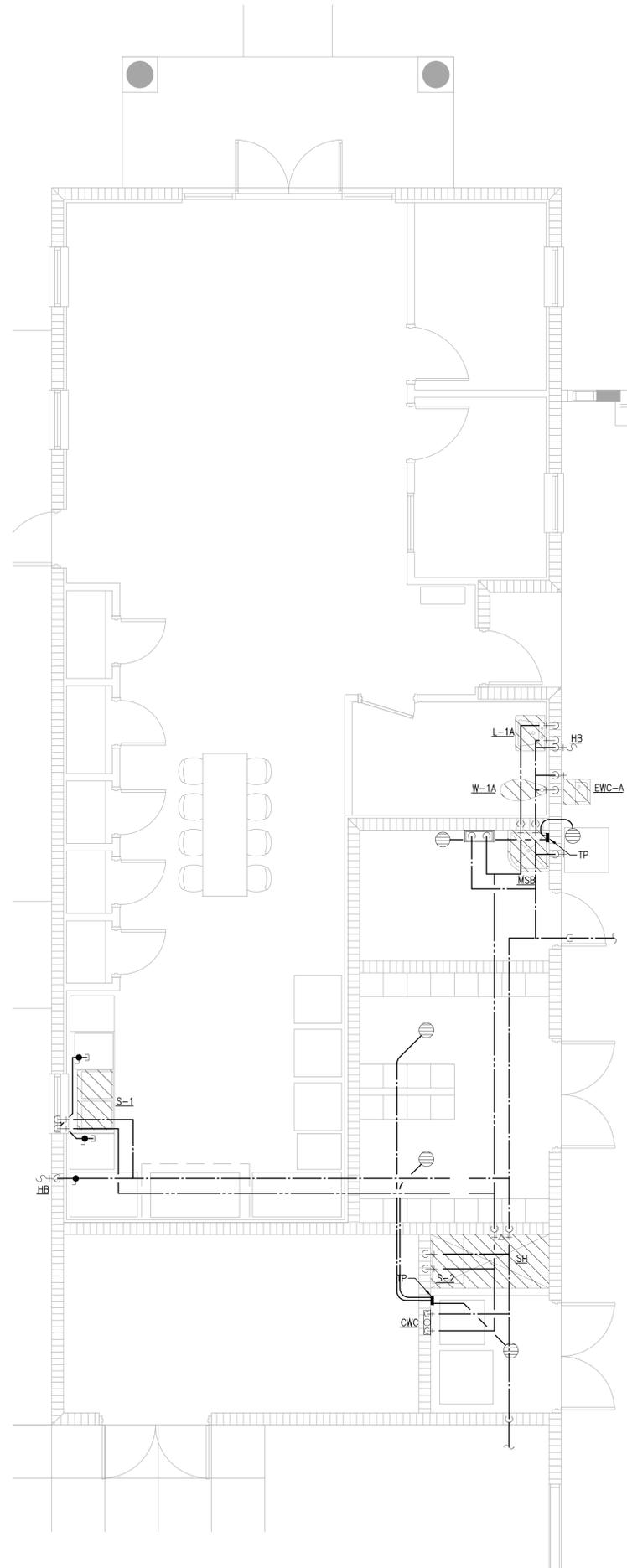


OVERALL SUPPLY PLAN
 SCALE: 1/8" = 1'-0"

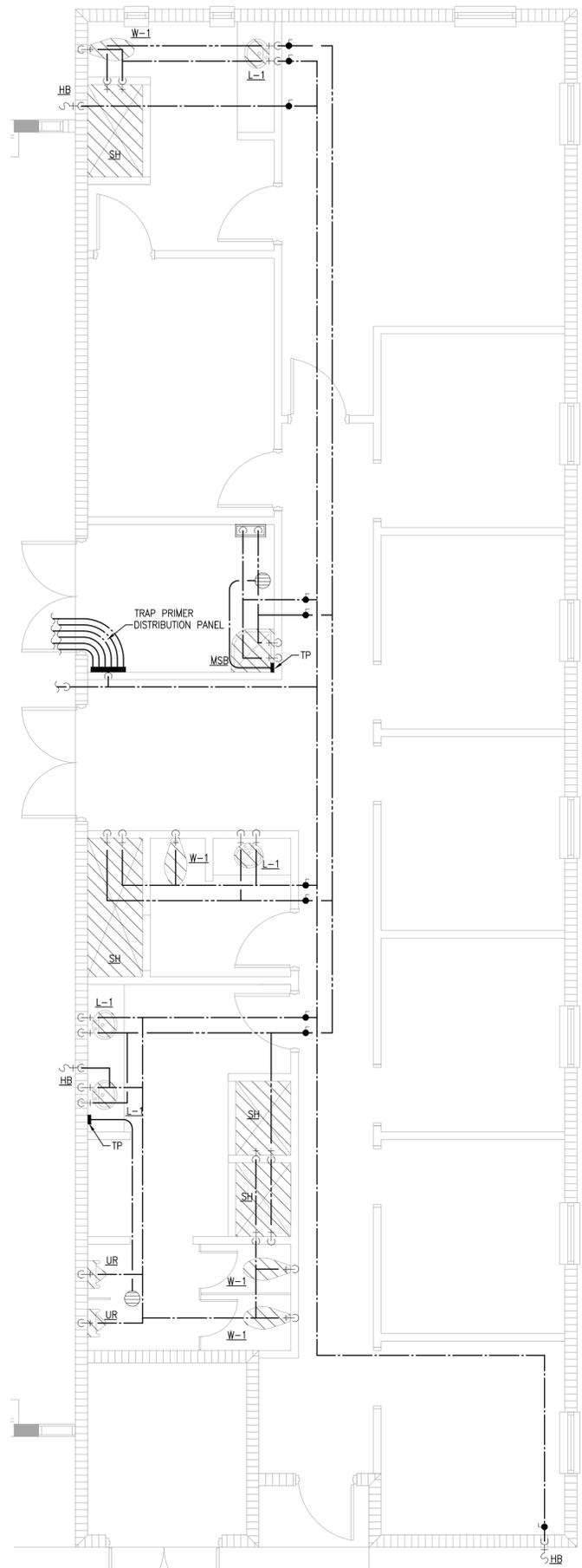


OVERALL SANITARY PLAN
 SCALE: 1/8" = 1'-0"

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3161	Job no.	12032
Certificate of Authorization #3173			



PARTIAL SUPPLY PLAN 1
SCALE: 1/4" = 1'-0"



PARTIAL SUPPLY PLAN 2
SCALE: 1/4" = 1'-0"

G	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3361	Job no.	12032
Certificate of Authorization #3173			



CITY OF TAMPA
CONTRACT ADMINISTRATION
DEPARTMENT
PLANNING AND DESIGN DIVISION
306 E. JACKSON STREET 4 NORTH
TAMPA, FLORIDA 33602
p: 813. 274. 8456 - f: 813. 274. 8080
url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
City Architect
Edward D. Rice, AIA
Project Architect
Kevin L. Henika, AIA
Project Architect
Thomas A. Hester, Sr., AIA, NOMA
Project Architect
David R. Pagitt
Supervisor, Architectural Drafting
Kinsey C. Tillman
Drafting Technician
Jerry P. Sanders
Drafting Technician
Byron K. Thomas
Drafting Technician

MEP CONSULTANT
GRINER ENGINEERING, INC.
1628 1st. AVENUE NORTH
ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
ROGAL-TGA CONSULTING
ENGINEERS, INC.
124 5th AVENUE SOUTH, SUITE B
SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
GOLDER ASSOCIATES, INC.
5100 W. LEMON STREET #114
TAMPA, FL 33609

LANDSCAPE CONSULTANT
DAVID CONNER & ASSOCIATES
1509 W. SWANN AVENUE, SUITE 255
TAMPA, FL 33606

FIRE STATION 19
7910 INTERBAY BLVD.
TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD0116

ISSUE DATE
MAY 31, 2013

DRAWN BY

REVISIONS
△
△
△

SEAL

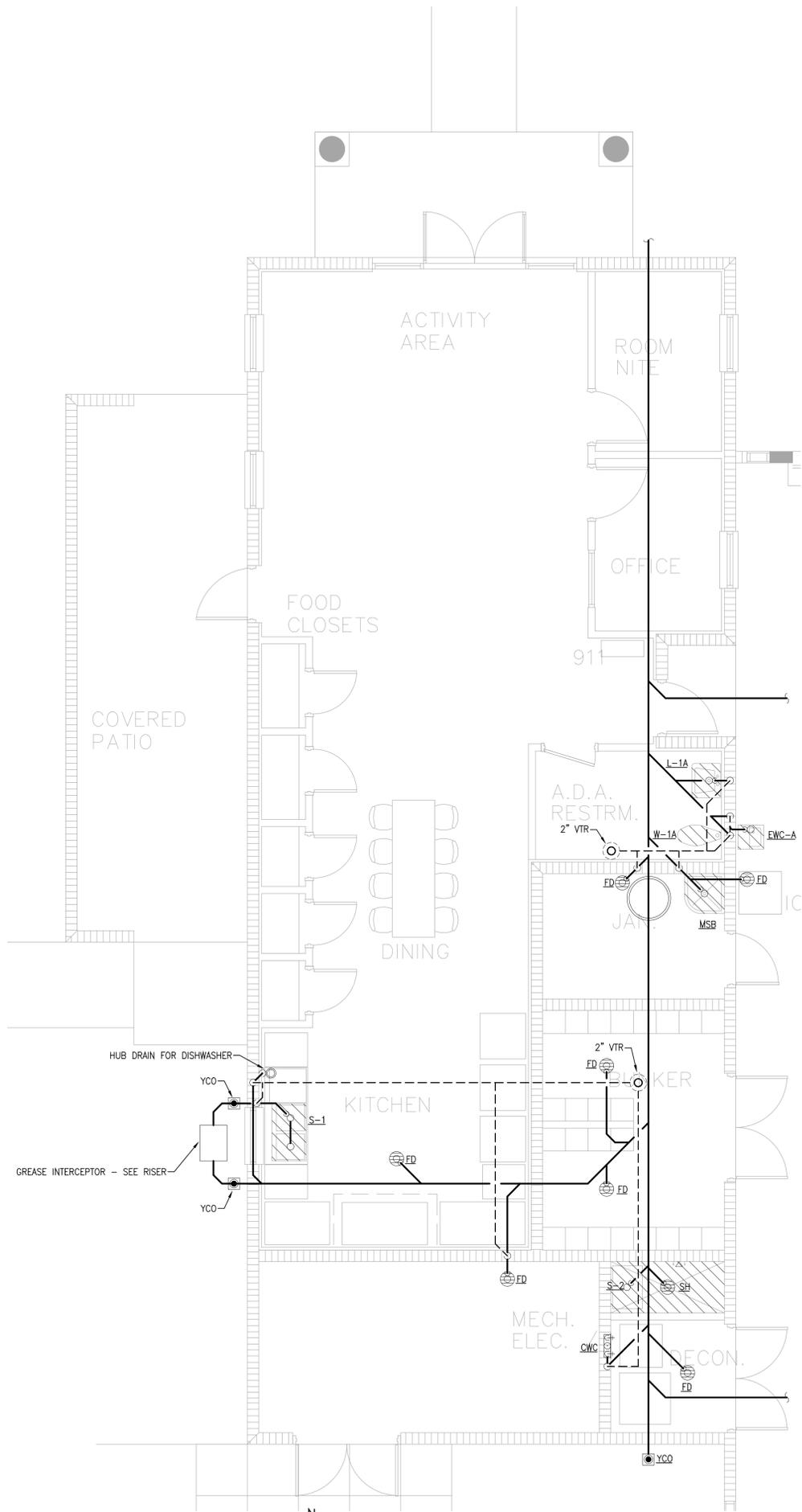
SCALE: 1/4" = 1'-0"

ENLARGED PARTIAL PLUMBING
SUPPLY PLANS

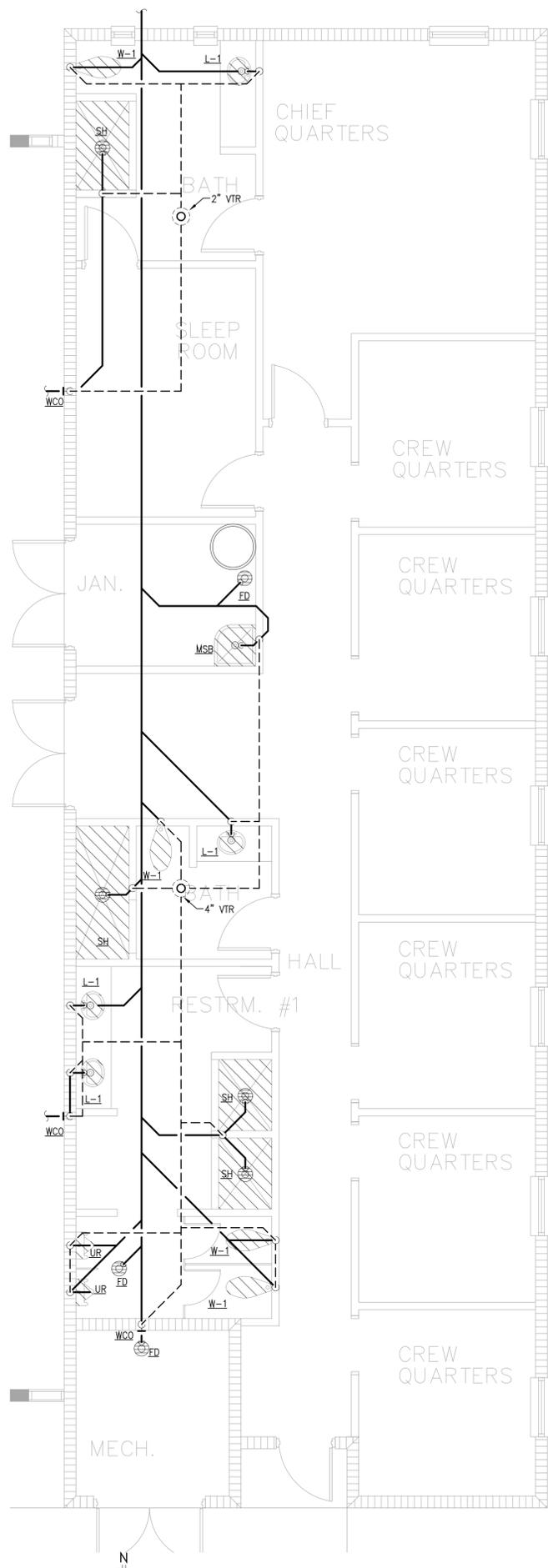
SHEET NUMBER

P-4.0

X OF X



PARTIAL SANITARY PLAN 1
SCALE: 1/4" = 1'-0"



PARTIAL SANITARY PLAN 2
SCALE: 1/4" = 1'-0"

G	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3761	Job no.	12032



CITY OF TAMPA
CONTRACT ADMINISTRATION
DEPARTMENT
PLANNING AND DESIGN DIVISION
306 E. JACKSON STREET 4 NORTH
TAMPA, FLORIDA 33602
p: 813. 274. 8456 - f: 813. 274. 8080
url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
City Architect
Edward D. Rice, AIA
Project Architect
Kevin L. Henika, AIA
Project Architect
Thomas A. Hester, Sr., AIA, NOMA
Project Architect
David R. Pagitt
Supervisor, Architectural Drafting
Kinsey C. Tillman
Drafting Technician
Jerry P. Sanders
Drafting Technician
Byron K. Thomas
Drafting Technician

MEP CONSULTANT
GRINER ENGINEERING, INC.
1628 1st. AVENUE NORTH
ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
ROGAL-TGA CONSULTING
ENGINEERS, INC.
124 5th AVENUE SOUTH, SUITE B
SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
GOLDER ASSOCIATES, INC.
5100 W. LEMON STREET #114
TAMPA, FL 33609

LANDSCAPE CONSULTANT
DAVID CONNER & ASSOCIATES
1509 W. SWANN AVENUE, SUITE 255
TAMPA, FL 33606

FIRE STATION 19
7910 INTERBAY BLVD.
TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD0116

ISSUE DATE
MAY 31, 2013

DRAWN BY

REVISIONS
 ▲
 ▲
 ▲

SEAL

SCALE: 1/4" = 1'-0"

ENLARGED PARTIAL PLUMBING
SANITARY PLANS

SHEET NUMBER

P-4.1
X OF X



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 P: 813. 274. 8456 - F: 813. 274. 8089
 URL: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Heister, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS
 ▲ _____
 ▲ _____
 ▲ _____

SEAL

SCALE: N.T.S.

PLUMBING SCHEDULES

SHEET NUMBER

P-5.0
 OF _____

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North St. Petersburg, Florida 33713	Drawn	ADB
	Phone: (727) 822-2335 Fax: (727) 821-3361	Designed	ADB
	Certificate of Authorization #3173	EOR	JHG
		Job no.	12032

WATER HEATER SCHEDULE

MARK	MAKE & MODEL	TYPE	DIMENSIONS	STORAGE (GALLONS)	EFFICIENCY	CAPACITY (GPM)	INPUT (BTUH)	FLUE (INCHES)	ELECTRICAL				NOTES	
									NUM OF ELEMENTS	KW EA	KW TOTAL	VOLTAGE		PHASE
GWH-1	BOSCH GREENTHERM C 1050ES	GAS TANKLESS	17 1/8" X 30 1/2" X 11 1/4"	--	94%	6.7@55°F	199,000 MAX	4" PVC	--	--	--	--	--	1,2,3,4,5

NOTES:
 1. PROVIDE FACTORY INSTALLED HEAVY DUTY ELECTRICAL JUNCTION BOX, CONTROLS, WITH T-STATS SET ON 120°F.
 2. INSTALL WATER HEATER IN ACCORDANCE TO SPC, SMC CODES, NEC, AND APPLICABLE STANDARDS AND MANUFACTURERS RECOMMENDATIONS.
 3. CONTACT MANUFACTURERS REPRESENTATIVE FOR HEATERS ELECTRICAL DATA BEFORE FINAL ORDER IS MADE.
 4. INSTALL WATER HEATER IN ACCORDANCE WITH BUILDING CODE - PLUMBING & MECHANICAL (WITH LATEST AMENDMENTS) CODES, ENERGY CODE, AND APPLICABLE STANDARDS AND MANUFACTURERS RECOMMENDATIONS.
 5. PROVIDE BRASS DRAIN VALVE, & ALL REQUIRED OPTIONS TO COMPLETE THE INSTALLATION.
 6. PROVIDE FACTORY INSTALLED HEAVY DUTY ELECTRICAL JUNCTION BOX, CONTROLS, WITH T-STATS SET ON 180°F.

