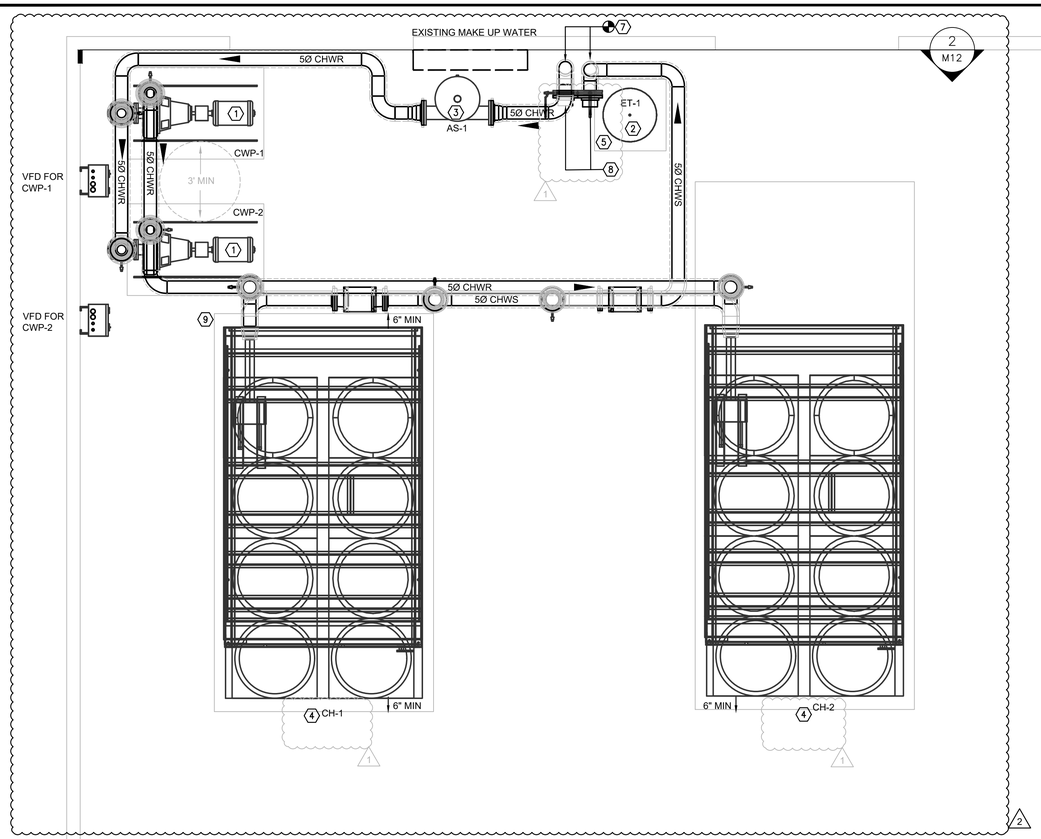


1 CHILLER YARD

SCALE: 3/8"=1'-0" 0 1' 2' 4'

GENERAL NOTES

1

a. REFER TO SHEET M01 AND M02 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND.

b. REFER TO PROJECT SPECIFICATIONS FOR EQUIPMENT AND INSTALLATION REQUIREMENTS. IF THERE IS ANY DISCREPANCY BETWEEN SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

c. COORDINATE WORK SCHEDULE WITH SITE PROJECT MANAGER.

d. DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS, FOR EXACT BUILDING DIMENSIONS SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

e. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATION OF DIFFUSERS.

f. SEE LIFE SAFETY DRAWINGS FOR WALL RATINGS AND FIRE RESISTANCE ASSEMBLIES REQUIREMENT. PROVIDE FIRE DAMPERS FOR ALL FIRE RATED WALLS.

g. COORDINATE ALL PIPING ROUTING WITH ALL TRADES.

h. COORDINATE WITH ELECTRICAL CONTRACTOR LOCATION OF DISCONNECTS. DO NOT BLOCK SERVICE CLEARANCE TO EQUIPMENT.

i. PROVIDE 2 PART EPOXY PAINT WITH CLEAR COAT AND FLAKES (TYPICAL FOR ALL MECHANICAL ROOMS).

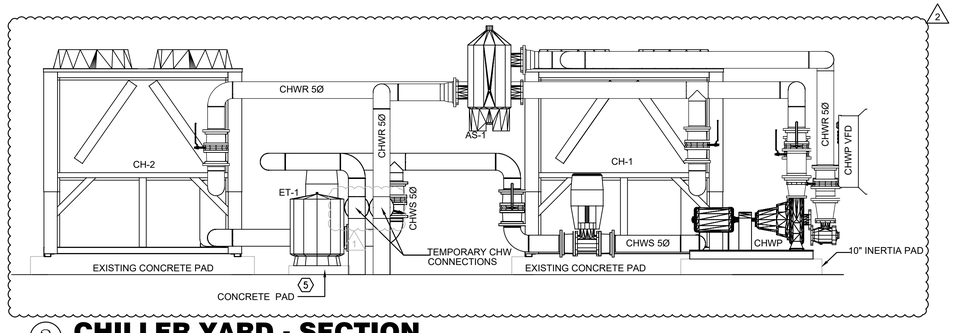
j. ALL EXPOSED PIPING, AIR SEPARATOR, EXPANSION TANK, PUMPS, ACCESSORIES, AND ALL OTHER EXPOSED EQUIPMENT SHALL BE PROVIDED WITH SMOOTH ALUMINUM JACKET.

k. PUMP ISOLATION CASING SHALL HAVE LOCKABLE LATCHES THAT WILL NOT DAMAGE INSULATION BLOCK FROM REMOVAL AND SERVICE

KEY NOTES

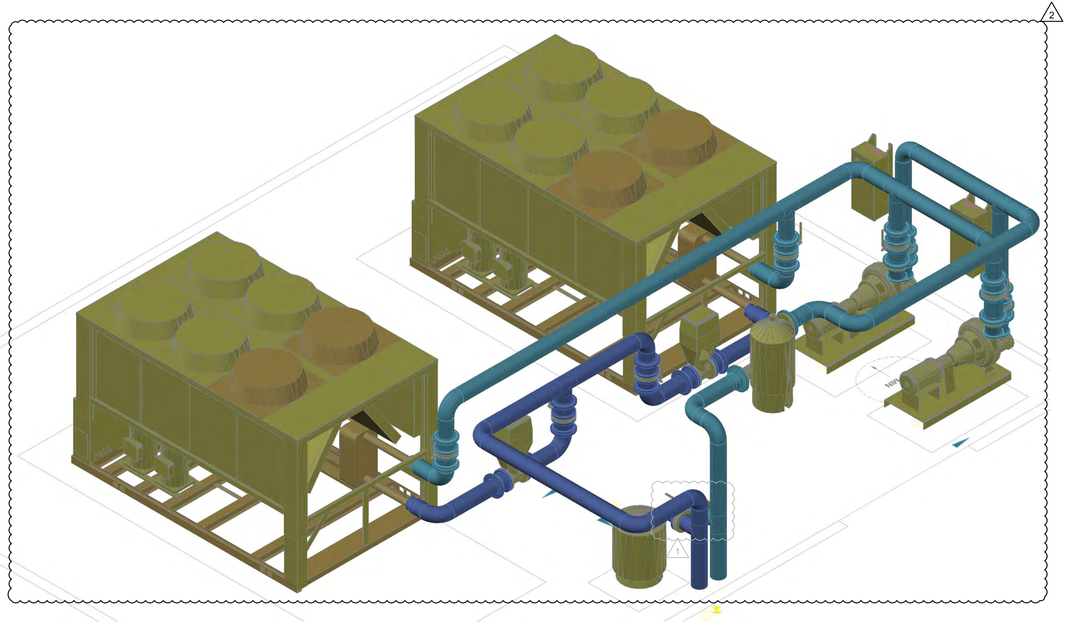
2

1. PROVIDE NEW PUMP WITH 10" INERTIA PAD. REFER TO SCHEDULES AND DETAIL SHEET FOR FURTHER INFORMATION.
2. PROVIDE NEW EXPANSION TANK. REFER TO SCHEDULES AND DETAIL SHEET FOR FURTHER INFORMATION.
3. PROVIDE NEW AIR SEPARATOR. REFER TO SCHEDULES AND DETAIL SHEET FOR FURTHER INFORMATION.
4. PROVIDE NEW AIR COOLED CHILLER ON EXISTING CONCRETE PAD AND PLACE WHERE EXISTING PAD EXTENDS 6" PAST EQUIPMENT FOOT PRINT. IF 6" MIN. IS UNOBTAINABLE, CENTER THE AIR COOLED CHILLER ON EXISTING CONCRETE PAD. REFER TO SCHEDULES AND DETAIL SHEET FOR FURTHER INFORMATION
5. PROVIDE A 4" CONCRETE PAD. EXTEND PAD 6" BEYOND EQUIPMENT.
6. MAKE UP WATER LINES TO BE RELOCATED AS NECESSARY. TO FIT NEW EQUIPMENT
7. PROVIDE NEW CHILLED WATER LINES CONNECTIONS ABOVE GROUND.
8. PROVIDE NEW TEMPORARY 5" CHWS/R PIPES. WITH ISOLATION VALVES AND BLANK FLANGES FOR FUTURE MAINTENANCE AND DIAGNOSTIC PURPOSES.
9. DEMOLISH A PORTION OF THE EXISTING CONCRETE PAD TO ALLOW ROOM FOR CHILLED WATER PUMPS AND INERTIA PAD. DEMOLISH UP TO THE POINT WHERE THE EXISTING PAD EXTENDS 6" PAST CHILLER FOOT PRINT. FINISH AND PAINT EXISTING CHILLER YARD FLOOR AND CHILLER PAD, COLOR SHALL BE PRESENTED TO OWNER AND PROJECT MANAGER FOR FINAL APPROVAL.



2 CHILLER YARD - SECTION

SCALE: 3/8"=1'-0" 0 1' 2' 4'



4 CHILLER YARD - ISOMETRIC

SCALE: 3/8"=1'-0" 0 1' 2' 4'

ENGINEER: BOBAK SHAHNAMI
REG. No. 78419
DATE: 06/07/20
BOBAK SHAHNAMI LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER
TEL: 954-421-1944
FAX: 954-421-1924

DRAWN BY:
DESIGNED BY:
CHECKED BY:
DATE: 06/07/20
SCALE: AS SHOWN
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	DESCRIPTION
1	01/15/2021	IG	BS COMMENT RESPONSES
2	03/15/2021	IG	BS COMMENT RESPONSES

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MECHANICAL ENLARGED PLANS
949 NW 38TH ST, FT. LAUDERDALE, FL.

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100% CD

SHEET NO. M12 OF 30
TOTAL: 30
CAD FILE: 1500-M401-2020045.dwg
DRAWING FILE NO. 1500-M401-2020045.dwg

AIR SEPARATOR SCHEDULE

MARK	SERVICE	GPM	WORKING FLUID	DIAMETER (IN)	MANUFACTURER	MODEL #	REMARKS
AS-1	CHILLED WATER	300	WATER	6	TACO	AC06-125	1,2

NOTES:
1. ASME CERTIFIED.
2. INLET AND OUTLET SHALL BE SAME SIZE AS PIPE

EXPANSION TANK SCHEDULE

MARK	UNIT LOCATION	DIAMETER (IN)	HEIGHT (IN)	PRE-CHARGE(PSI)	WEIGHT (LBS)	MANUFACTURER	MODEL #	REMARKS
ET-1	Chiller Yard	20	59	12	290	TACO	CA215-125	1,2

NOTES:
1. ASME CERTIFIED.
2. FULL ACCEPTANCE BLADDER.

LOUVERS

MARK	MANUFACTURER	SERVES	MODEL	SYSTEM	SIZE	FREE AREA (SQ FT)	AIRFLOW (CFM)	FACE VELOCITY (FPM)	PRESSURE DROP (in WC)
L-1	GREENHECK	AHU-9 OUTSIDE AIR	ESD-635D	INTAKE	28X20	1.7	760	500	0.03
L-2	GREENHECK	AHU-13 OUTSIDE AIR	ESD-635DE	INTAKE	16X16	0.6	240	500	0.03
L-3	GREENHECK	AHU-5 OUTSIDE AIR	ESD-635DE	INTAKE	36X36	4.8	2,150	500	0.03

NOTES:
1. LOUVERS TO BE HURRICANE RATED
2. LOUVERS TO BE WIND-DRIVEN RAIN RESISTANT AND SHALL COMPLY WITH AMCA 550.

ELECTRIC UNIT HEATER SCHEDULE

MARK	SERVING	AIRFLOW (CFM)	DUCT SIZE	KW	VOLTAGE	PHASE	CONTROL	NOTES
DH-1	AHU-2	2000	26X12	*18*	480	*3*	*SCR*	*1 THRU 6*
DH-2	AHU-2	1900	26X12	*18*	480	*3*	*SCR*	*1 THRU 6*
DH-3	AHU-3	1800	24X12	18	480	*3*	*SCR*	*1 THRU 6*
DH-4	AHU-3	1800	24X12	18	480	*3*	*SCR*	*1 THRU 6*
DH-6	AHU-6	1000	18X12	10	480	*3*	*3*	*1 THRU 6*
DH-7	AHU-8	2200	28X12	22	480	*3*	*SCR*	*1 THRU 6*
DH-8	AHU-4	2600	36X12	26	480	*3*	*SCR*	*1 THRU 6*
DH-9	AHU-5	2150	24X12	15	480	*3*	*SCR*	*1 THRU 6*
DH-10	AHU-9	3810	66X12	21	480	*3*	*SCR*	*1 THRU 6*
DH-11	AHU-10	900	14X12	10	480	*3*	*3*	*1 THRU 6*
DH-12	AHU-11	5700	60X12	15	480	*3*	*SCR*	*1 THRU 6*
DH-13	AHU-12	1440	20X12	6	480	*3*	*3*	*1 THRU 6*
DH-14	AHU-13	630	10X8	2.5	208	*1*	*1*	*1 THRU 6*