PLUMBING SPECIALTIES SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL/PART NUMBER	DETAILED DESCRIPTION
AAV	AIR ADMITTING VALVE	STUDOR	MINI-VENT	INSTALL VALVE IN SINK CABINET
AD	AREA DRAIN	ZURN	ZN415-SS-P	DURA-COATED CAST IRON BODY DRAIN W/TRAP PRIMER CONNECTION & 5" SQUARE TYPE "S" STRAINER
BWV	BACKWATER VALVE	ZURN	Z1088	GATE TYPE BACKWATER VALVE
BWV	BACKWATER VALVE	ZURN	Z1099	BALL FLOAT TYPE BACKWATER VALVE
CPRV	CALIBRATED PRESSURE RELIEF VALVE	WATTS	MODEL 540C	INSTALL A MINIMUM OF 12" ABOVE WATER HEATER AND PIPE DISCHARGE TO ADEQUATE LOCATION
DB	DOWNSPOUT BOOT	ZURN	Z191	DOWNSPOUT BOOT, 5"x4" INLET AND 4"Ø OUTLET
DB	DOWNSPOUT BOOT	ZURN	Z191-RD	DOWNSPOUT BOOT, 4"Ø INLET AND 4"Ø OUTLET
DB	DOWNSPOUT BOOT	ZURN	Z192	DOWNSPOUT BOOT, 4"x3" INLET AND 4"Ø OUTLET
DCBFP	DOUBLE CHECK BFP	WATTS	SERIES 7	ALL BRASS BODY, FOR POINT OF USE CONNECTION
FCO	FLOOR CLEANOUT	ZURN	ZN1400	DURA-COATED CAST IRON BODY WITH THREADED PLUG AND POLISHED NICKEL BRONZE TOP
FD	FLOOR DRAIN	ZURN	ZN415-P-7B	DURA-COATED CAST IRON BODY WITH 3" BOTTOM OUTLET, TRAP PRIMER CONNECTION AND TYPE "B" STRAINER
FD	FLOOR DRAIN WITH FUNNEL	ZURN	ZN415-P-7E	DURA-COATED CAST IRON BODY WITH 3" BOTTOM OUTLET, TRAP PRIMER CONNECTION AND STRAINER WITH 4"Ø FUNNEL
FS	FLOOR SINK	ZURN	Z1910-23	8"x8"x6" CAST IRON FLOOR RECEPTOR WITH ALUMINUM BUCKET AND SQUARE SLOTTED GRATE
FSH	FLOOR SINK - HALF GRATE	ZURN	Z1910-2-23	8"x8"x6" CAST IRON FLOOR RECEPTOR WITH ALUMINUM BUCKET AND SQUARE SLOTTED 1/2 GRATE
FSQ	FLOOR SINK - THREE QUARTER GRATE	ZURN	Z1910-3-23	8"x8"x6" CAST IRON FLOOR RECEPTOR WITH ALUMINUM BUCKET AND SQUARE SLOTTED 3/4 GRATE
HB	HOSE BIBB	WOODFORD	24P3PC	POLISHED CHROME FINISH WITH INTEGRAL VACUUM BREAKER
HD	HUB DRAIN	ZURN	Z326-DB	INDIRECT WASTE FUNNEL WITH DURA-COATED CAST IRON BODY AND BOTTOM DOME STRAINER
NWH	NARROW WALL HYDRANT	ZURN	Z1350	BRONZE BODY, KEY OPERATED VALVE, STAINLESS STEEL BOX WITH LOCK, MODERATE CLIMATE
RD	ROOF DRAIN	ZURN	ZC100-AC-GD	15"Ø ROOF DRAIN, DURA-COATED CAST IRON, ANGULAR UNDERDECK MEMBRANE CLAMP AND GALVANIZED DOME
RO	ROOF OVERFLOW DRAIN	ZURN	ZC100-AC-GD-89	15"Ø ROOF DRAIN, DURA-COATED CAST IRON, ANGULAR UNDERDECK MEMBRANE CLAMP, GALVANIZED DOME AND 2" DAM
RON	ROOF OVERFLOW NOZZLE	ZURN	Z199	DOWNSPOUT NOZZLE, NICKEL BRONZE BODY, THREADED INLET AND DECORATIVE WALL FLANGE AND OUTLET NOZZLE
RPBFP	REDUCED PRESSURE BACKFLOW PREVENTOR	WATTS	909-OT-S	ALL BRASS BODY, ASSEMBLY SHALL INCLUDE STRAINER AND BALL SHUT OFF VALVES
SA	WATER HAMMER ARRESTOR	ZURN	Z1700	ALL STAINLESS STEEL CONSTRUCTION, 3/4" & 1", SIZE PER MANUFACTURER'S RECOMMENDATIONS
TP	TRAP PRIMER	ZURN	Z1022	ALL BRASS BODY WITH INTEGRAL VACUUM BREAKER (ADDITIONAL OUTLET DISTRIBUTION UNIT AS REQUIRED)
VB	VACUUM BREAKER	WATTS	SERIES 8	BRASS BODY, CHROME FINISH
WCO	WALL CLEANOUT	ZURN	Z1446	DURA-COATED CAST IRON CLEANOUT TEE WITH THREADED PLUG AND ROUND STAINLESS STEEL ACCESS COVER
WH	WALL HYDRANT	ZURN	Z1335	BRONZE BODY, KEY OPERATED VALVE, NICKEL BRONZE BOX WITH LOCK, MODERATE CLIMATE
WH	WALL HYDRANT	ZURN	Z1305	BRONZE BODY, KEY OPERATED VALVE, NICKEL BRONZE BOX WITH LOCK, FREEZING CLIMATE
YCO	YARD CLEANOUT	ZURN	Z1474	HEAVY DUTY DURA-COATED CAST IRON CLEANOUT HOUSING WITH SECURE SCORRIATED COVER

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE, MODEL NUMBER AND DESCRIPTION	ROUGH-IN			
		WASTE	VENT	CW	HW
CWC	OATEY 38957 OFFSET DRAIN WASHING MACHINE OUTLET BOXES 2" DRAIN OPENING FITS PVC OR ABS SCHEDULE 40 DWV PIPE, BOX MADE OF HIGH IMPACT POLYSTYRENE, 1/2 TURN BRASS BALL VALVES - COPPER SWEAT - STANDARD PACK	3"	2"	1/2"	1/2"
L-1	LAVATORY, COUNTERTOP MOUNTED, AMERICAN STANDARD 0475.047 WHITE, 20 3/8x17 1/2 "AQUALYN", VITREOUS CHINA, FRONT OVERFLOW. T&S EC-3102 "CHECKPOINT" ELECTRONIC FAUCET, CHROME PLATED. PROFLO M155A 1 1/2" CHROME PLATED DRAIN. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	1/2"	1/2"
L-1A	ADA COMPLIANT LAVATORY, WALL HUNG, AMERICAN STANDARD 0356.421 WHITE, 20 1/2x18 1/2 "LUCERNE", VITREOUS CHINA, FRONT OVERFLOW. T&S EC-3102 "CHECKPOINT" ELECTRONIC FAUCET, CHROME PLATED. PROFLO M155A 1 1/2" CHROME PLATED DRAIN. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	1/2"	1/2"
MSB	MOP SINK, FIAT MSB2424, MOLDED STONE, 24x24x12, SERVICE FAUCET PLATE #830-AA, HOSE AND HOSE BRACKET PLATE #832-AA, BUMPER GUARD PLATE #E-77-AA, WITH INTEGRAL DRAIN. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	1/2"	1/2"
S-1	TWO COMPARTMENT SINK, ELKAY LUSTERTONE LR-3321, 33x21 1/4 STAINLESS STEEL 18 GAUGE, SELF RIM, 3 FAUCET HOLE, ELKAY FAUCET LK-4100 SINGLE LEVER, LK335 DUO STRAINER, STAINLESS STEEL BODY WITH CUP STRAINER. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	1/2"	1/2"
S-2	SCRUB SINK, ELKAY #EWS-2520-F-C 22x16 COMPARTMENT, LK-398-C DOUBLE FOOT PEDAL VALVE WITH 1/2" INLETS, LK-395CP 9" GOOSENECK SPOUT, AND LK-18-B STAINLESS STEEL GRID DRAIN. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	1/2"	1/2"
SH	SHOWER, DELTA #R1000-IP PRESSURE BALANCING SHOWER MIXING VALVE WITH #T13291 MONITOR SERIES WALL MOUNTED SHOWER TRIM. JAY R. SMITH #2010-A SHOWER DRAIN WITH 5" DIAMETER ROUND NICKEL BRONZE TOP. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	1/2"	1/2"
UR	URINAL, WALL HUNG, AMERICAN STANDARD 6590.505 WHITE "WASHBROOK" VITREOUS CHINA URINAL. 3/4" TOP SPUD, SLOAN 8186-0.5 "OPTIMA G2 PLUS" AUTOMATIC FLUSH VALVE (1.5 GPF), ZURN Z1221 CARRIER. MOUNT AT STANDARD HEIGHT A.F.F. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	3/4"	--
W-1	WATER CLOSET, WALL HUNG, AMERICAN STANDARD 3351.712 WHITE "AFWALL" ELONGATED BOWL. 1 1/2" TOP SPUD, VITREOUS CHINA, CENTOCO 1500CCSSWH OPEN FRONT SEAT LESS COVER, SLOAN 8111-1.28 "OPTIMA G2 PLUS" AUTOMATIC FLUSH VALVE (1.28 GPF), ZURN Z1208 CARRIER. PROVIDE ALL ITEMS NEEDED FOR COMPLETE INSTALLATION.	3"	2"	1"	--
W-1A	ADA COMPLIANT WATER CLOSET, WALL HUNG, AMERICAN STANDARD 3351.712 WHITE "AFWALL" ELONGATED BOWL. 1 1/2" TOP SPUD, VITREOUS CHINA, CENTOCO 1500CCSSWH OPEN FRONT SEAT LESS COVER, SLOAN 8111-1.28 "OPTIMA G2 PLUS" AUTOMATIC FLUSH VALVE (1.28 GPF), ZURN Z1208 CARRIER. MOUNT 17" TO RIM. PROVIDE ALL ITEMS NEEDED FOR COMPLETE INSTALLATION.	3"	2"	1"	--
EW-C-A	ADA COMPLIANT ELECTRIC WATER COOLER, ELKAY EZSTL8C, BARRIER FREE WALL MOUNTED BI-LEVEL WATER COOLER; WATTS 5-YR IN-LINE WATER FILTER; ZURN Z-1225-BL WATER COOLER SUPPORT SYSTEM WITH TOP AND BOTTOM PLATES. PROVIDE CARRIER, TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	2"	2"	1/2"	--

NOTES:
 1. LAVATORY & WATER COOLERS SUPPLY SHALL BE BRASS W/ BRASS ANGLE STOPS FOR 1/2" WATER SUPPLY LINES, W/ LOOSE KEY (W/CAP), AND WALL FLANGE. ALL COMPONENTS SHALL BE POLISHED CHROME FINISH. MANUFACTURER: BRASS CRAFT OR APPROVED EQUAL.
 2. CAST BODY "P" TRAP 1/4" x 1/2" WITH HEAVY CAST J-BEND & FLAT CLEANOUT PLUG, SLIP NUTS AND WALL FLANGE. ALL COMPONENTS SHALL BE POLISHED CHROME FINISH. MANUFACTURER: BRASS CRAFT OR APPROVED EQUAL.
 3. STRAINERS SHALL BE FURNISHED WITH FIXTURES AS REQUIRED. FOR H/C LAVATORY OR SINKS PROVIDE OFFSET TAILPIECE.
 4. PROVIDE TRUEBRO MODEL 103 (WHITE), ANTIMICROBIAL HANDI LAV-GUARDS INSTALLATION KIT FOR ALL WHEELCHAIR LAVATORY & SINKS FOR WATER SUPPLIES & WASTE LINE.
 5. PROVIDE WATER SUPPLY & "P" TRAP & OPTIONAL WATER FILTERS FOR ELECTRIC WATER COOLERS AS PER MANUFACTURERS RECOMMENDATIONS.
 6. SHOWER FLOOR & WALL ENCLOSURE WITH GLAZING BY GC.
 7. THE PLUMBING FIXTURES VENDOR SHALL COORDINATE WITH THE PLUMBING AND GENERAL CONTRACTOR ALL PLUMBING FIXTURES ROUGH IN DIMENSIONS BEFORE CONSTRUCTION BEGINS.
 8. UNLESS SHOWN ABOVE, PLUMBING FIXTURES MANUFACTURER, TRM COLOR AND FINISH SHALL BE FURNISHED AS DIRECTED BY OWNER/ARCHITECT.



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS
 △
 △
 △

SEAL

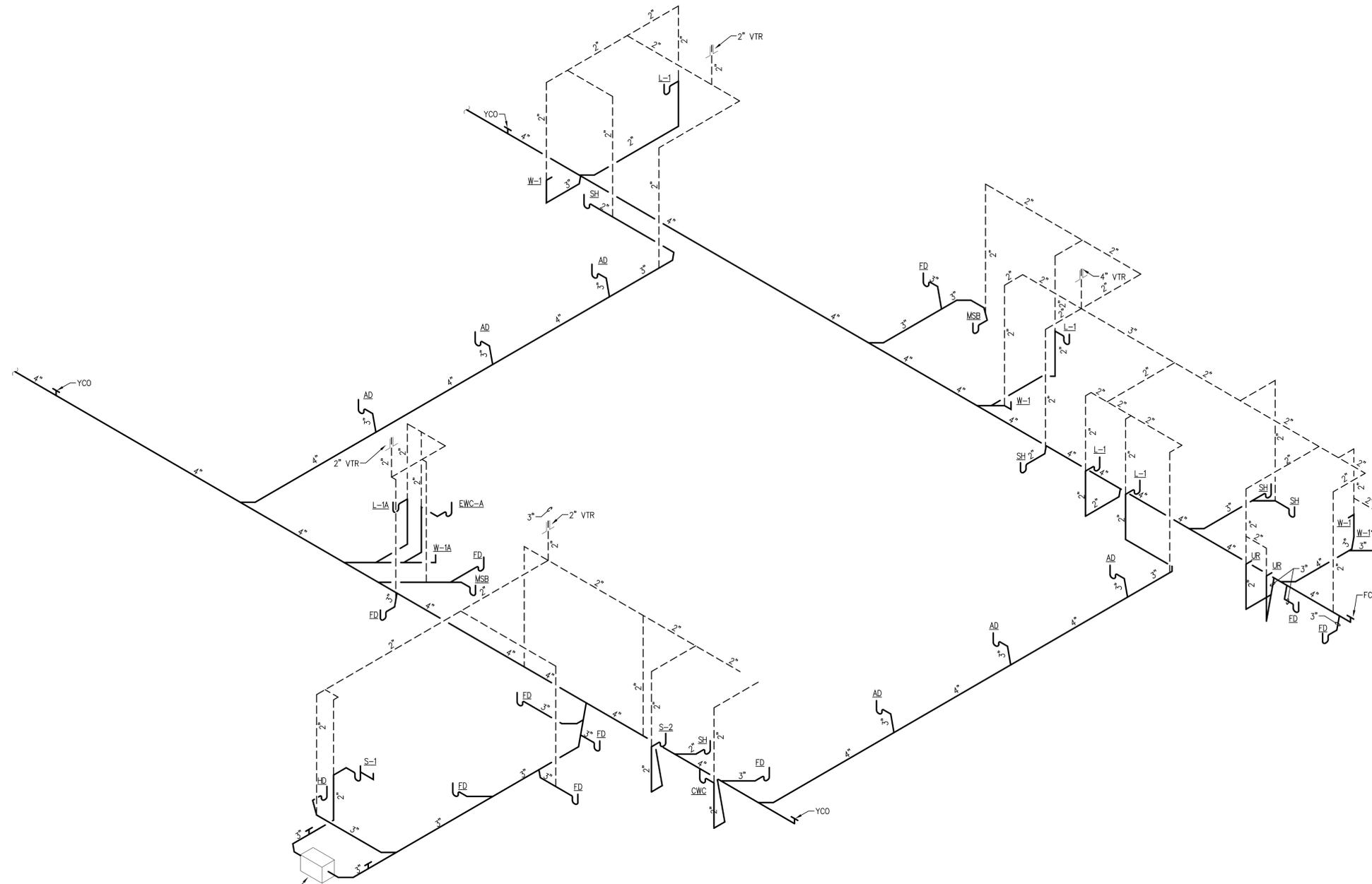
SCALE: N.T.S.

SANITARY RISER

SHEET NUMBER

P-6.1

OF



GREASE INTERCEPTOR
 SCHER "GREAT BASIN" MODEL # GB-15 (15 GPM, 74 LB CAPACITY)
 PDI SIZING METHOD:
 SINK BOWL (X2): 13.5" x 16" x 8"
 TOTAL CONTENTS: 3456 CUM.
 CAPACITY: 14.96 GALLONS
 DRAINAGE LOAD: 1122 GALLONS
 1122 GPM AT ONE MINUTE FLOW PERIOD

SANITARY RISER
 SCALE: NOT TO SCALE

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727)-822-2335	FOR	JHG
	Fax: (727)-821-3161	Job no.	12032
	Certificate of Authorization #3173		



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER _____

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY _____

REVISIONS
 ▲ _____
 ▲ _____
 ▲ _____

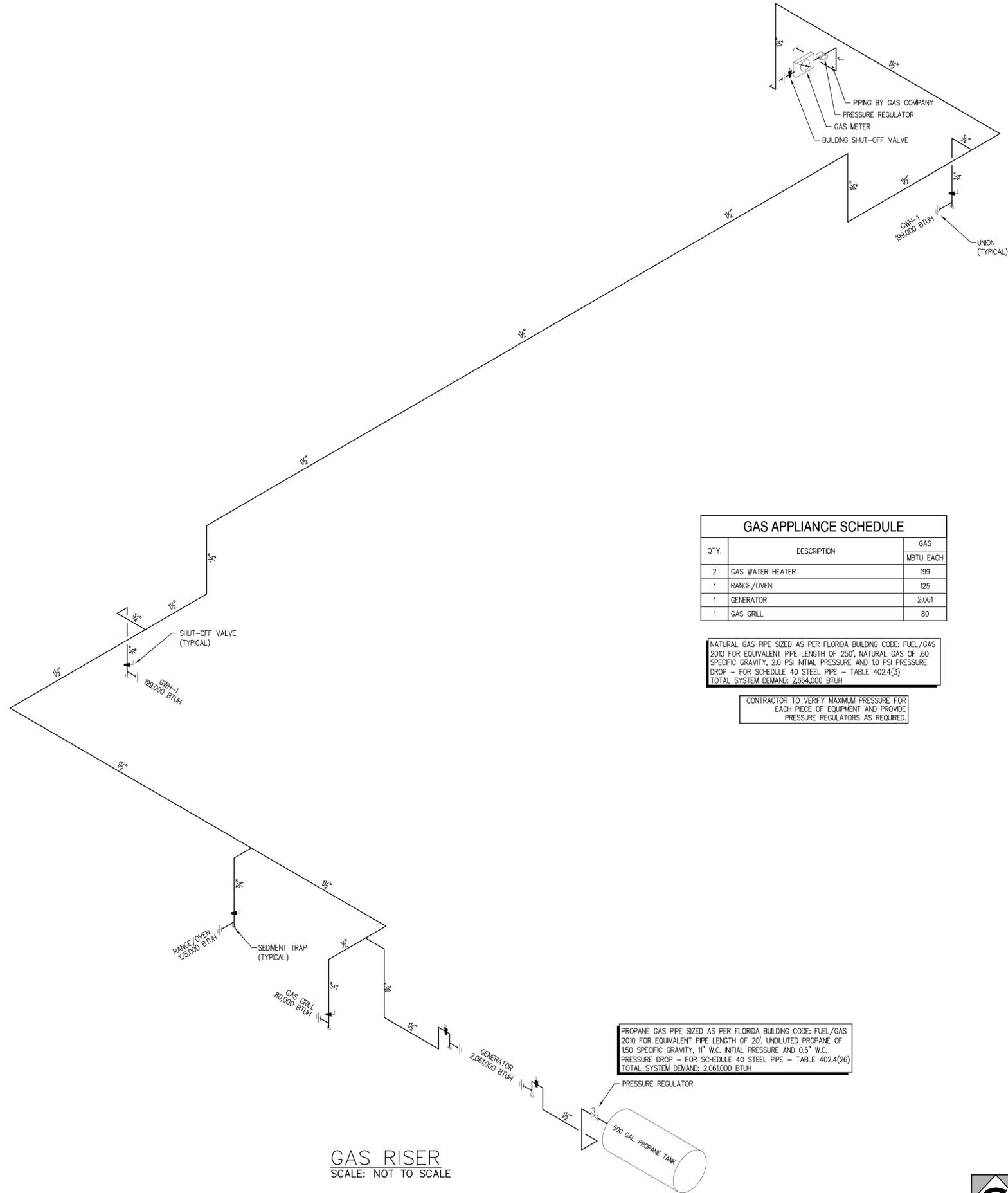
SEAL _____

SCALE: N.T.S.

GAS RISER

SHEET NUMBER

P-6.2
 OF _____



GAS APPLIANCE SCHEDULE		
QTY.	DESCRIPTION	GAS MBTU EACH
2	GAS WATER HEATER	199
1	RANGE/OVEN	125
1	GENERATOR	2,061
1	GAS GRILL	80

NATURAL GAS PIPE SIZED AS PER FLORIDA BUILDING CODE: FUEL/GAS 2010 FOR EQUIVALENT PIPE LENGTH OF 250', NATURAL GAS OF .60 SPECIFIC GRAVITY, 2.0 PSI INITIAL PRESSURE AND 1.0 PSI PRESSURE DROP - FOR SCHEDULE 40 STEEL PIPE - TABLE 402.4(3)
 TOTAL SYSTEM DEMAND: 2,664,000 BTUH

CONTRACTOR TO VERIFY MAXIMUM PRESSURE FOR EACH PIECE OF EQUIPMENT AND PROVIDE PRESSURE REGULATORS AS REQUIRED.