NOTES:
1. UL LISTED
2. EQUIPPED WITH THERMOSTAT CONTROL
3. EQUIPPED WITH THERMAL OVERLOAD PROTECTION
4. EQUIPPED WITH DISCONNECT SWITCH
5. SURFACE MOUNTING STYLE CABNET
6. SELECTION IS BASED ON INDEECO

HYDRONIC PUMP SCHEDULE

MARK	SERVES	VFD	FLOW (GPM)	HEAD (FT)	IMPELLER DIA.	MOTOR		ELECTRICAL		MANUFACTURER	TYPE	MODEL	WEIGHT	REMARKS
						HP	RPM	VOLTAGE	PHASE					
CHWP-1	CH-1 AND CH-2	YES	300	120	11.3	20	1750	460	3	TACO	BASE MOUNT END SUCTION	FI2513D	860	1-12
CHWP-2	CH-1 AND CH-2	YES	300	120	11.3	20	1750	460	3	TACO	HORIZONTAL SPLIT CASE	FI2513D	860	1-12

NOTES:
1. VARIABLE FRQUENCY DRIVES.
2. MOTOR SHALL BE NON-OVERLOADING AT ALL POINTS ON THE IMPELLER CURVE.
3. PROVIDE 10 INCH THICK INERTIA BASE.
4. IMPELLER SHALL BE NO GREATER THAN 85% OF THE MAXIMUM PUMP IMPELLER.
5. PROVIDE HIGH EFFICIENCY PUMPS.
6. PROVIDE TEFC MOTORS.
7. PROVIDE WITH SUCTION DIFFUSER.
8. PROVIDE AEGIS SHAFT GROUNDING RINGS FOR ALL MOTORS
9. PROVIDE STAINLESS STEEL FLEX CONNECTIONS
10. SELECT MOTORS SO THAT BHP DOES NOT EXCEED 85% OF RATED POWER
11. PROVIDE WITH FREEZE PROTECTION SUCH AS HEAT TAPE
12. PUMPS SHALL BE EQUIPPED WITH AN OVERRIDE TO ALLOW THE PUMPS CIRCULATE WATER VIA DDC CONTROLS

AIR COOLED CHILLER SCHEDULE

MARK	NOMINAL CAPACITY (TONS)	AHRI CONDITIONS		CONDENSER		EVAPORATOR					ELECTRICAL					MANUFACTURER	MODEL	LENGTH (in.)	WIDTH (in.)	HEIGHT (in.)	OPERATING WEIGHT	REMARKS
		EER	NPLV	EAT DB (°F)	FAN POWER (kW)	WATER FLOW (GPM)		EWT (°F)	LWT (°F)	NUMBER OF PASSES	PRESSURE DROP (FT)	TOTAL UNIT kW	MCA	MOCP	VOLTAGE	PHASE						
						DESIGN	MIN															
CH-1	120	10.2	15.54	95	9.721	154.4	135.9	60	42	2	6.46	134.2	249	300	460	3	TRANE	CGAM	166	89	93	6884	ALL
CH-2	120	10.2	15.54	95	9.721	154.4	135.9	60	42	2	6.46	134.2	249	300	460	3	TRANE	CGAM	166	89	93	6884	ALL

NOTES:
1. PROVIDE REFRIGERANT ISOLATION VALVES ON INDIVIDUAL COMPRESSORS INTALLED BY MANUFACTURER.
2. CHILLERS TO HAVE A MINIMUM OF TWO INDEPENDENT REFRIGERANT CIRCUITS.
3. CHILLERS TO HAVE AUTO-RESTART IN THE EVENT OF A POWER FAILURE.
4. INSULATION (ALL COLD PARTS) DESIGNED FOR HIGH HUMIDITY
5. INSTALL MANUFACTURER-PROVIDED DP FLOW SWITCHES IN PIPE AND WIRE TO CONTROL CENTER.
6. PROVIDE CHILLER WITH BACNET FOR COMMUNICATION WITH BAS.
7. MOUNT CHILLER ON 2 INCH THICK ELASTOMERIC ISOLATION PADS PROVIDED WITH CHILLER BY MANUFACTURER.
8. PROVIDE CHILLER ISOLATION VALVES FOR EACH CHILLER WITH VICTAULIC CONNNECTION AT CHILLER ONLY
9. PROVIDE CHILLER WITH FACTORY MOUNTED HAIL GUARD.
10. PROVIDE WITH LOW NOISE FANS AND COMPRESSOR SOUND BLANKETS FACTORY INSTALLED
11. PROVIDE SEPARATE 115V/20AMP CIRCUIT FOR EVAPORATOR HEATER
12. CHILLER SHALL BE OUTFITTED WITH SCROLL TYPE COMPRESSORS
13. PROVIDE 5 YEAR PARTS, LABOR AND REFRIGERANT WARRANTY COVERING ENTIRE MACHINE
14. PROVIDE WITH CORROSION PROTECTION COATING ON CONDENSER COILS
15. PROVIDE ACROSS THE LINE STARTER, COORDINATE EXACT PERFORMANCE WITH MANUFACTURER.
16. PROVIDE CALIBRATED BALANCING VALVES AT EACH CHILLER.
17. PROVIDE FACTORY MOUNTED HIGH FAULT CIRCUIT BREAKER AND 65 KVA SHORT CIRCUIT RATING
18. PROVIDE FULL HEIGHT ARCHITECTURAL LOUVERED PANELS
19. TOTAL CAPACITY BETWEEN BOTH CHILLERS SCHEDULED IS 240 TONS. TOTAL CAPACITY BETWEEN ALL AIR HANDLERS SCHEDULED IS 203 TONS. THERE IS ADDITIONAL COOLING CAPACITY TO PREPARE FOR ANY BUILDIG ADDITIONS.