PROPANE GAS PIPE SIZED AS PER FLORIDA BUILDING CODE: FUEL/GAS 2010 FOR EQUIVALENT PIPE LENGTH OF 20', UNDLUTED PROPANE OF 1.50 SPECIFIC GRAVITY, 1" W.C. INITIAL PRESSURE AND 0.5" W.C. PRESSURE DROP - FOR SCHEDULE 40 STEEL PIPE - TABLE 402.4(26)
 TOTAL SYSTEM DEMAND: 2,061,000 BTUH

GAS RISER
 SCALE: NOT TO SCALE

G	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North St. Petersburg, Florida 33713	Drawn	ADB
	Phone: (727) 822-2335	Designed	ADB
	Fax: (727) 821-3161	FOR	JHG
	Certificate of Authorization #3173	Job no.	12032



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8089
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS
 ▲
 ▲
 ▲

SEAL

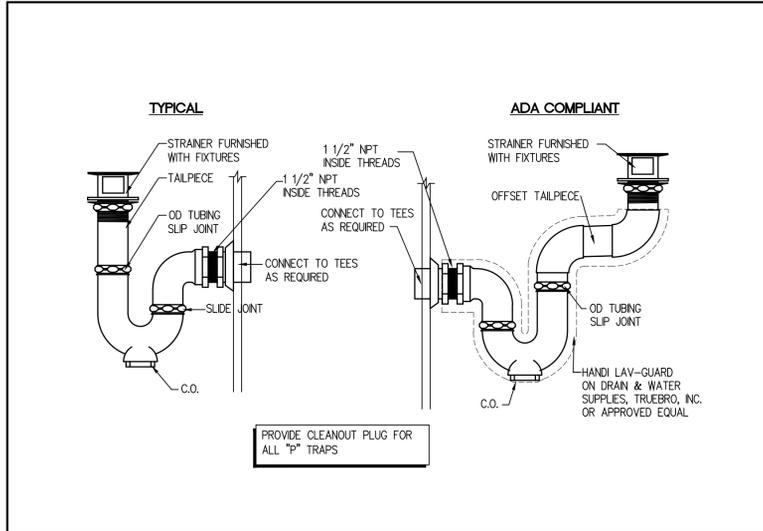
SCALE: N.T.S.

PLUMBING DETAILS

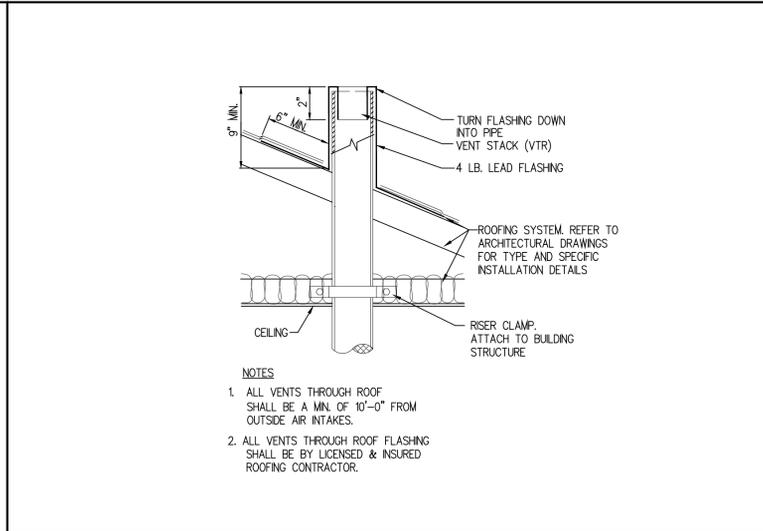
SHEET NUMBER

P-7.0
 OF

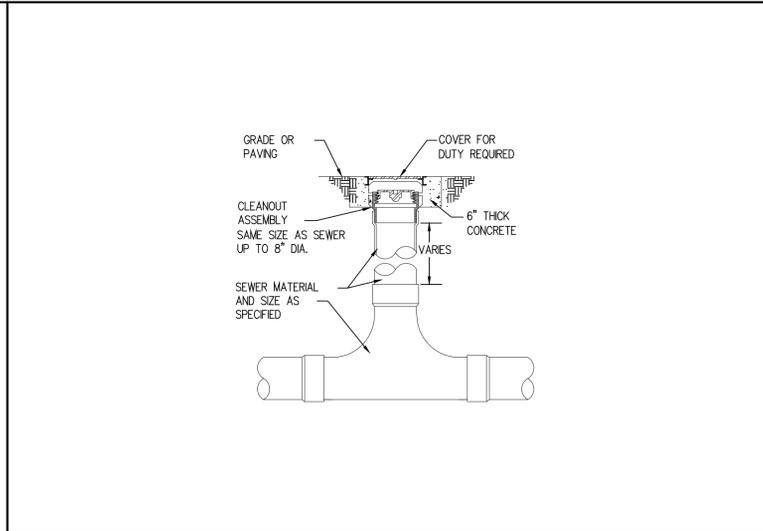
	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3761	Job no.	12032



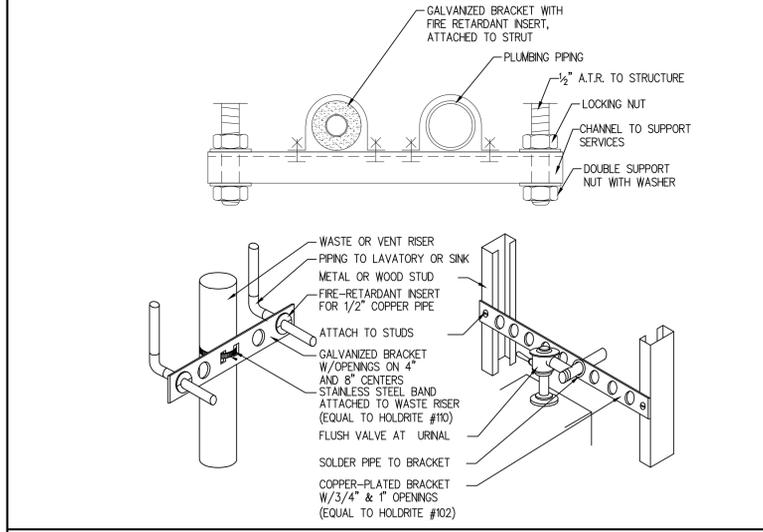
"P" TRAP WITH CLEANOUT DETAIL
 NOT TO SCALE



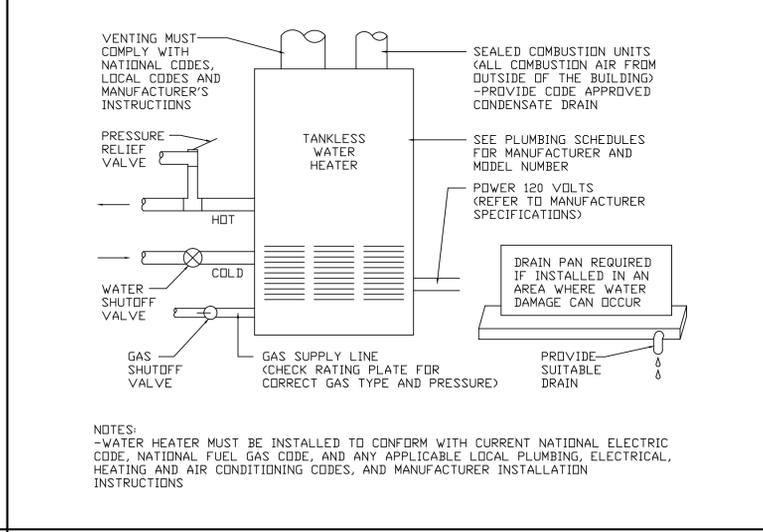
VENT THROUGH ROOF DETAIL
 NOT TO SCALE



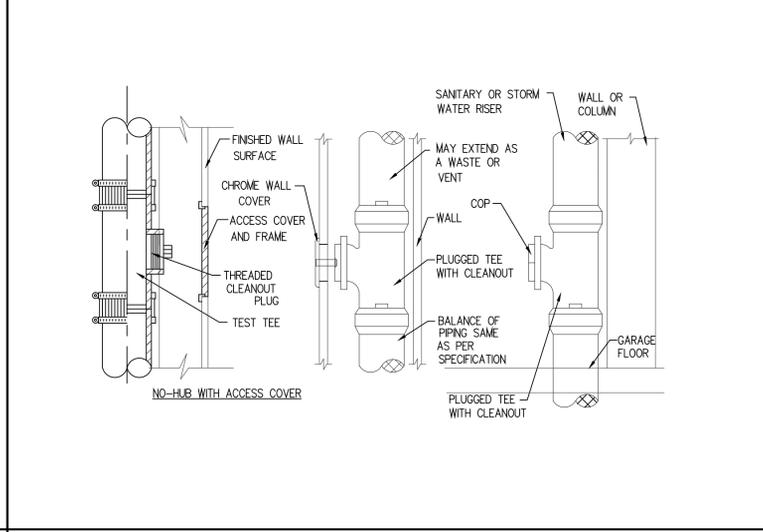
FLOOR AND YARD CLEANOUT DETAIL
 NOT TO SCALE



WATER PIPING SUPPORT DETAIL
 NOT TO SCALE



TANKLESS WATER HEATER DETAIL
 NOT TO SCALE



WALL AND RISER CLEANOUT DETAIL
 NOT TO SCALE



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS

△	
△	
△	

SEAL

SCALE: N.T.S.

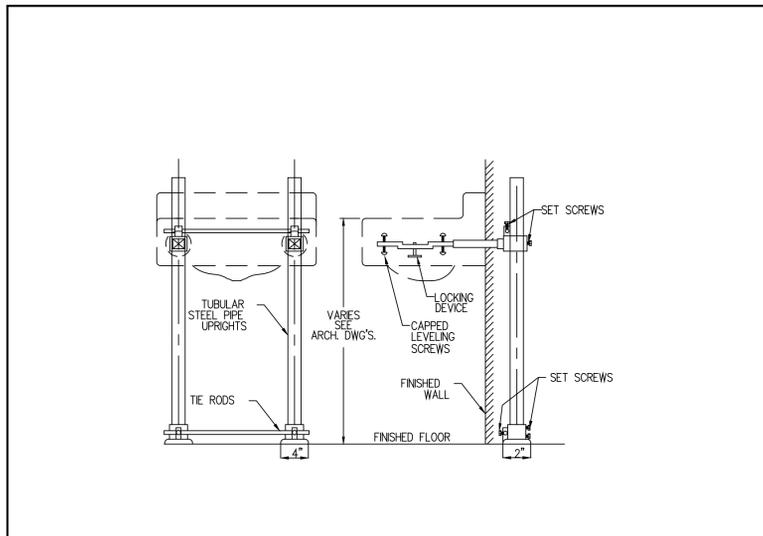
PLUMBING DETAILS

SHEET NUMBER

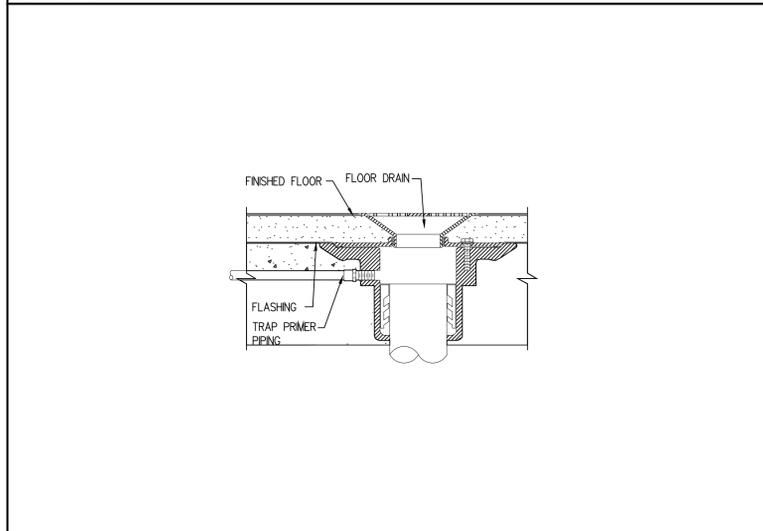
P-7.1

OF

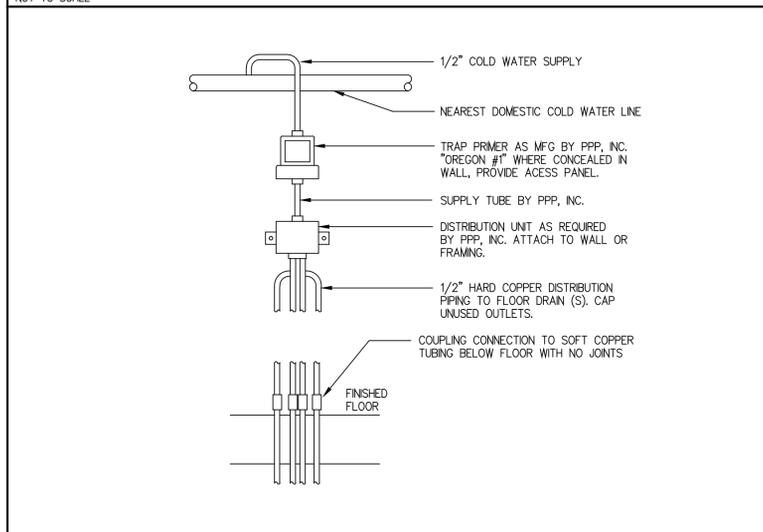
	GRINER ENGINEERING, INC.	Date	05/31/2013
	1629 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3361	Certificate of Authorization #3173	Job no.



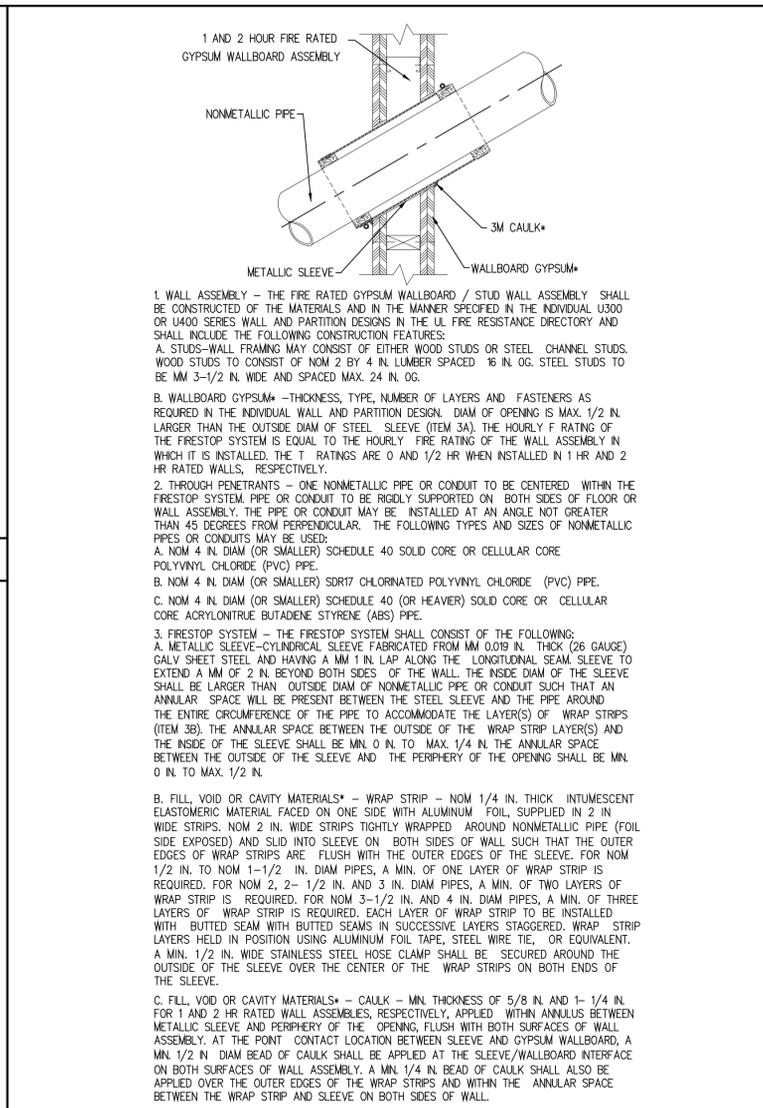
LAVATORY CARRIER
 NOT TO SCALE



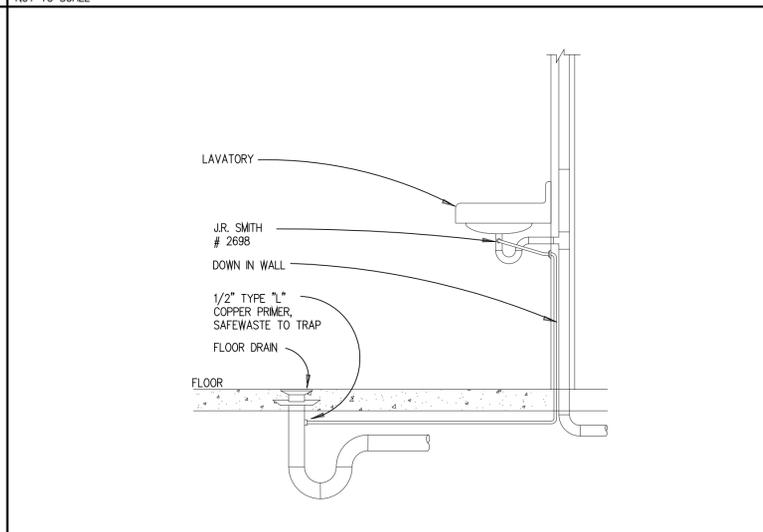
TRAP PRIMER CONNECTION DETAIL
 NOT TO SCALE



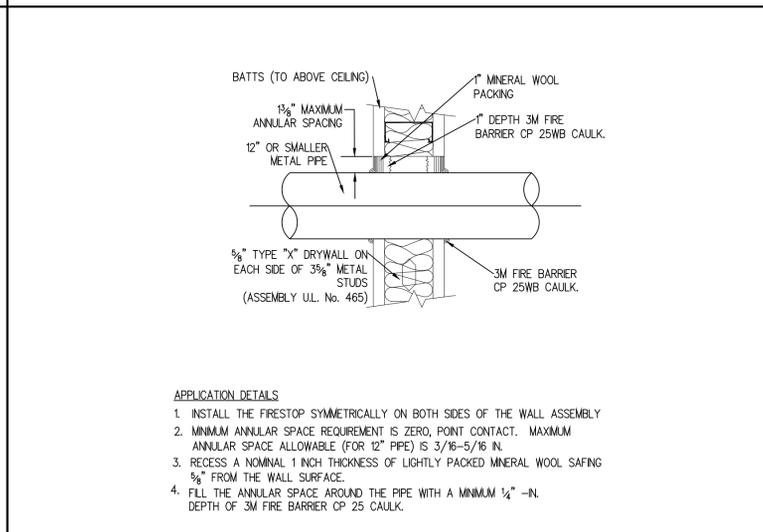
TRAP PRIMER DETAIL (OPTION 1)
 NOT TO SCALE



1 AND 2 HOUR FIRE RATED PENETRATION FOR PLASTIC PIPE
 NOT TO SCALE



TRAP PRIMER DETAIL (OPTION 2)
 NOT TO SCALE



1 HR FIRE RATED PENETRATION FOR METALLIC PIPE
 NOT TO SCALE



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 – f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER _____

DPW NUMBER
 F00116

ISSUE DATE
 MAY 31, 2013

DRAWN BY _____

REVISIONS
 ▲
 ▲
 ▲

SEAL

SCALE: N.T.S.