MODULAR AIR HANDLING UNIT SCHEDULE

MARK	TYPE	SPACE SERVED	VFD	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	BI-POLAR ION	UV LIGHT	ESP (IN.WG.)	FAN			MOTOR		ELECTRICAL			CAPACITY (MBH)		CHILLED WATER COIL AIR PROPERTIES				CHILLED WATER COIL WATER PROPERTIES			CHILLED WATER COIL FLUID PRESSURE DROP (FT OF H20)	CHILLED WATER COIL ROWS	MIXING BOX MERV	MIXING BOX DAMPER RETURN AIR	MIXING BOX DAMPER OUTSIDE AIR	MANUFACTURER	UNIT SIZE	WEIGHT (LBS)	LENGTH (in.)	WIDTH (in.)	HEIGHT (in.)	REMARKS
									FAN SIZE (INCHES)	FAN TYPE	NO. OF FANS	RPM	HP	RPM	VOLTAGE	PHASE	MCA	TOTAL	SENSIBLE	EAT (°F) DB	EAT (°F) WB	LAT (°F) DB	LAT (°F) WB	EWT (°F)	LWT (°F)	FLOW (GPM)												
AHU-1	VERTICAL	2ND FLOOR VAV BOXES	YES	8,580	820	YES	NO	2.5	18	AF	1	2289	15.0	1800	480	3	26.47	326.75	258.87	79.4	66.0	52.0	51.8	42	60	40.17	4.67	8	13	YES	YES	TRANE	CSAA017	2,004	50.00	72.00	98.00	1 THRU 15
AHU-2	HORIZONTAL RTU	WASTE WATER LAB	YES	3,900	3,900	NO	YES	2.5	12	AF	1	3246	7.5	1800	480	3	13.97	370.05	169.94	93.0	75.0	52.0	51.9	42	60	40.98	15.35	8	13	NO	YES	TRANE	CSAA010	2,235	150.50	61.50	43.60	1 THRU 12, 16
AHU-3	HORIZONTAL RTU	INSTRUMENT LAB	YES	4,600	4,600	NO	YES	2.5	15	AF	1	2,234	7.5	1800	480	3	13.97	436.48	200.45	91.0	79.0	52.0	51.9	42	60	48.34	17.74	8	13	NO	YES	TRANE	CSAA012	2,391	143.10	66.50	47.70	1 THRU 12, 16
AHU-4	HORIZONTAL RTU	WATER LAB	YES	2,600	2,600	NO	YES	2.5	12	AF	1	2548	5.0	1800	480	3	10.47	246.65	113.30	93.0	75.0	52.0	51.9	42	60	27.31	6.40	8	13	NO	YES	TRANE	CSAA008	1967	154.50	50.50	43.60	1 THRU 12, 16
AHU-5	VERTICAL	3RD FLOOR COMMON SPACES	YES	2,150	2,150	YES	NO	2.5	9	BC	1	4038	5.0	1800	480	3	10.47	126.48	80.54	85.9	70.6	52.0	51.9	42	60	14.01	5.09	8	13	NO	YES	TRANE	CSAA006	1082	48.00	44.00	74.00	1 THRU 15
AHU-6	HORIZONTAL RTU	3RD FLOOR BURN ROOM	YES	1,000	1,000	NO	YES	2.5	9	DD PLENUM	1	2,977	1.5	1800	480	3	3.53	94.89	43.58	93.0	75.0	52.0	51.9	42	60	10.51	9.29	8	13	NO	YES	TRANE	CSAA003	1,352	150.40	31.50	34.70	1 THRU 12, 16
AHU-8	HORIZONTAL RTU	BIOLOGY LAB	YES	2,200	2,200	NO	YES	2.5	9	BC	1	3,969	3.0	1800	480	3	6.22	208.11	95.87	93.0	75.0	52.0	51.9	42	60	23.05	5.31	8	13	NO	YES	TRANE	CSAA006	1,726	149.50	44.00	41.10	1 THRU 12, 16
AHU-9	VERTICAL	1ST FLOOR EAST WING	YES	3,810	760	YES	NO	1.5	12	FC	1	1,587	5.0	1600	480	3	9.5	175.22	121.35	80.9	67.1	52.0	51.9	42	54.45	28.05	4.47	8	13	YES	YES	TRANE	UCCA	673	33.44	51.00	65.06	1 THRU 15
AHU-10	HORIZONTAL	1ST FLOOR LOCKERS	YES	900	900	NO	YES	2.5	11	BELT-DRIVE PLENUM	1	2,636	1.5	1800	480	3	3.53	52.94	33.72	93.0	75.0	52.0	51.9	42	60	5.86	4.01	8	13	NO	YES	TRANE	CSAA006	1038	88.00	31.50	32.50	1 THRU 14, 16
AHU-11	VERTICAL	1ST FLOOR LOBBY	YES	5,700	570	YES	YES	2.5	15	AF	1	2,327	10.0	1800	480	3	17.72	307.21	201.97	84.1	69.3	52.0	51.9	42	60	34.02	4.58	8	13	YES	YES	TRANE	CSAA012	1,701	69.00	66.50	86.50	1 THRU 16
AHU-12	HORIZONTAL	1ST FLOOR OFFICES	YES	1,440	250	YES	YES	2.5	11	BELT-DRIVE PLENUM	1	3262	2.0	1800	480	3	4.47	65.05	45.38	80.6	66.9	52.0	51.9	42	60	7.20	4.94	8	13	YES	YES	TRANE	CSAA006	1047	88.00	31.50	32.50	1 THRU 16
AHU-13	VERTICAL	2ND FLOOR ROOM 201 & 202	NO	630	240	YES	NO	2.5	9.5	FC	1	1,779	0.5	1800	208	1	5.33	28.7	19.44	80.0	67.0	52.0	51.9	42	55.38	4.3	3.3	6	13	YES	YES	TRANE	BCCD024	159	18.00	28.00	51.85	1 THRU 15

NOTES:
1. AIR HANDLING UNIT SHALL BE DOUBLE WALL CONSTRUCTION.
2. PROVIDE PREMIUM EFFICIENCY MOTORS.
3. PROVIDE TWO WAY SLOPE DOUBLE WALL STAINLESS STEEL DRAIN PANS.
4. PROVIDE FACTORY MIXING BOX. FIELD FABRICATED BOX IS NOT ACCEPTABLE.
5. MAXIMUM 12 FINS PER INCH.
6. COOLING COIL FACE VELOCITY SHALL NOT EXCEED 500 FPM
7. MAX FILTER FACE VELOCITY 500 FPM
8. SELECT MOTORS SO THAT BHP DOES NOT EXCEED 85% OF RATED POWER
9. PROVIDE HINGED ACCESS DOOR ON MIXING BOX, FILTER, COIL ACCESS AND FAN SECTION
10. BASE RAIL HEIGHT SHALL BE 6" AT A MINIMUM TO ACCOMMODATE THE ENTIRE HEIGHT OF CONDENSATE DRAIN TRAP ABOVE HOUSE KEEPING PAD SURFACE
11. PROVIDE 5 YEARS WARRANY PARTS AND LABOR
12. PROVIDE TUBE FIN COIL CONSTRUCTION, MICROCHANNEL NOT ACCEPTABLE
13. MECHANICAL CONTRACTOR SHALL BE REPOSIBLE TO DISSASEMBLE/ORDER UNIT TO FIT THROUGHT STANDARD 36" DOOR UNIT SHALL BE ORDERED IN A MANNER THAT ALLOWS UNIT TO FIT THROUGH A 36 INCH OPENING. NO EXCEPTIONS.
14. CONTRACTOR TO FIELD CUT OPENING FOR SUPPLY AND RETURN PLENUM PANELS AS REQUIRED
15. FULLY COORDINATE THE MOUNTING HARDWARE AND REQUIREMENTS WITH THE BPI MANUFACTURER PRIOR TO BID. COOLING COIL SECTION SHALL BE MIN 19" LONG TO ALLOW FOR FIELD INSTALLATION OF BPI. BPI SYSTEM SHALL CONNECT TO CONTROLS SYSTEM AND SHALL ONLY BE ON WHEN FAN IS ON. PROVIDE BPI "NEEDLE POINT" BARS INSTALLED UPSTREAM OF THE COOLING COIL. ELECTRICAL CONTRACTOR TO COORDINATE POWER REQUIREMENTS.
16. PROVIDE FACTORY INSTALLED HIGH-INTENSITY UV LIGHTS DOWNSTREAM OF THE COOLING COIL; MINIMUM 15-20 W/SF-FT. COMPONENTS EXPOSED TO UV LIGHT SHALL BE APPROPRIATELY PROTECTED. PROVIDE DOOR SWITCHES, VIEWING WINDOW AND SAFETY SIGNAGE. FULLY COORDINATE THE MOUNTING HARDWARE AND REQUIREMENTS WITH THE UV LIGHT MANUFACTURER PRIOR TO BID. UV SYSTEM SHALL CONNECT TO CONTROLS SYSTEM AND SHALL ONLY BE ON WHEN FAN IS ON. ELECTRICAL CONTRACTOR TO COORDINATE POWER REQUIREMENTS.