PLUMBING SPECIFICATIONS

SHEET NUMBER

P-8.0
 OF _____

PLUMBING SPECIFICATION

PART 1: GENERAL

1.01 GENERAL DOCUMENTS

A. THE REQUIREMENTS OF THE GENERAL CONDITIONS & APPLICABLE SECTIONS SHALL APPLY TO ALL PLUMBING WORK. INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT FLORIDA BUILDING CODE –PLUMBING.

B. THE PLUMBING WORK SHALL INCLUDE FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND SERVICE NECESSARY FOR AND REASONABLY INCIDENTAL TO THE PROPER COMPLETION OF ALL PLUMBING WORK SHOWN ON THE DRAWINGS AND AS SPECIFIED. ALL MATERIAL SHALL BE NEW.

C. ALL MATERIALS AND EQUIPMENT SHALL BE THE STANDARD CATALOGED PRODUCT OF A REPUTABLE MANUFACTURER REGULARLY MANUFACTURING THE PARTICULAR ITEM, FREE FROM DEFECTS AND IN NEW CONDITION.

1.02 SUBMITTALS A. MATERIALS OR PRODUCTS SPECIFIED HEREIN AND/OR INDICATED ON DRAWINGS BY TRADE NAME, MANUFACTURER'S NAME OR CATALOG NUMBERS SHALL BE INTERPRETED AS ESTABLISHING A STANDARD OF QUALITY AND DESIGN. SUBSTITUTIONS SHALL NOT BE ALLOWED UNLESS THEY ARE SUBMITTED FOR REVIEW AND APPROVED BY BID DATE.

1.03 WORK BY OTHERS

A. THE FOLLOWING SYSTEMS AND/OR EQUIPMENT ARE NOT A PART OF THIS SECTION, BUT SHALL BE PROPERLY CONNECTED WITH ALL PLUMBING SERVICES:
 – ELECTRICAL POWER WIRING BY ELECTRICAL SUB-CONTRACTOR.
 – FIRE PROTECTION SYSTEM

1.04 SHOP DRAWINGS FURNISH SIX (6) COPIES OF SHOP DRAWINGS OF EQUIPMENT OR FIXTURES FOR APPROVAL PRIOR TO PURCHASING.

1.05 RECORD DRAWINGS

A. AFTER COMPLETION OF ALL WORK THE PLUMBING CONTRACTOR SHALL PROVIDE THE OWNER WITH AS BUILT RECORD DRAWINGS AS OUTLINED IN SPECIFICATIONS.

PART 2: PRODUCTS

2.01 PIPING

A. SOIL, WASTE, VENT PIPING & STORM DRAINAGE PIPING: ABOVE FLOOR AND BELOW SLAB: INTERIOR ABOVE FIRST FLOOR SLAB SHALL BE PVC-DWV SCHEDULE 40 PIPE AND FITTING BELOW AND ABOVE SLAB EXCEPT ANY PIPING LOCATED WITHIN PLENUM SPACES OR FIRE RATED WALLS SHALL BE SERVICE WEIGHT CAST IRON, NO HUB, WITH STAINLESS STEEL CLAMPS AND SHIELDS WITH NEOPRENE SEALING SLEEVES.

B. DOMESTIC WATER PIPING: INTERIOR COLD, HOT AND HOT WATER RECIRCULATING PIPING ABOVE SLAB: DOMESTIC WATER PIPING SHALL BE TYPE L COPPER TUBING WITH LEAD FREE SOLDER JOINTS OR APPROVED PVC PIPING & FITTING. PVC PRESSURE TYPE PIPE & FITTINGS MAY BE USED ONLY IF APPROVED BY OWNER & LOCAL PLUMBING AUTHORITY.

C. PIPE INSULATION (COPPER TUBING): HOT WATER SUPPLY COPPER TUBING SHALL BE INSULATED WITH 1" THICK FIBERGLASS OR EQUAL, IN COMPLIANCE WITH APPLICABLE ENERGY CODES. ANY PIPING ABOVE SLAB RECEIVING COLD WATER DISCHARGE FROM A/C UNITS, ICE MACHINES, ETC. SHALL BE INSULATED WITH 1" THICK FIBERGLASS (OR EQUAL) INSULATION WITH VAPOR JACKET.

2.02 VALVES

A. EQUAL TO NIBCO, CRANE OR WALWORTH. ALL BRONZE 150 PSI. BALL OR GATE VALVES WITH RISING STEMS.

2.03 SPECIALTIES

A. PIPE PROTECTIVE COATING: FOR STEEL OR COPPER PIPE, PERMACEL OR SCOTCHWRAP VINYL TAPE APPLIED OVER PIPE TO A TOTAL MINIMUM THICKNESS OF 20 MILS. APPLY TO ALL WATER PIPE IN CONTACT WITH MASONRY OR CONCRETE.

B. PIPE HANGERS: HANGERS FOR BARE COPPER PIPE THROUGH 4 INCH (4") DIAMETER OR SMALLER SHALL BE ADJUSTABLE RING TYPE, PLASTIC COATED EQUAL TO MICHIGAN 102A, FOR STEEL PIPE MICHIGAN 100. ALL PIPE HANGERS IN AREA'S EXPOSED TO SALT ATMOSPHERE SHALL BE CORROSION RESISTANT. ALL WATER, SANITATION, STORM AND CONDENSATE STACKS SHALL HAVE A STACK CLAMP AT ALTERNATE FLOORS. HORIZONTAL & VERTICAL PIPE SUPPORT SHALL BE AS PER SCHEDULE BELOW.

PIPE HANGER SPACING TABLE			
PIPE MATERIAL	PIPE SIZES (INCHES)	HORIZONTAL PIPE MAX. HANGER DISTANCE (FEET)	VERTICAL PIPE MAX. HANGER DISTANCE (FEET)
COPPER & COPPER ALLOY TUBING	1/4" & SMALLER	6	10
COPPER & COPPER ALLOY TUBING	1/2" & LARGER	10	10
COPPER & COPPER ALLOY PIPE	ALL	12	10
CAST IRON PIPE	ALL	4 *	15
STEEL PIPE	ALL	12	15
STAINLESS STEEL DRAINAGE SYSTEM	ALL	10	10 **
CPVC & PVC PIPE	ALL	4	10 **

NOTES:
 * MAXIMUM HORIZONTAL SPACING OF CAST IRON PIPE HANGERS SHALL BE INCREASED TO TEN FEET WHERE 10' LENGTHS OF PIPE ARE USED.
 ** MIDSTORY GUIDE FOR SIZES 2" AND SMALLER
 *** NOT ALL PIPE MATERIALS ON THIS TABLE WILL PERTAIN TO THIS PROJECT

C. DRAINS AND CLEANOUTS: SEE SCHEDULE ON DRAWINGS.

D. DIELECTRIC UNIONS: EBCO OR CAPITOL AT ALL POINTS OF CONNECTION BETWEEN DISSIMILAR PIPE METALS.

E. FLASHING AND VENT STACKS: ALL VENTS EXTENDING THROUGH THE ROOF SHALL BE PROVIDED WITH FOUR POUND SHEET LEAD FLASHING EXTENDING UPWARD AROUND THE PIPE AND TURNED DOWN INSIDE THE PIPE OR AS OTHERWISE SHOWN ON THE DRAWINGS. THE ROOF FLASHING SHALL BE INSTALLED BY LICENSED & INSURED ROOFING CONTRACTOR. ALL FLASHING IN METAL ROOF SHALL BE BY THE ROOF MANUFACTURER. MINIMUM DISTANCE FROM ANY FRESH AIR INTAKE SHALL BE 10'-0".

F. AIR CHAMBERS: AT EACH FIXTURE GROUP PROVIDE "SA" AS SPECIFIED IN SPECIALTIES SCHEDULE AND ELSEWHERE AS REQUIRED, AND IN ALL CONNECTIONS TO EQUIPMENT WITH SOLENOID VALVE INSTALLED ON WATER SUPPLY LINE PROVIDE ACCESS FOR WATER HAMMER ARRESTORS. THE WATER HAMMER ARRESTORS SHALL BE SIZED AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

G. ESCUTCHEONS AND SLEEVES: WHERE PIPES PIERCE EXPOSED PARTITIONS, FLOORS, WALLS OR CEILINGS, PROVIDE CHROME PLATED ESCUTCHEONS TO COVER THE RAW EDGE.

H. SLEEVES SHALL BE PROVIDED AT RATED WALL ALL PIPE PENETRATIONS OF MASONRY, BAY WALL, CONCRETE WALLS AND FLOORS.

I. PROVIDE UL LISTED FIRE STOPPING PIPE PENETRATION ASSEMBLIES AT ALL PIPING THROUGH RATED WALLS AND ASSEMBLIES. SEE DETAILS ON THE DRAWING.

2.04 FIXTURES AND TRIM

A. ALL EXPOSED METAL TO BE CHROME PLATED. PROVIDE STOPS AND UNIONS AT ALL SUPPLIES AND CAST BRASS "P" TRAPS WITH CLEANOUT ON ALL WASTE.

B. FIXTURES BY AMERICAN STANDARD, KOHLER, ELJER, STERLING OR APPROVED EQUAL.

PART 3: EXECUTION

3.01. INSTALLATION

A. INSTALL PIPE ABOVE GROUND PLUMB AND SQUARE WITH BUILDING LINES, ADEQUATELY SUPPORTED WITHOUT SAGS OR HIGH POINTS. CONCEAL PIPING IN OCCUPIED AREAS AND MAINTAIN HEAD ROOM AND ACCESS SPACE IN UNFINISHED AREAS. SLEEVE PIPING THROUGH ALL WALLS, SLABS OR PARTITIONS WITH ESCUTCHEONS AT ALL FINISHED SURFACE. PROVIDE UNIONS AT ALL FINAL CONNECTIONS AND STOPS ON ALL SUPPLIES. ALL PIPE OPENINGS SHALL BE PLUGGED DURING INSTALLATION.

B. SANITARY DRAINAGE PIPING 3" & LARGER SHALL BE INSTALLED WITH A MINIMUM 1/8" PER FOOT SLOPE UNLESS NOTED OTHERWISE. ALL DRAINAGE PIPING 2 1/2" AND SMALLER SHALL BE INSTALLED WITH A MINIMUM OF 1/4" PITCH PER FOOT.

C. ALL FIXTURES AND TRIM FOR HANDICAPPED SHALL BE INSTALLED IN COMPLIANCE WITH ADA CODE.

D. INSTALL ALL PIPING TO ALLOW FOR EXPANSION.

E. SEE RISER DIAGRAMS FOR ALL DRAINAGE & VENT PIPE SIZING FOR THE PLUMBING SYSTEMS. REFER TO PLUMBING FLOOR PLAN (WATER SYSTEM) & SCHEDULES FOR ALL WATER PIPING SYSTEM SIZING.

F. ALL EXPOSED TO VIEW PIPING AND FITTINGS SHALL BE POLISHED CHROME FINISH.

G. ALL WORK HANDICAPPED TOILETS SHALL COMPLY WITH ADA REQUIREMENTS, & FLORIDA BUILDING CODE - CHAPTER 11 FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION.

H. FINAL CONNECTIONS TO DRAINAGE AND WATER SERVICE LINES TO EXISTING OR NEW AT 5'-0" FROM THE BUILDING WALLS SHALL BE BY THE PLUMBING CONTRACTOR.

3.02. DISINFECTING OF POTABLE WATER SYSTEM:

A. THE SYSTEM SHALL BE FILLED WITH A SOLUTION CONTAINING 50 PARTS PER MILLION OF AVAILABLE CHLORINE AND ALLOWED TO STAND SIX HOURS BEFORE FLUSHING AND RETURNING TO SERVICE. DISINFECTION PROCEDURE AND RESULT SHALL BE SUBJECT TO THE APPROVAL OF THE LOCAL PLUMBING INSPECTOR.

3.03. TESTS

A. ALL PLUMBING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE-PLUMBING. ALL TESTS SHALL BE APPROVED BY THE LOCAL PLUMBING INSPECTOR AND SHALL BE OBSERVED BY A REPRESENTATIVE OF THE ARCHITECT.

3.04. SYSTEM IDENTIFICATION

A. THE PLUMBING CONTRACTOR SHALL PROVIDE IDENTIFICATION TAGS FOR ALL PIPING AND VALVES IN THE BUILDING AS PER OWNER ACCEPTED STANDARDS. THE PIPE MARKS SHALL INCLUDE PIPING SYSTEM IDENTIFICATION AND DIRECTIONS OF FLOW.

3.05 SPECIFICATIONS AND DRAWINGS

A. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL COMPLETE SANITARY, STORM AND DOMESTIC WATER PIPING SYSTEMS: INCLUDING ALL ASSOCIATED DEVICES, EQUIPMENT, CONTROLS, AND CONNECTIONS TO NEW SERVICES, SUPPORTS, AND HARDWARE REQUIRED FOR THE SATISFACTORY OPERATION OF THE SYSTEMS, WHETHER SPECIFICALLY SHOWN OR NOT ON THE DRAWINGS.

B. THE PLANS SHOW THE LOCATION OF ALL FIXTURES AND EQUIPMENT AND ARE INTENDED TO DEPICT THE GENERAL INTENT OF THE WORK IN SCOPE, LAYOUT AND QUALITY OF WORKMANSHIP. THEY ARE NOT INTENDED TO SHOW IN MINUTE DETAIL EVERY AND ALL ACCESSORIES INTENDED FOR THE PURPOSE OF EXECUTION OF THE WORK, BUT IT SHALL BE UNDERSTOOD THAT SUCH DETAILS WILL BE PART OF THIS WORK.

C. WHERE DRAWINGS AND SPECIFICATIONS CONFLICT, IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO BRING SUCH CONFLICT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.

D. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL PLUMBING FIXTURES.

E. CONTRACTOR SHALL KEEP A RECORD OF THE LOCATIONS OF ALL CONCEALED WORK AND, UPON COMPLETION OF THE JOB, SHALL SUPPLY AS-BUILT DRAWINGS SHOWING IN COLORED PENCIL ON BLACK LINE PRINTS ANY DEVIATION FROM THE ORIGINAL DRAWINGS. THESE DRAWINGS SHALL INDICATE DIMENSIONS OF BURIED UTILITY LINES FROM BUILDING WALLS.

F. ALL DOCUMENTS, TEST REPORTS & AS-BUILTS DRAWINGS SHALL BE ATTACHED TO THE CLOSING DOCUMENT OF THE PROJECT.

3.06 WARRANTY:

A. THE PLUMBING CONTRACTOR SHALL WARRANT HIS WORK TO BE FREE FROM DEFECTS IN MATERIALS AND AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE OF ALL WORK.

3.07 COORDINATION

A. THE CONTRACTOR DOING THE SHEET METAL SHOP DRAWINGS AND THE PLUMBING, FIRE PROTECTION, AND HVAC FOREMAN AND GENERAL CONTRACTOR PROJECT MANAGER SHALL INSPECT & REVIEW THE CONDITIONS, AND SHALL COORDINATE THEIR WORK SO AS TO PROVIDE ADEQUATE SPACE ALLOWANCE ABOVE CEILING FOR ALL TRADES. ALL GRAVITY WASTE PIPING IN THE CEILING SPACE SHALL BE INSTALLED FIRST.

B. VERIFY LOCATIONS, SIZES, AND INVERT ELEVATIONS OF SANITARY DRAIN, AND DOMESTIC WATER PIPING CONNECTIONS WITH CIVIL ENGINEERING DRAWINGS PRIOR TO PROCEEDING WITH THE INSTALLATION OF ANY NEW WORK. SHOULD ANY DISCREPANCIES BE DISCOVERED CONTRACTOR SHALL OBTAIN DIRECTION FROM THE ENGINEER BEFORE PROCEEDING.

C. COORDINATE WITH ARCHITECTURAL DRAWINGS WALL AND PARTITION CONSTRUCTION AND THICKNESS WHERE PLUMBING PIPING, FIXTURES CARRIERS OR EQUIPMENT IS INDICATED. BEFORE PLUMBING PIPING ROUGH-IN.

D. COORDINATE EXACT LOCATION, ELEVATIONS AND SIZES OF ALL SLEEVES IN NEW STRUCTURE WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS.

3.08 PERMITS

A. PLUMBING CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AT HIS EXPENSE.

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727)822-2335	EOR	JHG
	Fax: (727)821-0361	Job no.	13052
	Certificate of Authorization #3173		