ENGINEER: BOBAK SHAHNAMI
REG. No. 78419
DATE: 06/30/2020
STATE OF FLORIDA PROFESSIONAL ENGINEER
TEL: 954-421-1944
FAX: 954-421-1924

DRAWN BY: | DESIGNED BY: BS | CHECKED BY: | DATE: 06/07/20 | SCALE: AS SHOWN | FIELD BOOK:

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	01/15/2021	IG	BS	COMMENT RESPONSES
2	03/15/2021	IG	BS	COMMENT RESPONSES

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MECHANICAL SCHEDULES
949 NW 38TH ST, FT. LAUDERDALE, FL.

SHEET NO. M23 | OF 30
TOTAL: 30
CAD FILE: 1500-M701-2020045.dwg
DRAWING FILE NO. 1500-M701-2020045.dwg

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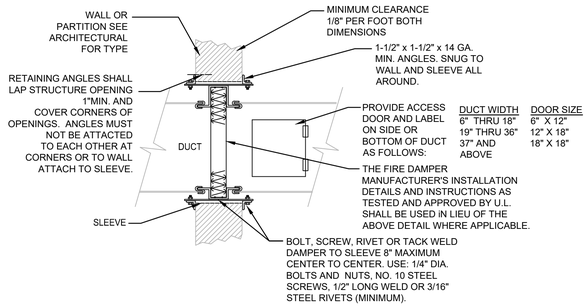
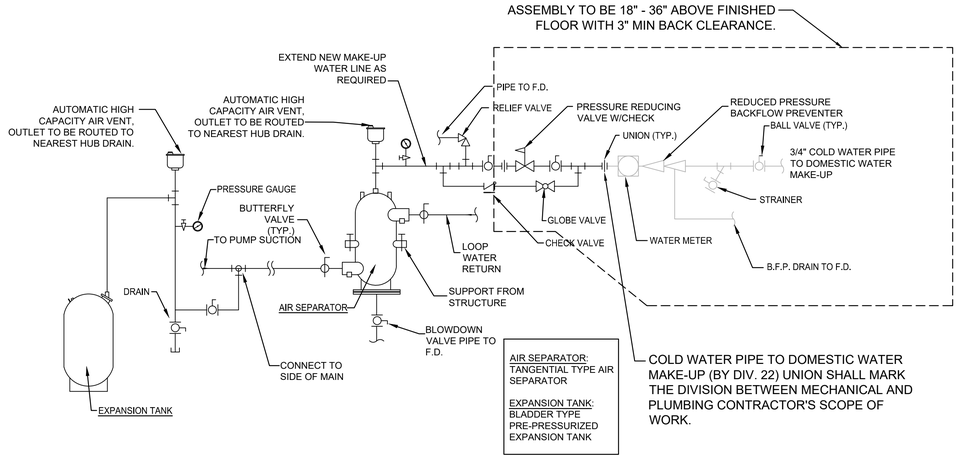
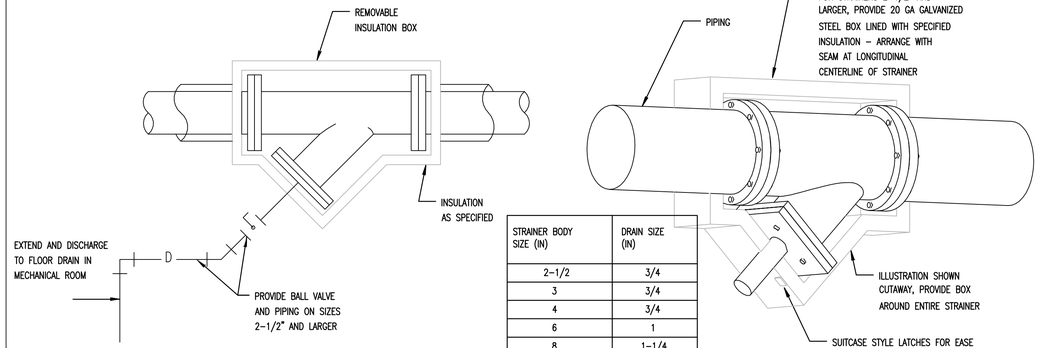


NOTES:
1. FIRE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS

29 TYPICAL FIRE DAMPER INSTALLATION
NOT TO SCALE



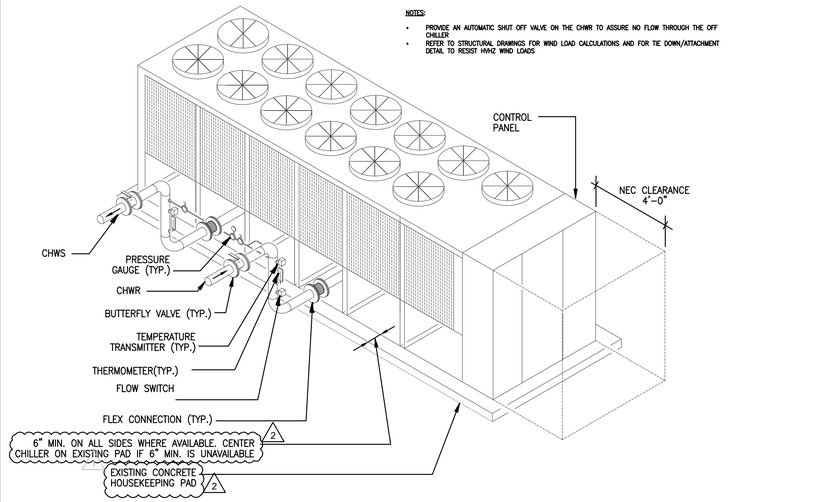
30 AIR SEPARATOR/ELIMINATION & EXPANSION TANK PIPING DETAIL
NOT TO SCALE



STRAINER BODY SIZE (IN)	DRAIN SIZE (IN)
2-1/2	3/4
3	3/4
4	3/4
6	1
8	1-1/4
10	1-1/2
12	2
14	2

NOTES 1. FOR USE WITH STRAINERS 2-1/2" AND LARGER.

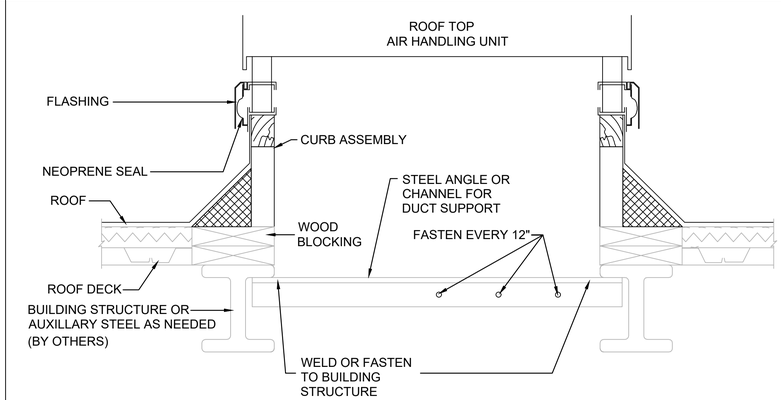
31 STRAINER INSTALLATION DIAGRAM
NOT TO SCALE



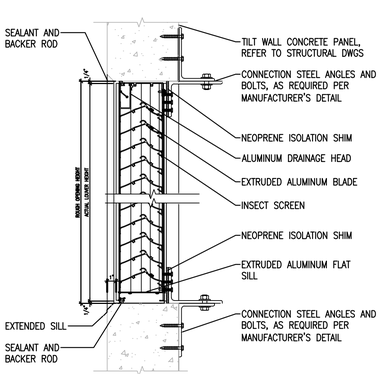
32 AIR COOLED CHILLER DETAIL(REFERENCE)
NOT TO SCALE

2

33 DETAIL NOT USED
NOT TO SCALE



34 ROOFTOP AIR HANDLING UNIT INSTALLATION DETAIL
NOT TO SCALE



35 LOUVER HEAD/SILL DETAIL
NOT TO SCALE

ENGINEER: BOBAK SHAHNAMI
REG. No. 78419
DATE: 06/07/20
STATE OF FLORIDA PROFESSIONAL ENGINEER
TEL: 954-421-1944
FAX: 954-421-1924

DRAWN BY:
DESIGNED BY:
CHECKED BY:
DATE: 06/07/20
SCALE: AS SHOWN
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	01/15/2021	IG	BS	COMMENT RESPONSES
2	03/15/2021	IG	BS	COMMENT RESPONSES

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MECHANICAL DETAILS
949 NW 38TH ST, FT. LAUDERDALE, FL.

100% CD

SGM ENGINEERING
1 EAST BROWARD BLVD. SUITE1503
FT LAUDERDALE, FL 33301
TEL: 954-421-1944
FAX: 954-421-1924
CA-00006208
WWW.SGMENGINEERING.COM

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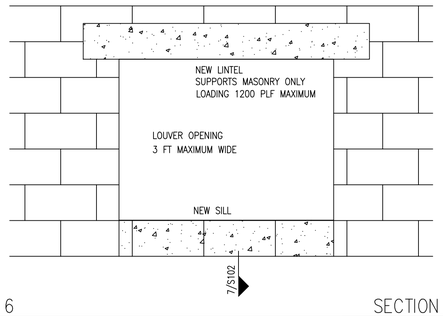
SHEET NO. M27 OF 30

TOTAL: 30

CAD FILE: 1500-M801-2020045.dwg

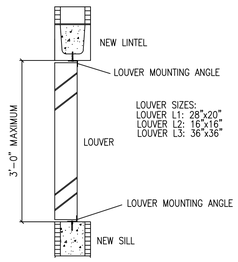
DRAWING FILE NO. 1500-M801-2020045.dwg



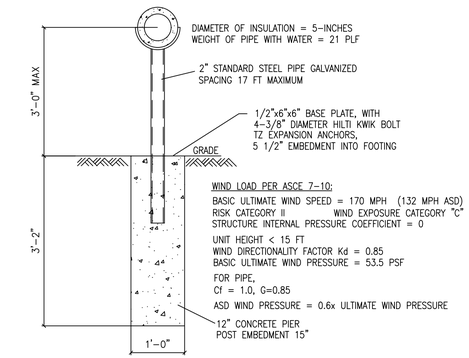
6 SECTION
3/4"=1'-0"

NOTES NEW LOUVER INSTALLATION:

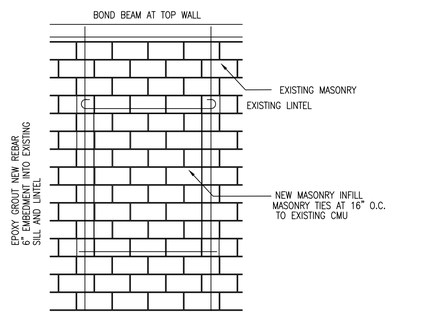
1. PROP CMU ABOVE OPENING.
2. CUT OUT OPENING PER ROUGH OPENING SIZES PER INSTALLATION DETAILS BY THE SUPPLIER/MANUFACTURER FOR LOUVER TYPE.
3. PROVIDE NEW LINTEL ABOVE LOUVER. FILL LINTEL AND SILL WITH CONCRETE.
4. NEW LINTEL SHALL BE CASTCRETE A PRECAST, PRE-STRESSED LINTEL, TYPE 8F8 WITH 8-INCH BEARING ON EXISTING MASONRY.
5. FIX LOUVER MOUNTING ANGLE TO LINTEL AND TO SILL WITH 1/4" DIAMETER, STAINLESS STEEL TAPCONS, 1 3/4" EMBEDMENT INTO CONCRETE, AT 6-INCH CENTERS.
6. FIX LOUVER MOUNTING ANGLE TO LOUVER PER NOA 20-0602.02.
7. CONCRETE FILL 28 DAY COMPRESSIVE STRENGTH SHALL BE 3000 PSI.



7 SECTION
3/4"=1'-0"

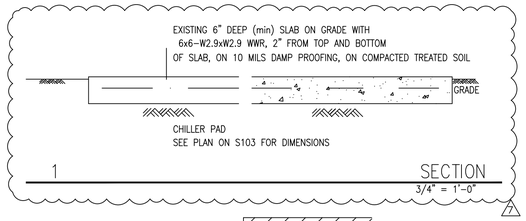


8 PIPE SUPPORT DETAIL
PIPE IN PIER 3/4"=1'-0"

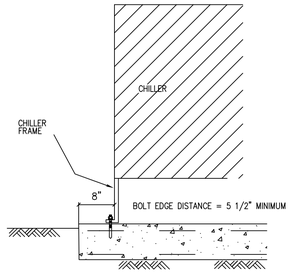


NOTES:
1. PROVIDE HORIZONTAL CMU REBAR AT 16" O.C. VERTICALLY
3. NEW REBAR SHALL BE #5 AT 24" O.C. (TWO BARS MINIMUM)

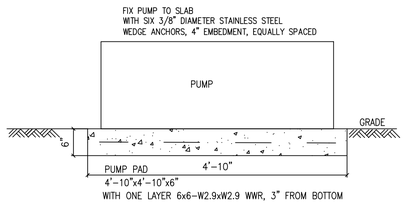
9 LOUVER INFILL DETAIL
NTS



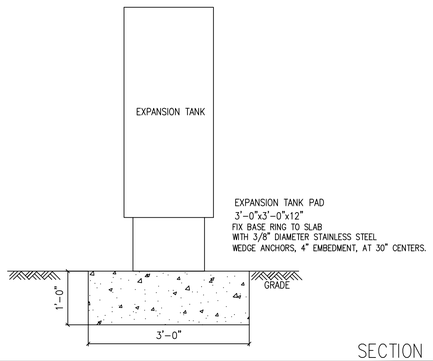
1 SECTION
3/4" = 1'-0"



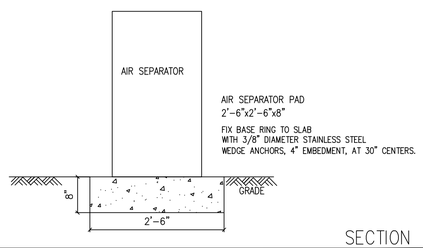
2 CHILLER TO SLAB DETAIL
N.T.S.