FIRE PROTECTION NOTES

- THE NEW AREA TO BE 100 PERCENT SPRINKLED. SPRINKLER SYSTEM THROUGHOUT MUST BE INSTALLED AND CONTROLLED BY SEPARATE FLOW AND TAMPER SWITCHES. THE PROPOSED SPRINKLER SYSTEM SHALL BE INSTALLED IN ALL ROOMS, IN ACCORDANCE WITH THE LATEST ADAPTED BY STATE FIRE MARSHAL RULE 69A-3.012 F.A.C., THE FLORIDA SPECIFIC EDITION OF NFPA-101 THE LIFE SAFETY CODE, THE FLORIDA SPECIFIC EDITION OF NFPA-1 UNIFORM FIRE CODE, AS ADAPTED WITHIN RULE CHAPTER 69A-60 F.A.C. FLORIDA FIRE PREVENTION CODE*, UL AND FM REQUIREMENTS SHALL BE TAKE PRECEDENCE FOR THE FIRE PROTECTION SYSTEM INSTALLATION IF SET STRINGENT STANDARDS OR ADD ADDITIONAL REQUIREMENTS OVER STANDARDS LISTED.
- OTHER ADAPTED & INCORPORATED BY REFERENCE BY THE STATE FIRE MARSHAL SHALL BE APPLICABLE TO THIS PROJECT THE FOLLOWING STANDARDS:
 NFPA-13 STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS,
 NFPA-24 STANDARDS FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES,
 NFPA-25 STANDARD FOR INSPECTION, TESTING AND MAINTENANCE OF WATER - BASED FIRE PROTECTION SYSTEMS,
 NFPA-51B STANDARD FOR FIRE PREVENTION DURING WELDING, CUTTING AND OTHER HOT WORK.
 NFPA-70 NATIONAL ELECTRICAL CODE,
 NFPA-72 NATIONAL FIRE ALARM CODE,
 NFPA-101A GUIDE, ON ALTERNATIVE APPROACHES TO LIFE SAFETY,
 NFPA-101B STANDARD ON MEANS OF EGRESS FOR BUILDING & STRUCTURES,
 NFPA-241 (STANDARD FOR SAFE GUARDING BUILDING CONSTRUCTION & DEMOLITION OPERATIONS,
- FLORIDA BUILDING CODE - BUILDING 2010 AND OTHER CODES & STANDARDS LATEST EDITIONS AS ADAPTED BY THE STATE FIRE MARSHAL.
- THE FIRE PROTECTION CONTRACTOR SHALL VISIT THE JOB SITE AND CHECK THE EXISTING SITE CONDITIONS BEFORE SUBMITTING HIS BID PACKAGE.
- SPRINKLER SYSTEM NEW WORK SHALL BE PERFORMED AT THE TIME AS PER GENERAL CONTRACTOR SCHEDULE.
- THE FIRE PROTECTION CONTRACTOR SHALL INCLUDE IN HIS BID PACKAGE ALL ADDITIONAL WORK, MATERIAL, TESTS, AND INSPECTIONS AS A RESULT OF THE PROJECT SEQUENCES.
- THE NEW SPRINKLER SYSTEM PIPE SIZES ARE HYDRAULICALLY CALCULATED FOR LIGHT HAZARD OCCUPANCY.
- CONTRACTOR SHALL INCLUDE IN HIS BID PACKAGE COST OF ALL OFFSETS, AUXILIARY DRAINS, FLUSHING CONNECTIONS WITH RELATED PIPING, FITTINGS AND HANGERS TO COMPLETE THE INSTALLATION. THERE SHALL NOT BE APPLIED ANY EXTRA COST TO THE OWNER RESULTING FROM THE COORDINATION OF SPRINKLERS SYSTEM INSTALLATION ON THIS SITE.
- THE SUCCESSFUL FIRE PROTECTION CONTRACTOR SHALL INSTALL THE SPRINKLER SYSTEM AS PER CONTRACT DOCUMENT DRAWINGS & SPECIFICATIONS. SPRINKLER FABRICATION DRAWINGS SHALL BE PROVIDED ALONG WITH MATERIAL & EQUIPMENT DATA SHEETS FOR ARCHITECT, ENGINEERS & SIEMENS PROJECT MANAGER REVIEW & APPROVAL.
- THIS CONTRACTOR SHALL PROVIDE ALL MATERIAL, EQUIPMENT, SPRINKLER GUARDS, OTHER ITEM AS REQUIRED FOR COMPLETION OF THE SPRINKLERS INSTALLATION, AND FINAL TESTS AND APPROVALS BY LOCAL AUTHORITY HEAVING JURISDICTION AS PER LATEST ADAPTED NFPA-13 STANDARDS.
- THE CONTRACTOR DOING THE SHEET METAL SHOP DRAWINGS AND THE PLUMBING, FIRE PROTECTION, ELECTRICAL, FIRE ALARM CONTRACTORS, HVAC FOREMAN AND THE GENERAL CONTRACTOR'S PROJECT MANAGER SHALL INSPECT & REVIEW THE CONDITIONS ABOVE THE NEW CEILING AND SHALL COORDINATE THEIR WORK SO AS TO PROVIDE ADEQUATE SPACE ALLOWANCE ABOVE CEILING FOR ALL TRADES. ALL GRAVITY WASTE PIPING IN CEILING SPACE SHALL BE INSTALLED FIRST.
- SPRINKLER PIPING, FITTING, PIPE HANGERS MATERIAL SHALL BE AS PER NFPA-13 STANDARDS.
- ALL FLOW, TAMPER SWITCHES & OTHER SENSORS AS INDICATED ON THE DRAWINGS FOR THE FIRE PROTECTION SYSTEM SHALL BE FURNISHED & INSTALLED ABOVE THE FLOOD LEVEL BY THE FIRE PROTECTION CONTRACTOR. WIRING FROM THE SENSORS TO FIRE ALARM PANELS SHALL BE BY THE ELECTRICAL & FIRE ALARM CONTRACTORS.
- COORDINATE SPRINKLER AND BRANCH LINE LOCATION IN ELECTRICAL ROOMS. THE BRANCH LINES IN ELECTRICAL ROOMS SHALL NOT RUN OVER ELECTRICAL PANELS.
- THE SPRINKLERS TEMPERATURE RATING SHALL BE AS PER NFPA-13 STANDARDS IF NOT SPECIFICALLY NOTED ON THE PLANS.
- SPRINKLERS IN MECHANICAL & ELECTRICAL ROOMS SHALL BE 200°F TEMPERATURE RATING, QUICK RESPONSE WITH SPRINKLERS GUARDS.
- PERMANENTLY ATTACHED INFORMATION TAGS & LABELS SHALL BE PROVIDED FOR CONTROL VALVES, DRAINS AND INSPECTOR TEST VALVES AS PER NFPA-13 AND OWNERS APPROVED STANDARDS.
- THIS CONTRACTOR SHALL INCLUDE COST OF INSTALLATION ADDITIONAL 15 SPRINKLERS (HEADS, PIPING, FITTING & HANGERS) AS A RESULT OF THE FIELD CONDITIONS AND COORDINATION WITH OTHER TRADES.
- FIRE PROTECTION CONTRACTOR SHALL PROVIDE SCAFFOLDS REQUIRED FOR SPRINKLER SYSTEM INSTALLATION.
- EXISTING CITY UNDERGROUND WATER MAIN SHOWN ON SITE PLAN FOR SPRINKLER SYSTEM CALCULATIONS ONLY. NEW FIRE FEED MAIN, BACK FLOW PREVENTER, FIRE DEPARTMENT CONNECTION, POST INDICATING VALVE, PRIVATE FIRE HYDRANTS FOR BUILDING SHALL AS PER CIVIL ENGINEERING DRAWINGS. THE SITE CONTRACTOR SHALL EXTEND FIRE SERVICE LINE FROM 5'-0" FROM THE BUILDING EXTERIOR WALL TO NEW SPRINKLER SYSTEM AS SHOWN ON SITE PLAN & GROUND FLOOR PLAN.
- THE DOMESTIC WATER SERVICE LINE, SHOWN ON THE SITE PLAN SHALL BE SEPARATE FROM THE BUILDING FIRE MAIN AND SHALL BE CONSTRUCTED AS PER CIVIL ENGINEERS DRAWINGS.
- CONTRACTOR SHALL KEEP A RECORD DRAWINGS A SPECIALLY LOCATIONS OF ALL CONCEALED WORK AND, UPON COMPLETION OF THE JOB, SHALL SUPPLY AS-BUILT DRAWINGS SHOWING IN COLORED PENCIL ON BLACK LINE PRINTS ANY DEVIATION FROM THE ORIGINAL FABRICATION DRAWINGS. THESE DRAWINGS SHALL INDICATE DIMENSIONS, LENGTHS, DISTANCE FROM WALLS & FIRE SUPPORTS LOCATIONS OF ALL CONCEALED LINES. THE AS-BUILT DRAWINGS SHALL BE PART OF THE CLOSE-OUT DOCUMENT PACKAGE.
- FINAL APPROVAL OF THE ENTIRE SYSTEM IS REQUIRED FROM THE LOCAL AUTHORITY HAVING JURISDICTION.
- WARRANTY THE FIRE PROTECTION CONTRACTOR SHALL WARRANT HIS WORK TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE OF ALL WORK.

ABBREVIATIONS			
ABBREVIATIONS	DESCRIPTION	ABBREVIATIONS	DESCRIPTION
ACV	ALARM CHECK VALVE	F.P.C.	FIRE PROTECTION CONTRACTOR
AFG	ABOVE FINISHED GRADE	FS	FLOW SWITCH
AFF	ABOVE FINISHED FLOOR	GALV.	GALVANIZED
ALV	ALARM VALVE	G.C.	GENERAL CONTRACTOR
ATR	ALL THREAD ROD	GLV	GLOBE VALVE
AUX.	AUXILIARY	GPM	GALLONS PER MINUTE
BFP	BACK FLOW PREVENTER	GR	GROOVED
BIV	BUTTERFLY INDICATING VALVE	HMD	HYDRAULICALLY MOST DEMANDING
BL	BRANCH LINE	ID	IDENTIFICATION
BLV	BALL VALVE	INV	INVERT
BLDG	BUILDING	ITV	INSPECTOR'S TEST VALVE ASSEMBLY
BTN	BETWEEN	M.C.	MECHANICAL CONTRACTOR
C.E.	CIVIL ENGINEERS	N.C.	NORMALLY CLOSED
CI	CAST IRON	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION.
CL	CENTERLINE	NIC	NOT IN CONTRACT
CONC	CONCRETE	N.O.	NORMALLY OPEN
CPVC	CHLORINATED POLYVINYL CHLORIDE	N.T.S	NOT TO SCALE
CR	CORROSION RESISTANT	OH	OVERHEAD
CV	CHECK VALVE	OSY	OUTSIDE SCREW AND YOKE
DIA. OR-	DIAMETER	PIV	POST INDICATOR VALVE
DIP	DUCTILE IRON PIPE (CL 50 U.O.N.)	PSI	POUNDS PER SQUARE INCH
DN.	DOWN	PVC	POLYVINYL CHLORIDE
DS	DRY SYSTEM	R	RADIUS
DV	DELUGE VALVE	RCP	REFLECTED CEILING PLAN
EAG	ELECTRICAL ALARM GONG	RP	REDUCED PRESSURE
E.C.	ELECTRICAL CONTRACTOR	RPBFP	REDUCED PRESSURE BACK FLOW PREVENTER
ELE.	ELECTRIC	S.C.	SITE CONTRACTOR
EX.	EXISTING	SCH	SCHEDULE
EXC	EXTENDED COVERAGE	SPK	SPRINKLER
FA	FIRE ALARM	TB	TRUST BLOCK
FCV	FLOOR CONTROL VALVE	THR	THREADED
FDC	FIRE DEPARTMENT CONNECTION	TS	TAMPER SWITCH
FDV	FIRE DEPARTMENT VALVE	TYP.	TYPICAL
FH	FIRE HYDRANT	UG	UNDER GROUND
FHR	FIRE HOSE RACK	U.O.N.	UNLESS OTHERWISE NOTED
FL	FLANGED	V.I.F.	VERIFY IN FIELD
FLR	FLOOR	WEG	WATER ELEC.. GONG

NOTE: NOT ALL ABBREVIATIONS ARE USED FOR THIS PROJECT..

PLUMBING FLOW TEST DATA	
HYDRANT #	9658
LOCATION	ES MANHATTAN AVE, 280' S OF INTERBAY BLVD
STATIC	72 PSI
RESIDUAL	68 PSI
FLOW (GPM)	1210 GPM
DATE	08/06/12
TIME	01:05 AM
PERFORMED BY	TAMPA WATER DEPARTMENT

ALL MATERIAL, DEVICES, AND EQUIPMENT MUST COMPLY WITH BUY AMERICAN REQUIREMENTS OF AMERICAN RECOVERY & REINVESTMENT ACT.

FIRE PROTECTION LEGEND

SYMBOL	DESCRIPTION
	EX. UNDERGROUND FIRE LINE (SEE CIVIL ENGINEERING DRAWINGS)
	CITY WATER MAIN (SEE CIVIL ENGINEERING DRAWINGS)
	CROSS MAIN WET SYSTEM
	CROSS MAIN DRY SYSTEM
	BRANCH LINE WITH PIPE HANGER
	DROP NIPPLE TO SPRINKLERS
	SPRINKLER DRAIN PIPING
	PENDENT RECESSED SPRINKLER HEADS
	PENDENT CONCEALED
	UPRIGHT SPRINKLER HEADS
	UPRIGHT SPRINKLERS WITH GUARD
	SIDEWALL SPRINKLERS WITH GUARD
	POINT OF CONNECTION TO EXISTING PIPING
	VALVE WITH TAMPER SWITCH
	CHECK VALVE
	PROPOSED FIRE DEPARTMENT CONNECTION (SHOWN FOR REFERENCE ONLY)
	PRESSURE GAUGE
	WATER FLOW SWITCH
	NEW FIRE HYDRANT (SEE C.E. DRAWINGS)
	BACK FLOW PREVENTER
	EX. FIRE HYDRANT (SEE C.E. DRAWINGS)
	EX. ELECTRIC ALARM BELL
	WIRING TO ALARM SYSTEM (BY E.C.)
	FLOOR CONTROL VALVE ASSEMBLY
	FLOOR INSPECTOR TEST VALVE ASSEMBLY
	EX. FIRE HOSE VALVE
	PREACTION SYSTEM CONTROL CABINET ASSEMBLY
	ANGLE DELUGE VALVE & TRIM.
	HYDRAULIC CALCULATION INDICATOR

NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT.

FIRE PROTECTION DRAWING INDEX

SHEET	DESCRIPTION
FP-1.0	FIRE PROTECTION DRAWING INDEX, GENERAL NOTES, LEGENDS AND FLOW & PRESSURE TEST DATA
FP-2.0	FIRE PROTECTION SITE PLAN
FP-3.0	FIRE PROTECTION FLOOR PLAN
FP-3.1	FIRE PROTECTION ATTIC PLAN
FP-4.0	FIRE PROTECTION DETAILS
FP-5.0	FIRE PROTECTION SPECIFICATION



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS

SEAL

SCALE: NOT TO SCALE

FIRE PROTECTION DRAWING
 INDEX, GENERAL NOTES,
 LEGENDS AND FLOW AND
 PRESSURE TEST DATA

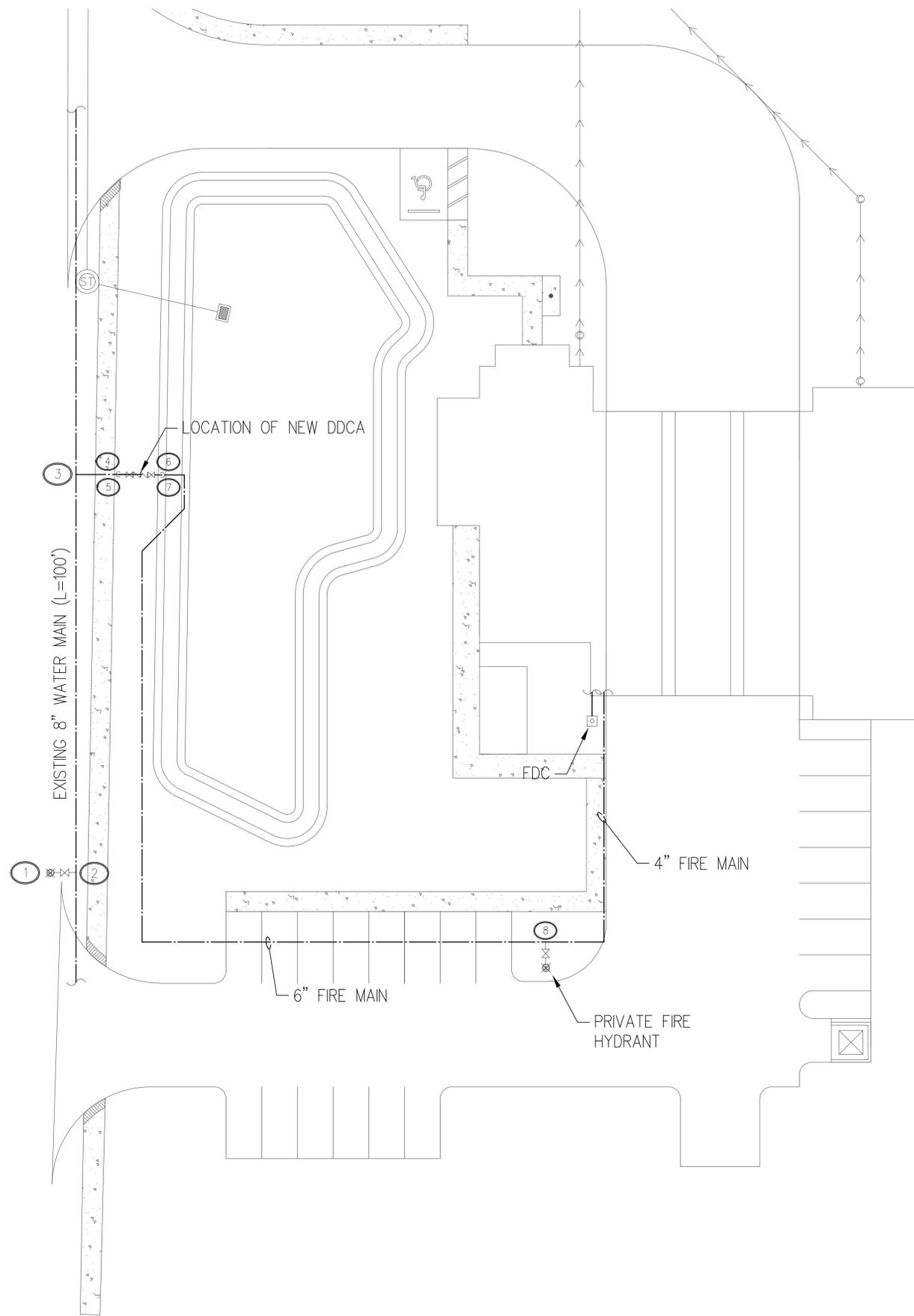
SHEET NUMBER

FP-1.0

OF

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727)-822-2355	EOR	JHG
	Fax: (727)-823-3361	Job no.	12032

Certificate of Authorization #3173



FIRE PROTECTION SITE PLAN
 SCALE: 1/16" = 1'-0"

G	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North	Drawn	ADB
	St. Petersburg, Florida 33713	Designed	ADB
	Phone: (727) 822-2335	FOR	JHG
	Fax: (727) 821-3361	Certificate of Authorization #3173	Job no.



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS

- △ _____
- △ _____
- △ _____

SEAL

SCALE: 1/32" = 1'-0"

FIRE PROTECTION SITE PLAN

SHEET NUMBER

FP-2.0

OF



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 308 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS
 ▲
 ▲
 ▲

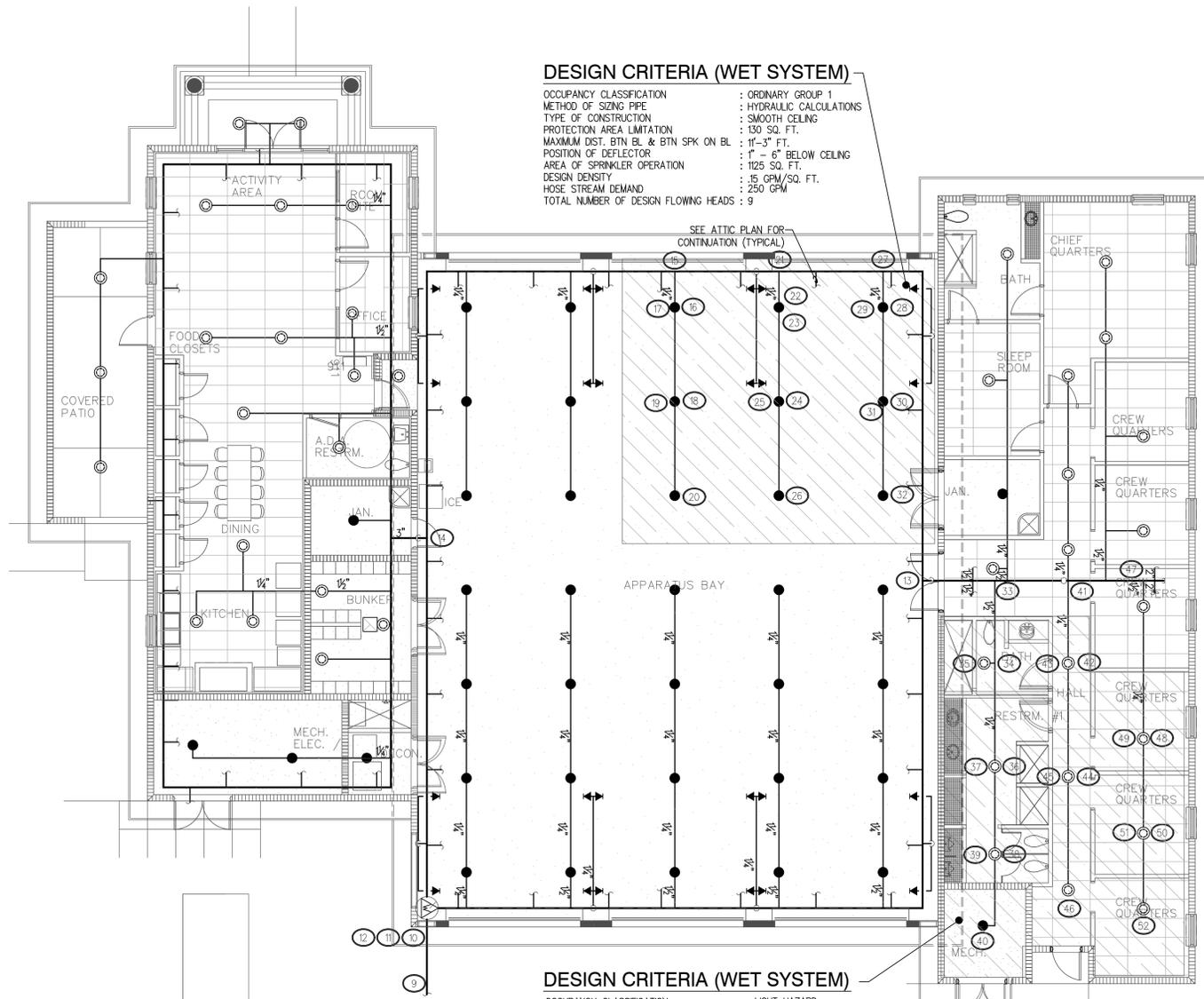
SEAL

SCALE: 1/8" = 1'-0"

FIRE PROTECTION FLOOR PLAN

SHEET NUMBER

FP-3.0
 OF



DESIGN CRITERIA (WET SYSTEM)

OCCUPANCY CLASSIFICATION : ORDINARY GROUP 1
 METHOD OF SIZING PIPE : HYDRAULIC CALCULATIONS
 TYPE OF CONSTRUCTION : SMOOTH CEILING
 PROTECTION AREA LIMITATION : 130 SQ. FT.
 MAXIMUM DIST. BTN BL & BTN SPK ON BL : 11'-3" FT.
 POSITION OF DEFLECTOR : 1" - 6" BELOW CEILING
 AREA OF SPRINKLER OPERATION : 125 SQ. FT.
 DESIGN DENSITY : .15 GPM/SQ. FT.
 HOSE STREAM DEMAND : 250 GPM
 TOTAL NUMBER OF DESIGN FLOWING HEADS : 9

DESIGN CRITERIA (WET SYSTEM)

OCCUPANCY CLASSIFICATION : LIGHT HAZARD
 METHOD OF SIZING PIPE : HYDRAULIC CALCULATIONS
 TYPE OF CONSTRUCTION : SMOOTH CEILING
 PROTECTION AREA LIMITATION : 225 SQ. FT.
 MAXIMUM DIST. BTN BL & BTN SPK ON BL : 15' FT.
 POSITION OF DEFLECTOR : 1" - 6" BELOW CEILING OR CONCEALED
 AREA OF SPRINKLER OPERATION : 900 SQ. FT.
 DESIGN DENSITY : .10 GPM/SQ. FT.
 HOSE STREAM DEMAND : 250 GPM
 TOTAL NUMBER OF DESIGN FLOWING HEADS : 11

NOTES:
 1. ALL CROSS MAIN LINES ARE 2 1/2" BLACK STEEL SCHEDULE 10 UNLESS OTHERWISE NOTED.
 2. ALL BRANCH LINES ARE 1" BLACK STEEL SCHEDULE 40 UNLESS OTHERWISE NOTED.
 3. SPRINKLER RISER AND FREE STANDING FIRE DEPARTMENT CONNECTION PIPING IS SCHEDULE 40 GALVANIZED STEEL PIPE.

SPRINKLER HEADS AND LEGEND - BASIS OF DESIGN

TYPE	RESPONSE	"K"	ORF	NPT	TEMP. H / C	FINISH HEAD / ESCH.	SYMBOL
CONCEALED	QR	5.6	1/2"	1/2"	155 F	WHITE / WHITE	○
UPRIGHT	QR	5.6	1/2"	1/2"	155 F	BRASS	●
PENDENT	QR	5.6	1/2"	1/2"	155 F	BRASS	●
SIWALL	QR	5.6	1/2"	1/2"	155 F	BRASS	▼

SPRINKLERS MODEL NUMBER & FINISH SHALL BE APPROVED BY OWNER / ARCHITECT BEFORE FINAL ORDER IS MADE.

FIRE SPRINKLER FLOOR PLAN
 SCALE: 1/8" = 1'-0"



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE

MAY 31, 2013

DRAWN BY

REVISIONS

△
 △
 △

SEAL

SCALE: 1/8" = 1'-0"

FIRE PROTECTION ATTIC PLAN

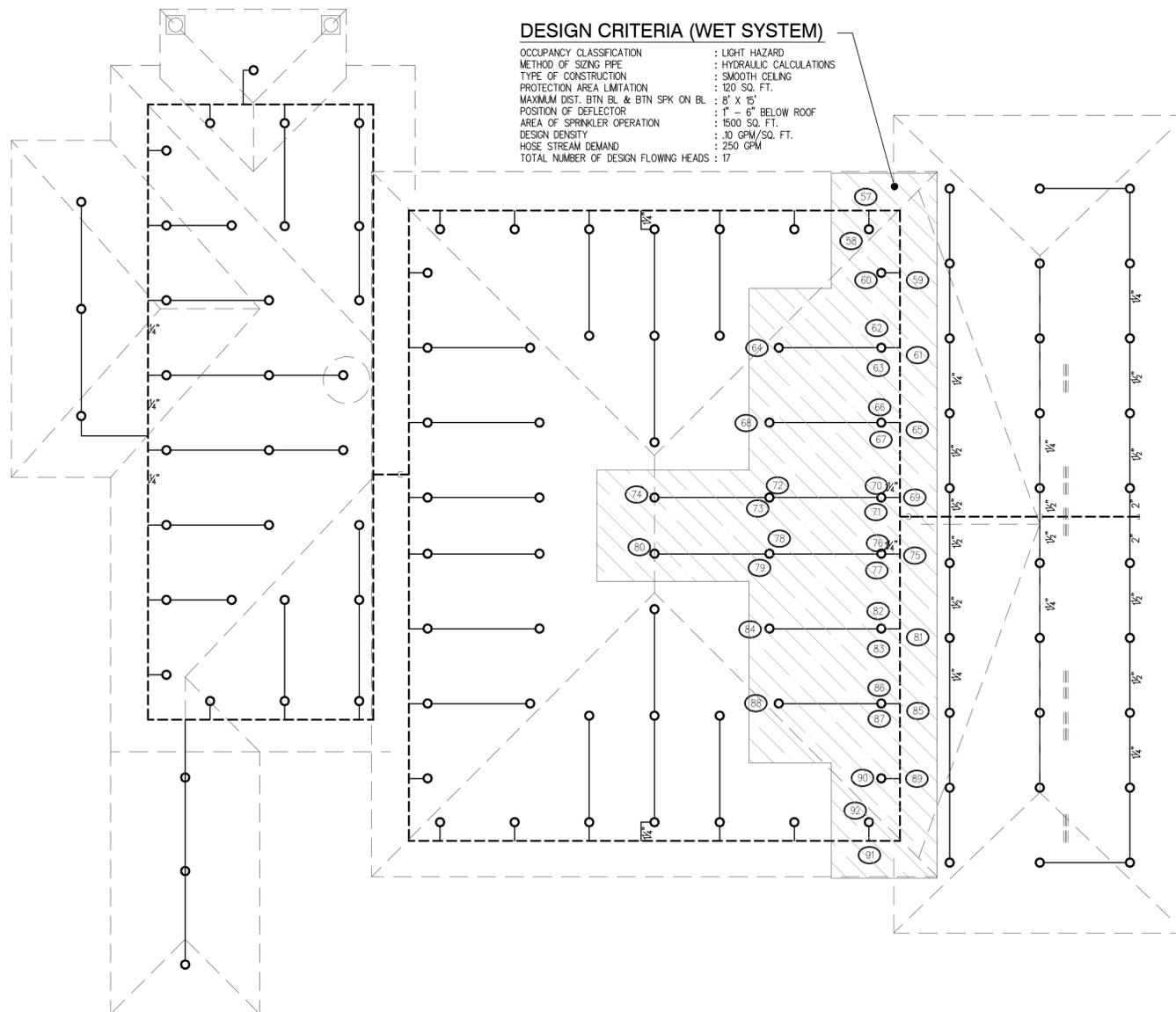
SHEET NUMBER

FP-3.1

OF

DESIGN CRITERIA (WET SYSTEM)

OCCUPANCY CLASSIFICATION : LIGHT HAZARD
 METHOD OF SIZING PIPE : HYDRAULIC CALCULATIONS
 TYPE OF CONSTRUCTION : SMOOTH CEILING
 PROTECTION AREA LIMITATION : 120 SQ. FT.
 MAXIMUM DIST. BTN BL. & BTN SPK ON BL. : 8' X 15'
 POSITION OF DEFLECTOR : 1' - 6" BELOW ROOF
 AREA OF SPRINKLER OPERATION : 1500 SQ. FT.
 DESIGN DENSITY : 10 GPM/SQ. FT.
 HOSE STREAM DEMAND : 250 GPM
 TOTAL NUMBER OF DESIGN FLOWING HEADS : 17



NOTES:
 1. ALL CROSS MAIN LINES ARE 2 1/2" BLACK STEEL SCHEDULE 10 UNLESS OTHERWISE NOTED.
 2. ALL BRANCH LINES ARE 1" BLACK STEEL SCHEDULE 40 UNLESS OTHERWISE NOTED.
 3. SPRINKLER RISER AND FREE STANDING FIRE DEPARTMENT CONNECTION PIPING IS SCHEDULE 40 GALVANIZED STEEL PIPE.

SPRINKLER HEADS AND LEGEND - BASIS OF DESIGN

TYPE	RESPONSE	"K"	ORF	NPT	TEMP. H / C	FINISH HEAD / ESCHL.	SYMBOL
CONCEALED	QR	5.6	1/2"	1/2"	155 F	WHITE / WHITE	○
UPRIGHT	QR	5.6	1/2"	1/2"	155 F	BRASS	●
PENDENT	QR	5.6	1/2"	1/2"	155 F	BRASS	●
SIDEWALL	QR	5.6	1/2"	1/2"	155 F	BRASS	▼

SPRINKLERS MODEL NUMBER & FINISH SHALL BE APPROVED BY OWNER / ARCHITECT BEFORE FINAL ORDER IS MADE.



FIRE SPRINKLER ATTIC PLAN

SCALE: 1/8" = 1'-0"

	GRINER ENGINEERING, INC.	Date	05/31/2013
	1628 First Avenue North St. Petersburg, Florida 33713	Drawn	ADB
	Phone: (727)-822-2335	Designed	ADB
	Fax: (727)-821-3161	FOR	JHG
	Certificate of Authorization #3173	Job no.	12032



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 306 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 - f: 813. 274. 8080
 ur: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P. Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
 FD0116

ISSUE DATE
 MAY 31, 2013

DRAWN BY

REVISIONS

SEAL

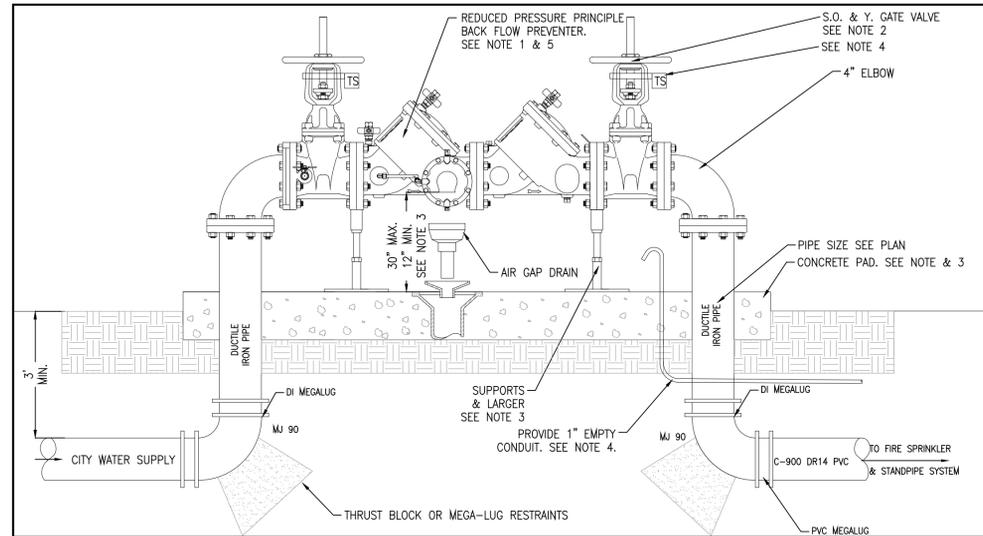
SCALE: NOT TO SCALE

FIRE PROTECTION DETAILS

SHEET NUMBER

FP-4.0

OF



PROPOSED DOUBLE CHECK PRESSURE REDUCING BACKFLOW ASSEMBLY
 NOT TO SCALE

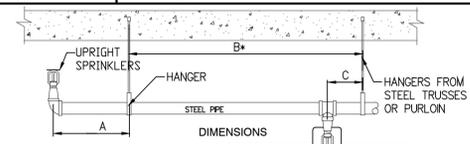
- NOTES:**
- REDUCED PRESSURE BACK FLOW PREVENTER ASSEMBLY UL/FM FOR FIRE PROTECTION WATER SUPPLY SERVICE, MODEL & MAKE SHALL BE AS PER CITY OF ST. PETERSBURG WATER DEPARTMENT APPROVED STANDARDS.
 - O.S. & Y - UL/FM OUTSIDE STEM & YOKE RESILIENT SEATED GATE VALVE.
 - EXACT DIMENSIONS TO THE CONCRETE SLAB, CONCRETE SLAB REINFORCEMENT & SIZE FOR SERVICING, BACK FLOW PREVENTER SUPPORTS AND DRAIN WITH AIR GAP COMPONENTS SHALL BE AS PER LOCAL WATER DEPARTMENT DETAILS.
 - WIRE VALVES TAMPER SWITCHES TO FIRE ALARM PANEL. RUN EMPTY CONDUIT FOR WIRING BY ELECTRICAL CONTRACTOR. USE OF PADLOCK & CHAIN IF APPROVED BY LOCAL FIRE DEPARTMENT ONLY.
 - PAINT BACK FLOW PREVENTER ASSEMBLY AND EXPOSED PIPING WITH COLOR AS APPROVED BY LOCAL BUILDING DEPARTMENT.
 - PROPOSED FREE STANDING STORZ FIRE DEPARTMENT CONNECTION WITH APPROVED CHECK VALVE SHALL BE PIPED FROM TEE DOWNSTREAM OF THE ALARM VALVE ASSEMBLY IN ACCORDANCE WITH NFPA-13 8.15.1.1.1.3.

HYDRAULIC DESIGN SYSTEM
WET SYSTEM
 THIS BUILDING IS PROTECTED BY A HYDRAULICALLY DESIGNED AUTOMATIC SPRINKLER SYSTEM FOR: _____
 CONTRACTOR'S NAME: _____
 PRINT No. _____ DATED: _____
 AT _____ CONTACT No. _____

DESIGN DENSITIES:
 REQUIRED FLOW:
 AT RESIDUAL PRESSURE:
 HOSE STREAM ALLOWANCES OF IS INCLUDED IN THE ABOVE.

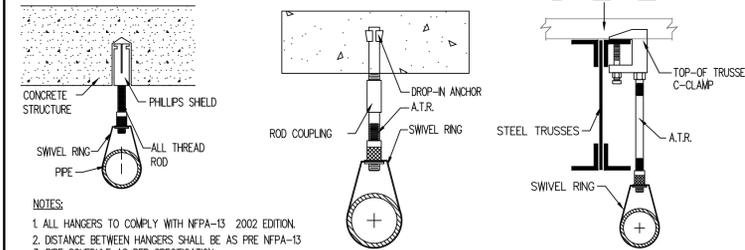
OCCUPANCY CLASSIFICATION: _____
 COMMODITY CLASSIFICATION: _____
 MAXIMUM STORAGE HEIGHT: _____

TAG AT SPRINKLER RISER
 NOT TO SCALE



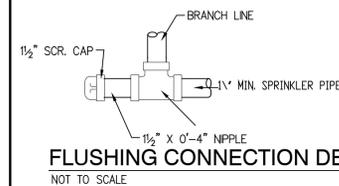
PIPE SIZE	A	B*	C
1"	3'-0" MAX.	12'-0" MAX.	3" MIN.
1 1/2"	4'-0" MAX.	12'-0" MAX.	3" MIN.
2"	5'-0" MAX.	15'-0" MAX.	3" MIN.

* MAXIMUM HANGER SPACING FOR THREADED LIGHT WALL STEEL PIPE IS 12'-0" FOR ALL PIPE SIZES

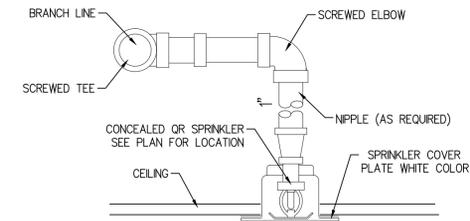


- NOTES:**
- ALL HANGERS TO COMPLY WITH NFPA-13 2002 EDITION.
 - DISTANCE BETWEEN HANGERS SHALL BE AS PER NFPA-13
 - PIPE SCHEDULE AS PER SPECIFICATION.

PIPE HANGERS
 NOT TO SCALE

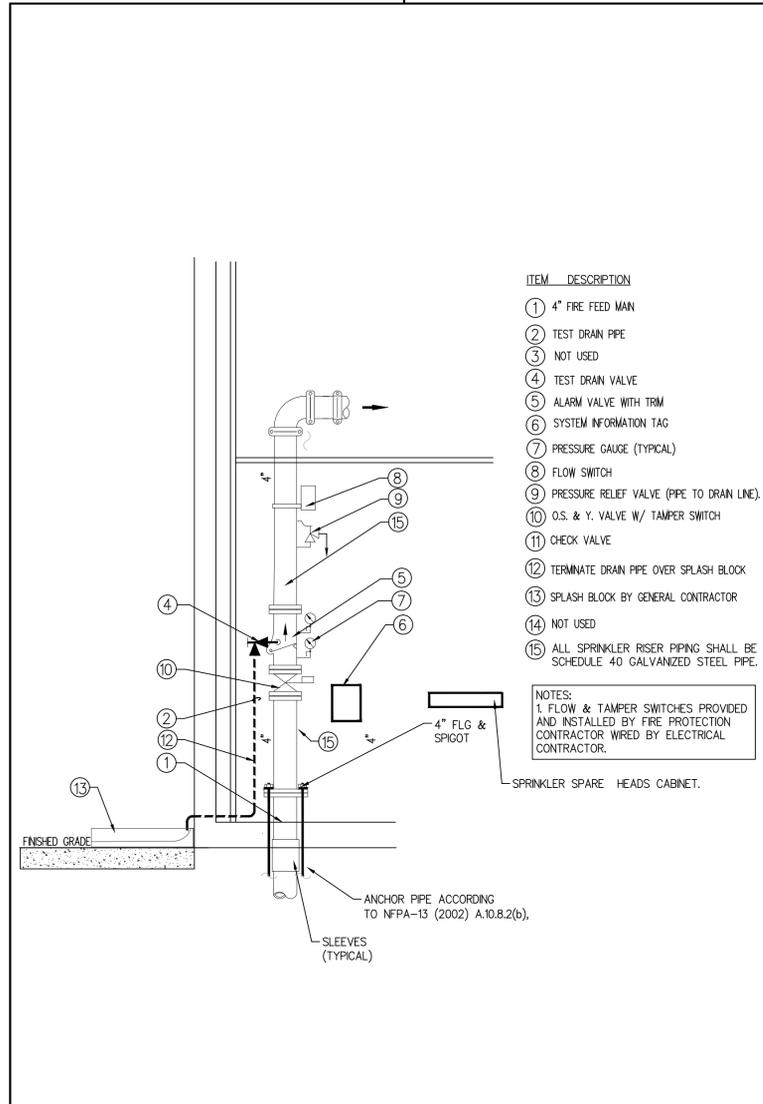


FLUSHING CONNECTION DETAIL
 NOT TO SCALE



CONCEALED SPRINKLER DETAIL
 NOT TO SCALE

FLUSHING CONNECTION AND SPRINKLER DETAIL
 NOT TO SCALE

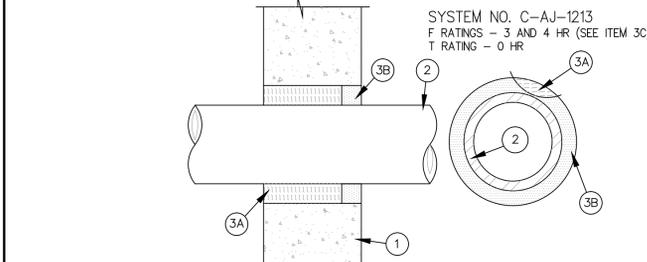


- ITEM DESCRIPTION**
- 4" FIRE FEED MAIN
 - TEST DRAIN PIPE
 - NOT USED
 - TEST DRAIN VALVE
 - ALARM VALVE WITH TRM
 - SYSTEM INFORMATION TAG
 - PRESSURE GAUGE (TYPICAL)
 - FLOW SWITCH
 - PRESSURE RELIEF VALVE (PIPE TO DRAIN LINE)
 - O.S. & Y. VALVE W/ TAMPER SWITCH
 - CHECK VALVE
 - TERMINATE DRAIN PIPE OVER SPLASH BLOCK
 - SPLASH BLOCK BY GENERAL CONTRACTOR
 - NOT USED
 - ALL SPRINKLER RISER PIPING SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE.

NOTES:

- FLOW & TAMPER SWITCHES PROVIDED AND INSTALLED BY FIRE PROTECTION CONTRACTOR WIRED BY ELECTRICAL CONTRACTOR.