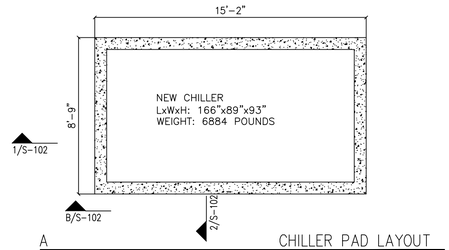
3 SECTION
3/4" = 1'-0"



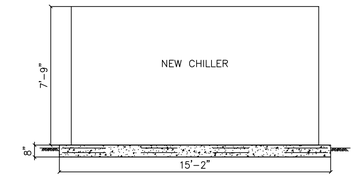
4 SECTION
3/4" = 1'-0"



5 SECTION
3/4" = 1'-0"



A CHILLER PAD LAYOUT
1/4"=1'-0"



B CHILLER ELEVATION
1/4"=1'-0"

DESIGN LOADING PER FLORIDA BUILDING CODE 2017

WIND LOAD PER ASCE 7-10:

BASIC ULTIMATE WIND SPEED = 170 MPH (132 MPH ASD)
RISK CATEGORY III WIND EXPOSURE CATEGORY "C"
STRUCTURE INTERNAL PRESSURE COEFFICIENT = 0

MEAN UNIT HEIGHT < 15 FT
WIND DIRECTIONALITY FACTOR Kd = 0.85
BASIC ULTIMATE WIND PRESSURE = 53.5 PSF

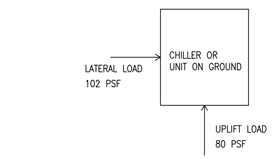
FOR CHILLER AND UNITS ON THE GROUND,
LATERAL FORCE COEFFICIENT = 1.9 WL = 102 PSF UPLIFT COEFFICIENT = 1.5 WL = 80 PSF

ASD WIND PRESSURE = 0.6x ULTIMATE WIND PRESSURE

ULTIMATE WIND LOADS ON UNITS PER ASCE 7 10

UNIT ON GROUND	LATERAL LOADS		UPLIFT ON UNIT, POUNDS	WEIGHT OF UNIT, POUNDS	WEIGHT OF CURB, POUNDS
	ON LENGTH, POUNDS	ON WIDTH, POUNDS			
CHILLER	10888	5838	8226	6884	0
PUMP CHWP-1 CHWP-2	990	366	556	856	0
EXPANSION TANK ET-1	832**		223	290	0
AIR SEPARATOR	522**		223	170	0

** UNIT IS ROUND



CHILLER AND UNITS ON THE GROUND SHALL BE CENTERED ON THE CONCRETE PADS.

C ULTIMATE WIND LOADS ON CHILLER ANDGROUND UNITS
NTS

ANDREW J MORGAN LICENSE No. 57171 STATE OF FLORIDA PROFESSIONAL ENGINEER
ANDREW MORGAN MSE, PE FL#57171
TEL: 561-881-8999
EMAIL: AMORGANSERVICES@GMAIL.COM

DRAWN BY: RLL | DESIGNED BY: RLL | CHECKED BY: MEH | DATE: 08/07/20 | SCALE: AS SHOWN | FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
5	5-11-20			ESI-005
6	1-15-21			LOUVER INFILL DETAIL ADDED
7	3-15-21			CHILLER PADS REVISED

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
949 NW 38TH ST, FT. LAUDERDALE, FL.

100% CD

SHEET NO. S-102 OF

TOTAL:

CAD FILE: /SGM/2020 CITY OF FT LAUDERDALE/S-102

DRAWING FILE NO. S102 CAM 21-0549 Exhibit 1

andrew morgan services
STRUCTURAL ENGINEERING
513 US Hwy 1, Suite 109, Nth Palm Beach FL 33408
tel: 561 881 8999 amorganservices@gmail.com
Certificate of Authorization # 26093

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TEL: 954-421-1944
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CA-00006208
WWW.SGMENGINEERING.COM

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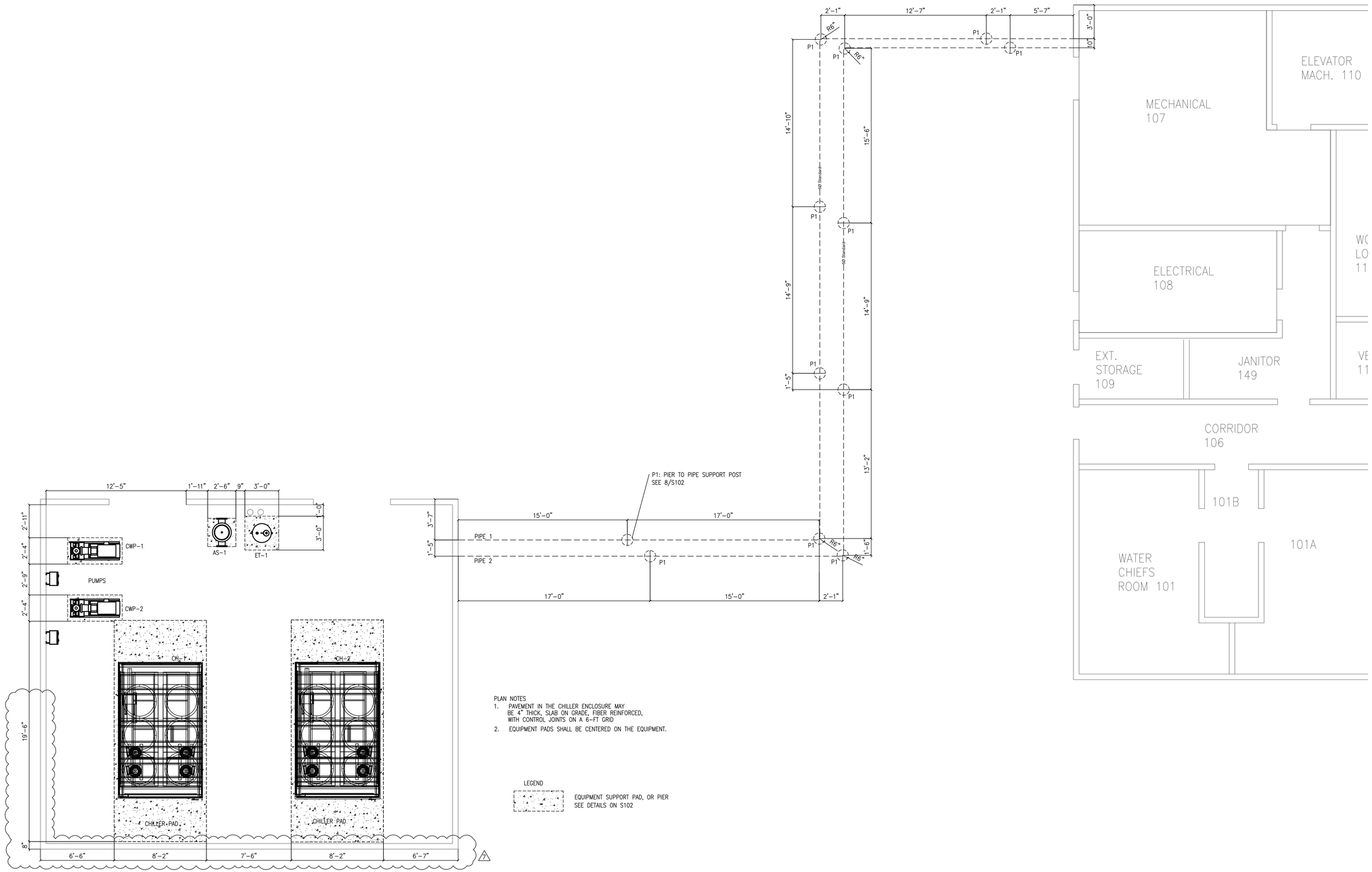