SPRINKLER RISER DETAIL
 NOT TO SCALE



- SYSTEM NO. C-AJ-1213**
 F RATINGS - 3 AND 4 HR (SEE ITEM 3C)
 T RATING - 0 HR
- FLOOR OR WALL ASSEMBLY - MIN. 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (1100-150 PC-) CONCRETE. FLOOR MAY ALSO BE CONSTRUCTED OF ANY MIN. 6 IN. THICK UL CLASSIFIED HOLLOW CORE PRE CAST CONCRETE UNITS *. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS *. MAX. DIAM. OF OPENING IS 28 IN. MAX. DIAM. OF OPENING IN FLOOR CONSTRUCTED OF HOLLOW CORE PRE CAST CONCRETE UNITS IS 7 IN. SEE CONCRETE BLOCKS (CAZT) AND PRE CAST CONCRETE UNITS (CFTV) CATEGORIES IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
 - THROUGH PENETRANT - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRE STOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN. 0 IN. (POINT CONTACT) TO MAX. 4 IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY THE FOLLOWING TYPES AND SIZES OF METALLIC PIPE, CONDUIT OR TUBING MAY BE USED:
 - STEEL PIPE - NOM 24 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
 - IRON PIPE - NOM 24 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - CONDUIT - NOM 4 IN. DIAM (OR SMALLER) ELECTRICAL METALLIC TUBING, NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT OR NOM 1 IN. DIAM (OR SMALLER) FLEXIBLE STEEL CONDUIT.
 - COPPER TUBING - NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
 - COPPER PIPE - NOM 4 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
 - FIRE STOP SYSTEM - THE FIRE STOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
 - PACKING MATERIAL - MIN. 3 IN. THICKNESS OF MIN. 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. WHEN FLOOR IS CONSTRUCTED OF HOLLOW-CORE PRE CAST CONCRETE UNITS, PACKING MATERIAL IS TO BE RECESSED FROM BOTH SURFACES OF FLOOR TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
 - FILL, VOID OR CAVITY MATERIAL* - CAULK - MIN. 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. WHEN FLOOR IS CONSTRUCTED OF HOLLOW-CORE PRE CAST CONCRETE UNITS, FILL MATERIAL IS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF FLOOR, FLUSH WITH FLOOR SURFACES. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN. 3/8 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE/ CONCRETE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL OR HOLLOW-CORE PRE CAST CONCRETE FLOOR SPECIFIED TECHNOLOGIES INC. - LC 150, 151, 152 OR 155 SEALANT.
 - STEEL COVER PLATE - (NOT SHOWN) - MIN. 0.014 IN. (NO. 28 GAUGE) GALV STEEL CUT TO FIT THE CONTOUR OF THE THROUGH - PENETRANT (ITEM 2) WITH A MIN. 2 IN. LAP ON THE TOP SURFACE OF FLOOR AND BOTH SURFACES OF WALL ASSEMBLY AROUND THE PERIMETER OF THE THROUGH - OPENING. SEAMS OF STEEL COVER PLATE SHALL OVERLAP A MIN. 1/2 IN. STEEL COVER PLATE SECURED TO TOP SURFACE OF FLOOR AND BOTH SURFACES OF WALL ASSEMBLY BY MEANS OF 1/4 IN. DIAM BY 1-3/4 IN. LONG STEEL CONCRETE ANCHORS IN CONJUNCTION WITH 1/4 IN. BY 1-1 A IN. DIAM STEEL FENDER WASHERS SPACED A MAX. 6 IN. OC. THE HOURLY F RATING OF THE FIRE STOP SYSTEM IS DEPENDENT UPON THE USE OF THE STEEL COVER PLATE. IF THE STEEL COVER PLATE IS USED, THE F RATING OF THE FIRE STOP SYSTEM IS 4 HR. IF THE STEEL COVER PLATE IS OMITTED, THE F RATING OF THE FIRE STOP SYSTEM IS 3 HR.

* BEARING THE UL CLASSIFICATION MARKING

2,3 OR 4 HOUR RATED PENETRATION FOR FLOORS OR WALLS
 NOT TO SCALE

FIRE PROTECTION SYSTEMS.

PART 1 GENERAL

1.01 WORK INCLUDED

- A. COMPLETE FIRE PROTECTION SYSTEM PIPE, FITTINGS, VALVES, AND FINAL CONNECTIONS TO EXISTING SPRINKLER RISER.
 - B. SYSTEM SHALL BE INSTALLED BY FLORIDA LICENSED FIRE PROTECTION CONTRACTOR.
- 1.02 RELATED WORK
- A. SUPPORTS AND ANCHORS.
 - B. MECHANICAL IDENTIFICATION.
- 1.03 REFERENCES

- A. ANSI/ASME B16.1 – CAST IRON PIPE FLANGES AND FLANGED FITTINGS, CLASS 25, 125, 250, AND 800.
- B. ANSI/ASME B 16.5 – PIPE FLANGES AND FLANGED FITTINGS.
- C. ANSI/ASME B 16.25 – BUTT WELDING ENDS.
- D. ANSI/ASME SECTION 9 – WELDING AND BRAZING QUALIFICATIONS.
- E. ANSI/ASTM A135 – ELECTRIC-RESISTANCE-WELDED STEEL PIPE.
- F. ANSI/AWWA CL 110 – DUCTILE IRON AND GRAY IRON FITTINGS.
- G. ANSI/AWWA C 151 – DUCTILE IRON PIPE, CENTRIFUGALLY CAST.
- H. ASTM A795 – PIPE, STEEL, BLACK AND HOT-DIPPED, ZINC-COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
- I. SEAMLESS COPPER TUBE ASTM B 75, & WATER TUBE ASTM B 88.
- J. SPECIFICATION FOR GENERAL REQUIREMENTS FOR WROUGHT SEAMLESS COPPER & COPPER-ALLOY TUBE ASTM B 251.
- K. FLUXES FOR SOLDERING APPLICATIONS OF COPPER AND COPPER-ALLOY TUBE ASTM B 815.
- L. SOLDER METAL, 95-5 (THIN ANTIMONY GRADE 95TA) ASTM B 32.
- O. NFPA 13 (2007) – INSTALLATION OF SPRINKLER SYSTEMS.
- Q. NFPA 24 (2007) – STANDARDS FOR INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES.
- R. NFPA-51 B (2009) – STANDARD FOR FIRE PREVENTION DURING WELDING CUTTING & OTHER HOT WORK.
- S. FLORIDA SPECIFIC ADDITION OF NFPA-10, THE LIFE SAFETY CODE.
- T. NFPA-241 (2004) – STANDARD FOR SAFE GUARDING BUILDING CONSTRUCTION & DEMOLITION OPERATIONS.
- U. FLORIDA BUILDING CODE 2010 – BUILDING
- V. FLORIDA ELEVATOR SAFETY CODE – FLORIDA ADMINISTRATIVE CODE CHAPTER 61C-5 AND ADAPTED BY REFERENCE CHAPTER 4A-47 OF F.A.C.
- W. FLORIDA FIRE PREVENTION CODE 2010.
- X. OTHER CODES & STANDARDS ADAPTED 12/31/2011 BY STATE FIRE MARSHALL'S RULE 69A-3.012 F.A.C. AND UL / FM REQUIREMENTS SHALL BE TAKE PRECEDENCE FOR THE FIRE PROTECTION SYSTEM INSTALLATION IF SET STRINGENT STANDARDS OR ADD ADDITIONAL REQUIREMENTS OVER STANDARDS LISTED ABOVE.

1.04 QUALITY ASSURANCE

- A. CONFORM TO NFPA 13 (2007) FOR SPRINKLER SYSTEMS.
- B. WELDING MATERIALS AND PROCEDURES: CONFORM TO ASME CODE.
- C. EMPLOY CERTIFIED WELDERS IN ACCORDANCE WITH ANSI/ASME SECTION 9, AWS D 10.9.
- D. VALVES: BEAR UL LABEL OR MARKING. PROVIDE MANUFACTURER'S NAME AND PRESSURE RATING MARKED ON VALVE BODY.

1.05 SUBMITTALS

- A. SUBMIT PRODUCT DATA.
- B. INDICATE PIPE MATERIALS USED, JOINTING METHODS, SUPPORTS, FLOOR AND WALL PENETRATION SEALS.
- C. INDICATE VALVE DATA AND RATINGS.
- D. SPRINKLERS, PIPING LAYOUT, PIPE SIZES, ALONG WITH FABRICATION DRAWINGS.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. DELIVER AND STORE VALVES IN SHIPPING CONTAINERS, WITH LABELING IN PLACE.
- B. PROVIDE TEMPORARY PROTECTIVE COATING ON CAST IRON AND STEEL VALVES.
- C. PROVIDE TEMPORARY END CAPS AND CLOSURES. MAINTAIN IN PLACE UNTIL

1.07 INSTALLATION

- A. SYSTEM SHALL BE INSTALLED IN CONFORMANCE WITH THE CURRENT EDITION OF NFPA 13, STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS AND OTHER STANDARDS AS LISTED IN SECTION 1.3. ABOVE.
- B. IN ELEVATOR EQUIPMENT ROOM, AND ELEVATOR SHAFT AN INDICATING BUTTERFLY VALVES WITH TAMPER SWITCH SHALL BE INSTALLED. WIRING BY FIRE ALARM CONTRACTOR.
- C. ALL MATERIALS INSTALLED SHALL ADHERE TO THE MANUFACTURER'S INSTALLATION GUIDELINES.

PART 2 PRODUCTS

2.01 PIPE

- A. STEEL PIPE: (ABOVE GRADE) ANSI/ASTM A 53; ASTM A120; ASTM A 135; BLACK; WEIGHT; SCHEDULE 40. IN AREAS WHERE PIPING MAY CORRODE THE PIPING & FITTING SHALL BE GALVANIZED STEEL.
- B. IRON PIPE: (BELOW GRADE) ANSI/AWWA C151, DUCTILE IRON. CEMENT LINED AND BITUMINOUS SEAL COATED UP TO 5'-0" FROM BUILDING WALL.
- C. COPPER TUBE AND FITTINGS: NOT USED

2.02 PIPE FITTINGS

- A. STEEL FITTINGS: (ABOVE GRADE) 2" AND LARGER, ASME B 16.25, BUTT WELD ENDS, ASTM A234, WROUGHT CARBON STEEL AND ALLOY STEEL, ASME B16.5, STEEL FLANGES AND FITTINGS, ANSI/ASME B 16.11, FORGED STEEL SOCKET WELDED AND THREADED.
- B. CAST IRON FITTINGS: (ABOVE GRADE) 1-1/2" AND SMALLER, ASME B16.4, SCHEDULED FITTINGS.
- C. DUCTILE IRON FITTINGS: (BELOW GRADE) 4" AND LARGER, ANSI/AWWA CL 10.

2.03 JOINT MATERIALS

- A. THREADED JOINT SHALL HAVE THREADS CUT TO ASME B1.20.1 "PIPE THREADS" AND JOINT COMPOUND SHALL BE APPLIED TO MALE THREADS ONLY.
- B. WELDING SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF AWS B2.1.
- C. SOLVENT CEMENT FOR APPROVED PLASTIC PIPE FOR FIRE PROTECTION SYSTEM SHALL COMPLY WITH APPLICABLE PIPE & FITTING MANUFACTURERS REQUIREMENTS.

2.04 UNIONS, FLANGES, AND COUPLINGS FOR CUT OR ROLL GROOVED CONNECTIONS

- A. UNIONS: 150 PSI MALLEABLE IRON FOR THREADED FERROUS PIPING.
- B. FLANGES: 150 PSI FORGED STEEL SLIP-ON, WELD NECK FLANGES, CONNECTIONS 2" AND LARGER (UL & FM).
- C. GROOVED PIPING PRODUCTS: 250 PSI CUT AND ROLL GROOVED PIPING

2.05 ACCEPTABLE MANUFACTURERS – GATE VALVES

- A. STOCKHAM.
- B. CRANE.
- C. JENKINS.
- D. NBCCO.

2.06 GATE VALVES

- A. 2 1/2" AND LARGER, UL LISTED, FLANGED FACED, OS.&Y., CAST IRON BODY AND BONNET, BRONZE FITTED 175 WWP CLASS ASTM A 126 WITH TAMPER SWITCH, STOCKHAM 6634, JENKINS 825A, CRANE 467, OR NBCCO P607.
- B. 2" AND SMALLER, UL LISTED, THREADED BRONZE, RISING STEM 175 WWP CLASS, ASTM B 62 WITH TAMPER SWITCH, STOCKHAM B 133 OR EQUAL BY CRANE, JENKINS, OR WALWORTH.
- C. 2" AND SMALLER, UL LISTED, THREADED BRONZE, RISING STEM 175 WWP CLASS, ASTM B 62 WITH TAMPER SWITCH, STOCKHAM B 133 OR EQUAL BY CRANE, JENKINS, OR WALWORTH.

2.07 CHECK VALVES: NOT USED

2.08 GLOBE VALVES

- A. UL LISTED, BRONZE BODY AND DISC, SCREWED BONNET, 200 PSI, WOG, THREADED ENDS, STOCKHAM NO. B16, CRANE NO. 1, JENKINS NO. 746.

2.09 INDICATING BUTTERFLY VALVES

- A. UL LISTED, FM APPROVED WHERE APPLICABLE, 175 POUND, CAST IRON BODY, DUCT IRON NICKEL PLATED DISC, EPDM SEAT, WAFER OR THREADED LUG BODY, TAMPER SWITCH, REMOTE INDICATOR.

2.10 INDICATOR POST: EXISTING WATER SUPPLY TO REMAIN

2.11 IRON BODY GATE VALVE

- A. UL LISTED, FM APPROVED, BOLTED BONNET, INDICATOR POST PATTERN, NON-RISING STEM, SOLID WEDGE, 175 PSI, NON-SHOCK, COLD WATER, NBCCO M-609 OR EQUIVALENT.

2.12 HANGERS AND SUPPORTS

- A. PIPING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN ACCORDANCE WITH NFPA PAMPHLET NO. 13. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION OF PIPE LINES. HANGERS SHALL BE IN ACCORDANCE WITH NFPA PAMPHLET NO. 13.
- B. WHERE PIPING IS REQUIRED TO BE HUNG FROM OTHER THAN POURED CONCRETE OR METAL STRUCTURE, SUBMIT PROPOSED METHOD OF SUPPORT TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
- C. VERTICAL PIPING – PROVIDE RISER CLAMPS AT EACH LEVEL. USE SHORT END RISER WHERE SPACE IS LIMITED. INSTALL RISER CLAMP BELOW THE FLOOR, SUSPEND FROM TWO HANGER RODS WHERE ESCUTCHEONS PLATES ARE INSTALLED AS REQUIRED BY THESE SPECIFICATIONS.

2.13 ESCUTCHEONS

- A. PROVIDE ESCUTCHEONS ON ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, PARTITIONS, AND CEILINGS, EXCEPT PROVIDE CLOSE FITTING METAL ESCUTCHEONS ON BOTH SIDES OF PIPING (WHETHER EXPOSED OR NOT) THROUGH REQUIRED FIRE RATED WALLS, FLOORS, PARTITIONS, AND CEILINGS.
- B. ESCUTCHEONS SHALL BE HELD IN PLACE BY INTERNAL SPRING TENSION OR SET SCREWS.
- C. APPLICATION: FINISHED SPACES – ANODIZED ALUMINUM, CHROME PLATED BRASS UNFINISHED SPACES (EXCLUDING MECHANICAL EQUIPMENT ROOMS) – PLAIN BRASS, CAST IRON OR ALUMINUM.

2.14 SLEEVES

- A. PROVIDE SLEEVES FOR EACH PIPE PASSING THROUGH WALLS, PARTITIONS & FLOORS.
- B. FLOORS AND REQUIRED FIRE RATED PARTITIONS – 1/2" MAXIMUM CLEARANCE BETWEEN OUTSIDE OF PIPE AND INSIDE OF SLEEVE.
- C. PARTITIONS NOT FIRE RATED – 1-1/2" MAXIMUM CLEARANCE BETWEEN OUTSIDE OF PIPE AND INSIDE OF SLEEVE.

2.15 FIRE DEPARTMENT CONNECTION (STANDARD OR STORTZ HOSE CONNECTION AS PER LOCAL FIRE DEPARTMENT STANDARDS)

- A. WALL OR RISER MOUNTED TYPE FIRE DEPARTMENT CONNECTION IF APPROVED BY LOCAL FIRE DEPARTMENT SHALL BE UL LISTED, FM APPROVED, BRASS CHROME PLATED WITH INDIVIDUAL DROP DAMPER VALVES, PLUGS & CHAINS, MARKED "AUTO-SPKR" WITH (2) 2 1/2" FIRE DEPARTMENT CONNECTIONS OR STORTZ AS REQUIRED BY LOCAL FIRE DEPARTMENT.
- B. FREE STANDING TYPE: 4" BY 2-1/2" BY 2-1/2" OR STORTZ BRASS CHROME PLATED WITH INDIVIDUAL DROP DAMPER VALVES, PLUGS, AND CHAINS, MARKED "AUTO- SPKR". POTTER-ROEMER NO. 5763 OR EQUAL BY ELKHART. THE MAXIMUM DISTANCE OF THE FIRE DEPARTMENT CONNECTIONS FROM FIRE HYDRANT SHALL NOT BE GREATER THAN AS REQUIRED BY NFPA STANDARDS AND LOCAL FIRE DEPARTMENT REQUIREMENTS.
- C. INSTALL ADDITIONAL FIRE HYDRANT IF THE DISTANCE TO THE ACTIVE FIRE HYDRANT EXCEEDS MAXIMUM REQUIRED TO NEW FIRE DEPARTMENT CONNECTION. THE NEW FIRE HYDRANT SHALL BE INSTALLED AS PER LOCAL WATER DEPARTMENT STANDARD DETAIL.
- D. FIRE DEPARTMENT CONNECTION SHALL BE ARRANGED ACCORDING TO NFPA-13 (2002) 8.15.11. THE FIRE DEPARTMENT CONNECTION INSTALLED ON WATER SUPPLY PIPING UPSTREAM OF THE WET TYPE SYSTEM OR AT THE BACK FLOW PREVENTER ON THE SYSTEM SIDE SHALL BE PERMITTED ONLY IF APPROVED BY LOCAL FIRE MARSHALL. CONSULT LOCAL FIRE DEPARTMENT FOR FINAL ARRANGEMENT OF THE FIRE DEPARTMENT CONNECTIONS AND FOR THE REQUIRED MINIMUM DISTANCE FROM THE ACTIVE FIRE HYDRANTS AND THE BUILDING WALL.

2.16 TAMPER SWITCHES

- A. SPRINKLER CONTROL VALVES SHALL BE PROVIDED WITH TAMPER INDICATORS MONITORED AT THE CENTRAL CONTROL STATION. GRINNELL FIRE DEPARTMENT PROTECTION SYSTEMS MODEL F640 OR EQUIVALENT.

2.17 FLOW SWITCHES:

- A. PROVIDE FLOW SWITCH AS DESCRIBED IN SECTION 2.18. PROVIDE LIQUID FLOW SWITCH AT EACH ZONE CONTROL VALVE STATION. SIGNAL FROM SWITCH SHALL BE WRED TO FIRE ALARM PANEL OR ALARM BELL, WHERE REQUIRED BY THE LOCAL FIRE DEPARTMENT THE ALARM PANEL MAY BE INTERLOCKED WITH LOCAL FIRE DEPARTMENT BY TELEPHONE LINE OR OTHER METHOD AS REQUIRED BY THE LOCAL AUTHORITY.
- B. WIRING AND PANEL SHALL BE PROVIDED BY ELECTRICAL OR FIRE ALARM CONTRACTORS. FLOW SWITCH SHALL BE OF PADDLE TYPE, SINGLE POLE DOUBLE THROW WITH ADJUSTMENT FOR SENSITIVITY TO FLOW. WETTED PARTS SHALL BE OF BRASS AND MONEL. SWITCH MOUNTING FITTINGS SHALL BE OF THE SAME SIZE OF PIPE WHERE IT IS INSTALLED. SWITCH SHALL HAVE VAPOR PROOF CONSTRUCTION AND SHALL BE RATED FOR A MAXIMUM PRESSURE OF 175 PSI AND A MAXIMUM TEMPERATURE OF 225 F. GRINNELL MODEL F620, VIKING MODEL BH-100L, OR APPROVED EQUAL.

2.18 WET SYSTEM DEVICES

- A. WET RISER ALARM VALVE WITH TRIM SHALL BE AS SHOWN ON THE DETAIL. INSTALL ALL COMPONENTS AS PER ALARM VALVE MANUFACTURER'S RECOMMENDATIONS.
- B. SYSTEM CONTROL VALVE: SYSTEM CONTROL VALVE SHALL BE A LISTED INDICATING TYPE VALVE. CONTROL VALVE SHALL BE UL LISTED AND FACTORY MUTUAL APPROVED FOR FIRE PROTECTION INSTALLATIONS. SYSTEM CONTROL VALVE SHALL BE RATED FOR NORMAL WORKING PRESSURE BUT IN NO CASE LESS THAN 175 PSI.
- C. DRAINS

- DRAINS WHERE THE CAPACITY OF TRAPPED SECTIONS OF PIPING IS LESS THAN 5 GALLONS, AN AUXILIARY DRAIN CONSISTING OF NOT LESS THAN A 1/2" VALVE AND PLUG SHALL BE PROVIDED. ACCESS PANEL TO DRAIN VALVES ABOVE CEILING SHALL BE PROVIDED. COORDINATE WITH GENERAL CONTRACTOR LOCATIONS FOR EACH DRAIN VALVE.

D. WATER FLOW SWITCH.

- WET TYPE SPRINKLER SYSTEM SHALL BE EQUIPPED WITH VANE OR PADDLE TYPE WATER FLOW SWITCHES AFFIXED TO THE SYSTEM RISER. THE VANE TYPE FLOW SWITCH SHALL BE EQUIPPED WITH ADJUSTABLE DELAY OF DOUBLE ALARM INITIATION. ADJUSTABLE RANGE SHALL BE FROM 0 TO 120 SECONDS. VANE WATER FLOW SWITCH SHALL BE VIKING MODEL VSR-F OR APPROVED EQUAL.

E. WIRING AND FIRE ALARM PANEL SHALL BE AS PER FIRE ALARM DRAWINGS.

2.20 SPRINKLER HEADS

- A. ALL HEADS SHALL BE OF THE PROPER TEMPERATURE RATING FOR THE LOCATION IN WHICH THEY ARE INSTALLED.
- B. PROVIDE STOCK OF EXTRA SPRINKLER HEADS AND SPRINKLER WRENCHES IN CABINET IN ACCORDANCE WITH NFPA 13. STOCK SPRINKLERS BOX SHALL BE INSTALLED IN MECHANICAL ROOM.
- C. PROVIDE APPROVED SPRINKLER HEAD WIRE GUARDS FOR ALL SPRINKLER HEADS LOCATED 7'-0" OR LESS ABOVE FLOOR.
- D. FINISH OF SPRINKLER HEADS SHALL BE AS SELECTED AND APPROVED BY THE ARCHITECT. SUBMIT SAMPLES.

- E. BAFFLES SHALL BE INSTALLED WHENEVER SPRINKLERS ARE LESS THAN 6' APART, AS PER NFPA 13.

- F. SPRINKLERS SHALL BE UPRIGHT, PENDENT OR SIDEWALL AS INDICATED AND CONFORM TO NFPA 13. PROVIDE QUICK RESPONSE SPRINKLER HEADS FOR LIGHT AND ORDINARY HAZARD OCCUPANCY.

- G. SPRINKLER HEADS INSTALLED IN UNFINISHED AREA SHALL BE BRONZE (OR SPECIAL TYPE AS REQUIRED AND APPROVED BY THE ARCHITECT).

- H. SPRINKLER HEADS INSTALLED IN FINISHED AREAS SHALL BE CHROME PLATED WITH A SATIN FINISH. CONCEALED WITH COVER COLOR AS RECOMMENDED BY THE ARCHITECT.

I. ALL TYPES AND VARIATIONS SHALL HAVE THE FOLLOWING FEATURES:

- 1. APPROVED HEAT RESPONSIVE AUTOMATIC TYPE LISTED BY UL OR OTHER NATIONALLY RECOGNIZED TESTING LABORATORY.
- 2. 155 DEGREES FUSIBLE ELEMENT, OR GLASS BULB STYLE AS SPECIFIED FOR THE PARTICULAR TYPE. PROVIDE HIGHER TEMPERATURE FOR HEADS LOCATED IN DANGER ZONE AS DEFINED IN NFPA NUMBER 13 AND FM 2-8.3. NOMINAL 1/2 INCH ORIFICE.
- 3. NOMINAL 1/2 INCH ORIFICE.
- 4. PATTERN, BODY DEFLECTORS CAPABLE OF FLOWING Q = K TIMES SQUARE ROOT OF P, IN WHICH Q = U.S. GALLONS PER MINUTE WATER DELIVERY THROUGH AN OPEN SPRINKLER HEAD. K = 5.3-5.8, DIMENSIONAL CONSTANT. P = POUNDS PER SQUARE INCH RESIDUAL GAUGE PRESSURE AT POINT OF ATTACHMENT OF HEAD INLET TO PIPE NIPPLE OR PIPE FITTING. STANDARD BRASS BODY.
- 5. CAPABLE OF REMAINING CLOSED AND LEAK-PROOF AT TEMPERATURES LESS THAN 80 DEGREES FAHRENHEIT AGAINST 100 PSI PRESSURE.

- J. REFER TO SPRINKLER HEADS SCHEDULE ON THE DRAWINGS FOR ADDITIONAL INFORMATION.

K. CONCEALED HEADS.

- 1. AN ADDITIONAL FEATURE AS SPECIFIED IN THE SPRINKLER SCHEDULE SHALL INCLUDE:
 - a. ADJUSTABLE FLUSH MODEL CONCEALED HEAD AND COVER PLATE.
 - b. FINISH FOR COVER PLATE TO BE SELECTED BY ARCHITECT.

2.21 FIRE HOSE AND VALVE CABINETS (NOT USED)

2.22 IDENTIFICATION

- A. VALVES – ATTACH 3" SQUARE ANODIZED ALUMINUM OR BRASS TAG STAMPED WITH DESIGNATED NUMBER 1 INCH HIGH FILLED WITH RED ENAMEL TO EACH VALVE. SECURELY FASTEN TAG TO VALVE SPINDLE OR HANDLE WITH A BRASS CHAIN.
- B. SCHEDULES AND CHARTS – FURNISH TO OWNER'S REPRESENTATIVE THREE (3) COMPLETE FRAMED PLASTIC LAMINATED VALVE TAG SCHEDULES. SCHEDULE SHALL INDICATE TAG NUMBER, VALVE LOCATION BY FLOOR AND NEAREST COLUMN NUMBER, VALVE SIZE AND FIRE ARE CONTROLLED.
- C. FINISH THREE FRAMED PLASTIC LAMINATED DIAGRAMMATIC CHARTS SHOWING SCHEMATICALLY THE COMPLETE SPRINKLER SYSTEM WITH MAJOR CONTROL VALVES AND NUMBERS.
- D. APPLY COLOR CODED POLYVINYL CHLORIDE (PVC) PIPE BANDS IDENTIFYING PIPE SERVICE AND DIRECTION OF FLOW.
- E. ON EXPOSED PIPING APPLY BANDS ON 40' CENTERS OF STRAIGHT RUNS, AT VALVE LOCATIONS, AT POINTS WHERE PIPING ENTERS AND LEAVES A PARTITION WALL, FLOOR, OR CEILING.
- F. ON CONCEALED PIPING INSTALLED ABOVE REMOVABLE CEILING CONSTRUCTION, APPLY BANDS IN MANNER DESCRIBED FOR EXPOSED PIPING.
- G. ON CONCEALED PIPING INSTALLED ABOVE NON-REMOVABLE CEILING CONSTRUCTION, OR IN PIPE SHAFTS, APPLY BANDS AT VALVE OR OTHER DEVICES THAT ARE MADE ACCESSIBLE BY MEANS OF ACCESS DOORS OR PANELS. PROVIDE ACCESS PANELS AS REQUIRED.
- H. APPLY BANDS AT EXIT AND ENTRANCE POINTS TO EACH PIECE OF EQUIPMENT.
- I. BAND WIDTHS SHALL BE EIGHT (8) INCHES FOR PIPES UP TO TEN (10) INCHES IN DIAMETER AND SIXTEEN (16) INCHES WIDE FOR LARGER DIAMETER PIPING. LETTER HEIGHTS STATING SERVICE SHALL BE PREPRINTED ON BANK, THREE-QUARTER (3/4) INCHES HIGH FOR EIGHT (8) INCH BANDS AND ONE AND ONE-QUARTER (1-1/4) INCHES HIGH FOR SIXTEEN (16) INCH BANDS.
- J. NAMEPLATE DATA – THE INSTALLER SHALL PROPERLY IDENTIFY THE HYDRAULICALLY DESIGNED AUTOMATIC SPRINKLER SYSTEMS BY A PERMANENTLY ATTACHED SIGN INDICATING THE LOCATION, NUMBER OF SPRINKLERS IN THE HYDRAULICALLY DESIGNED SECTION AND THE BASIS OF DESIGN (DISCHARGE DENSITY OVER DESIGNED AREA OF DISCHARGE, INCLUDING GALLONS PER MINUTE AND RESIDUAL PRESSURE DEMAND AT BASE OF RISER). SUCH SIGNS SHALL BE PLACED AT THE CONTROLLING ALARM VALVE FOR THE SYSTEM CONTAINING THE HYDRAULICALLY DESIGNED LAYOUT.

2.23 INSPECTOR'S TEST CONNECTION

- A. TEST CONNECTIONS SHALL BE PROVIDED FOR EACH SPRINKLER SYSTEM EQUIPPED WITH AN ALARM DEVICE AND SHALL BE LOCATED AT THE HYDRAULICALLY MOST REMOTE PART OF EACH SYSTEM OR AS PER DETAILS ON THE DRAWINGS.
- B. TEST CONNECTION SHALL BE PIPED TO A LOCATION WHERE THE DISCHARGE WILL BE READILY VISIBLE AND WHERE WATER MAY BE DISCHARGED WITHOUT DAMAGE.

2.24 MAIN DRAINS

- A. DRAINS SHALL BE PIPED TO DISCHARGE AT SAFE POINTS OUTSIDE THE BUILDING OR AS SHOWN ON THE DRAWINGS. AUXILIARY DRAINS SHALL BE PROVIDED AS REQUIRED BY NFPA 13.

PART 3 EXECUTION

3.01 PREPARATION

- A. PROVIDE A COMPLETE, APPROVED FIRE SPRINKLER PROTECTION SYSTEM AS SPECIFIED FOR AREAS AS SHOWN ON DRAWINGS TO MEET ALL CODE REQUIREMENTS.
- B. THE INSTALLATION OF THE SPRINKLER SYSTEM, INCLUDING HEAD LOCATIONS, SHALL BE PERFORMED BY CONTRACTOR'S CURRENTLY EXPERIENCED IN THIS WORK AND HAVING FIVE CONTINUOUS YEARS OF EXPERIENCE HEREIN.
- C. SUBMIT 1/8 SCALE FABRICATION DRAWINGS OF FIRE SPRINKLER SYSTEM LAYOUT, PIPE SIZES, MAIN & BRANCH LOCATION SHALL BE PERFORMED BY THE CONTRACTOR'S CURRENTLY EXPERIENCED IN THIS WORK AND HAVING A FIVE (5) CONTINUOUS YEARS OF EXPERIENCE THEREIN.
- D. CONTRACTOR SHALL COORDINATE WITH OTHER DRAWINGS AND SECTIONS OF THE SPECIFICATIONS FOR ADDITIONAL INFORMATION AND COORDINATE HIS WORK WITH ALL OTHER TRADES AND NOTIFY ARCHITECT OF ANY CONFLICTS PRIOR TO INSTALLATION.
- E. CONTRACTOR SHALL OBTAIN RECENT FLOW TEST IF THE CONSTRUCTION WORK WILL NOT BEGAIN WITHIN 6 MONTHS FROM THE LAST WATER SUPPLY TEST SHOWN ON THE DRAWINGS. THE COST OF OBTAINING FLOW & PRESSURE TEST SHALL BE INCLUDED IN CONTRACTOR'S BID PACKAGE.

3.02 SUBMITTALS

- A. FURNISH SUBMITTALS ON ALL EQUIPMENT AND MATERIAL.

3.03 INSTALLATION

- A. ALL MATERIALS AND EQUIPMENT UTILIZED IN THE SYSTEM SHALL BE UL LISTED AND BEAR THE UL LABEL.
- B. ALL THREADED CONNECTIONS SHALL BE IN ACCORDANCE WITH LOCAL FIRE DEPARTMENT REQUIREMENTS.
- C. THE SPRINKLER INFORMATION INCLUDED IN THIS SPECIFICATION ARE GIVEN AS A GUIDE ONLY. THEREFORE, THEY DO NOT RELIEVE THIS CONTRACTOR FROM PROVIDING ALL WORK AND EQUIPMENT NECESSARY TO COMPLETE THE INSTALLATION ACCORDING TO THE REQUIREMENTS. THE NUMBER AND SPACING OF SPRINKLER HEADS, SPACING, AND SIZE OF PIPE, LOCATION AND NUMBER OF VALVES, METHOD OF DRAINING LINES, ALARM VALVES, AND ALL OTHER DETAILS AND WORK SHALL BE AS REQUIRED BY THE OWNER'S UNDERWRITERS, NFPA STANDARDS, AND THE LOCAL AUTHORITY HAVING JURISDICTION ORDINANCES.
- D. THE SPRINKLER HEADS IN ALL AREAS WITH CEILING TILES SHALL BE INSTALLED ON A TRUE AXIS BOTH DIRECTIONS WITH A MAXIMUM DEVIATION FROM THE AXIS LINE OF 1/2 INCH PLUS OR MINUS. AT THE COMPLETION OF THE INSTALLATION, IF ANY HEADS ARE FOUND TO EXCEED THE ABOVE MENTIONED TOLERANCE, SAME SHALL BE REMOVED AND REINSTALLED BY THIS CONTRACTOR.
- E. ALL SCREWED PIPE THROUGHOUT THE JOB SHALL BE REAMED SMOOTH BEFORE BEING INSTALLED. PIPE SHALL NOT BE SPLIT, BENT, FLATTENED, NOR OTHERWISE INJURED, EITHER BEFORE OR DURING INSTALLATION. NO WELDING IS ALLOWED INSIDE OF THIS BUILDING.
- F. PROVIDE ALL SPRINKLER HEADS AND WORK IN STRICT ACCORDANCE WITH APPROVED FABRICATION DRAWINGS. THE ARCHITECT RESERVES THE RIGHT TO REJECT ANY AND ALL WORK NOT IN ACCORDANCE WITH THE APPROVED FABRICATION DRAWINGS.
- G. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL CUTTING AND PATCHING WITH GENERAL CONTRACTOR. NO HOLE SHALL BE CUT IN STRUCTURAL MEMBERS WITHOUT THE WRITTEN CONSENT FROM THE ARCHITECT OR STRUCTURAL ENGINEER.

- H. FIRE PROTECTION CONTRACTOR SHALL PROVIDE SCAFFOLDS FOR SPRINKLER SYSTEM INSTALLATION.

- I. INSTALLATION SHALL COMPLY WITH ALL APPLICABLE NFPA-13 (2002) CHAPTER 6.6 STANDARDS HANGING, BRACING, AND RESTRAINT OF SYSTEM PIPING.

- J. FINAL APPROVAL OF THE ENTIRE SPRINKLER SYSTEM IS REQUIRED FROM THE LOCAL AUTHORITY HEAVING JURISDICTION.

3.04 COORDINATION

- A. THE CONTRACTOR DONG THE SHEET METAL SHOP DRAWINGS AND THE PLUMBING, FIRE PROTECTION, ELECTRICAL, FIRE ALARM CONTRACTORS, HVAC FOREMAN, AND GENERAL CONTRACTOR PROJECT MANAGER SHALL INSPECT & REVIEW THE DRAWINGS, AND SHALL COORDINATE THEIR WORK SO AS TO PROVIDE ADEQUATE SPACE ALLOWANCE ABOVE CEILING FOR ALL TRADES.
- B. WORK OF EACH TRADE SHALL BE DONE IN A PROPER SEQUENCE. ALL GRAVITY WASTE PIPING IN THE CEILING SPACE SHALL BE INSTALLED FIRST. THE SPRINKLER SYSTEM LAYOUT SHALL BE COORDINATED WITH APPROVED HVAC DUCTWORK SHOP DRAWINGS AND CEILING AIR DEVICES LOCATION. THERE SHOULD NOT BE APPLIED EXTRA COST TO THE OWNER AS A RESULT OF COORDINATION OF THE SPRINKLER WORKS WITH OTHER TRADES.
- C. ANY OPERATION THAT MAY CAUSE DISTURBANCE TO THE OWNER OR FACILITY OPERATION SHALL BE COORDINATED WITH THE OWNER.

3.04 TESTS

- A. UPON COMPLETION AND PRIOR TO ACCEPTANCE OF INSTALLATION, THE FIRE SPRINKLER SYSTEMS, SHALL BE FLUSHED AND TESTED IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS.
- B. CONCEALED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED TESTS HAVE BEEN COMPLETED IN PRESENCE OF THE INSPECTORS.
- C. CONTRACTOR SHALL INCLUDE IN HIS BID PACKAGE PARTIAL SPRINKLER SYSTEM TEST AS DIRECTED IN GENERAL CONTRACTORS CONSTRUCTION SCHEDULE.

3.05 WARRANTY:

- A. THE FIRE PROTECTION CONTRACTOR SHALL WARRANT HIS WORK TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF ALL WORK.

3.06 PERMITS

- A. FIRE PROTECTION CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AT HIS EXPENSE.

3.07 FABRICATION DRAWINGS:

- FURNISH SIX (6) COPIES OF SPRINKLER SYSTEM FABRICATION DRAWINGS, OF EQUIPMENT, AND MATERIAL FOR APPROVAL PRIOR TO PURCHASING.

3.08 RECORD DRAWINGS:

- A. AFTER COMPLETION OF ALL WORK THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE THE OWNER WITH AS BUILT RECORD DRAWINGS AS OUTLINED IN THIS SPECIFICATIONS.

END OF SECTION



CITY OF TAMPA
 CONTRACT ADMINISTRATION
 DEPARTMENT
 PLANNING AND DESIGN DIVISION
 308 E. JACKSON STREET 4 NORTH
 TAMPA, FLORIDA 33602
 p: 813. 274. 8456 – f: 813. 274. 8080
 url: www.tampagov.net

James E. Jackson, Jr. AIA, NOMA
 City Architect
 Edward D. Rice, AIA
 Project Architect
 Kevin L. Henika, AIA
 Project Architect
 Thomas A. Hester, Sr., AIA, NOMA
 Project Architect
 David R. Pagitt
 Supervisor, Architectural Drafting
 Kinsey C. Tillman
 Drafting Technician
 Jerry P., Sanders
 Drafting Technician
 Byron K. Thomas
 Drafting Technician

MEP CONSULTANT
 GRINER ENGINEERING, INC.
 1628 1st. AVENUE NORTH
 ST. PETERSBURG, FL 33713

STRUCTURAL CONSULTANT
 ROGAL-TGA CONSULTING
 ENGINEERS, INC.
 124 5th AVENUE SOUTH, SUITE B
 SAFETY HARBOR, FL 34695

CIVIL CONSULTANT
 GOLDER ASSOCIATES, INC.
 5100 W. LEMON STREET #114
 TAMPA, FL 33609

LANDSCAPE CONSULTANT
 DAVID CONNER & ASSOCIATES
 1509 W. SWANN AVENUE, SUITE 255
 TAMPA, FL 33606

FIRE STATION 19
 7910 INTERBAY BLVD.
 TAMPA, FL

DPW FILE NUMBER

DPW NUMBER
FD0116

ISSUE DATE
MAY 31, 2013

DRAWN BY

REVISIONS

- △
- △
- △

SEAL