PLAN NOTES

1. PAVEMENT IN THE CHILLER ENCLOSURE MAY BE 4" THICK, SLAB ON GRADE, FIBER REINFORCED, WITH CONTROL JOINTS ON A 6-FT GRID
2. EQUIPMENT PADS SHALL BE CENTERED ON THE EQUIPMENT.

LEGEND

EQUIPMENT SUPPORT PAD, OR PIER
SEE DETAILS ON S102

ANDREW J MORGAN
LICENSE
No. 57171
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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SUITE 1503
FT LAUDERDALE, FL 33301
TEL: 561-881-8909
andrew@sgmengineering.com

DRAWN BY: RLL | DESIGNED BY: RLL | CHECKED BY: MEH | DATE: 08/07/20 | SCALE: AS SHOWN | FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
5	5-11-20			ESI-005
7	3-15-21			CHILLER PADS REVISED

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
949 NW 38TH ST, FT. LAUDERDALE, FL.

SHEET NO. S-103 | OF

TOTAL:

CAD FILE: /SGM/2020 CITY OF FT LAUDERDALE/S-103

DRAWING FILE NO. S102 CAM 21-0549

100% CD

andrew morgan services
STRUCTURAL ENGINEERING
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tel: 561 881 8909 amorganservices@gmail.com
Certificate of Authorization # 26093

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FAX: 954-421-1924
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City of Fort Lauderdale • Procurement Services Division
100 N. Andrews Avenue, 619 • Fort Lauderdale, Florida 33301
954-828-5933 Fax 954-828-5576
purchase@fortlauderdale.gov

ITB NO. 12467-113

Public Works Administration Building Air Conditioning

ADDENDUM NO. 2

ISSUED: April 14, 2021

This Addendum is being issued to provide the following information. It is hereby made a part of the Plans and Specifications and shall be included with all contract documents.

Acknowledge receipt of this Addendum by inserting its number and date on the CITB Construction Bid Certification Page.

A) Opening Bid and Q&A will be extended:

New Date:
Opening Bid: April 28, 2021

New Date:
Q&A: April 19, 2021

B) These drawings were revised:

T00, M11, M15, M16, M17

C) New Drawings were added:

R01, R02, R03, R04, R05

D) New Specifications were added:

055000, 061053, 070150, 076200, 076500

All other terms, conditions, and specifications remain unchanged.

Fausto Vargas
Procurement Specialist

Company Name: _____
(please print)

Bidder's Signature: _____

Date: _____

DRAWING INDEX

	COVER SHEET
M01	MECHANICAL SYMBOLS AND LEGEND
M02	MECHANICAL GENERAL NOTES
M03	MECHANICAL GENERAL NOTES CONT'D
M04	MECHANICAL DEMO 1ST FLOOR PLAN 2 1
M05	MECHANICAL DEMO 2ND FLOOR PLAN
M06	MECHANICAL DEMO 3RD FLOOR PLAN
M07	MECHANICAL DEMO ROOF PLAN
M08	MECHANICAL RENO 1ST FLOOR PLAN 2
M09	MECHANICAL RENO 2ND FLOOR PLAN
M10	MECHANICAL RENO 3RD FLOOR PLAN
M11	MECHANICAL RENO ROOF PLAN 3 1
M12	MECHANICAL ENLARGED PLANS 2
M13	MECHANICAL ENLARGED PLANS
M14	MECHANICAL ENLARGED PLANS
M15	MECHANICAL ENLARGED PLANS 3
M16	MECHANICAL ENLARGED PLANS
M17	MECHANICAL ENLARGED PLANS
M18	MECHANICAL CONTROL DRAWINGS
M19	MECHANICAL CONTROL DRAWINGS
M20	MECHANICAL CONTROL DRAWINGS 1
M21	MECHANICAL CONTROL DRAWINGS
M22	MECHANICAL CONTROL DRAWINGS
M23	MECHANICAL SCHEDULES 2
M24	MECHANICAL DETAILS
M25	MECHANICAL DETAILS
M26	MECHANICAL DETAILS 1
M27	MECHANICAL DETAILS 2
M28	MECHANICAL DETAILS
M29	MECHANICAL ALTERNATE - CRAC UNIT
M30	MECHANICAL ALTERNATE - EXHAUST FAN
E01	ELECTRICAL SYMBOLS AND LEGENDS
E02	ELECTRICAL GENERAL NOTES
E03	ELECTRICAL DEMO 1ST FLOOR LIGHTING PLAN
E04	ELECTRICAL DEMO 2ND FLOOR LIGHTING PLAN
E05	ELECTRICAL DEMO 3RD FLOOR LIGHTING PLAN
E06	ELECTRICAL DEMO 1ST FLOOR POWER PLAN
E07	ELECTRICAL DEMO 2ND FLOOR POWER PLAN
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E09	ELECTRICAL DEMO ROOF POWER PLAN
E10	ELECTRICAL RENO 1ST FLOOR POWER PLAN 1
E11	ELECTRICAL RENO 2ND FLOOR POWER PLAN
E12	ELECTRICAL RENO 3RD FLOOR POWER PLAN
E13	ELECTRICAL RENO ROOF POWER PLAN 1
E14	ELECTRICAL ONE-LINE DIAGRAM
E15	ELECTRICAL EQUIPMENT SCHEDULES 1
E16	ELECTRICAL PANEL SCHEDULES
E17	ELECTRICAL PANEL SCHEDULES
E18	ELECTRICAL DETAILS
E19	ELECTRICAL DETAILS
P01	PLUMBING GENERAL NOTES
P02	PLUMBING DEMO FLOOR PLAN
P03	PLUMBING FLOOR PLAN
F01	FIRE PROTECTION ALTERNATE - GENERAL NOTES 1
F02	FIRE PROTECTION ALTERNATE - FLOOR PLAN
S101	STRUCTURAL NOTES AND DESIGN INFORMATION
S102	STRUCTURAL FOUNDATION DETAILS
S103	STRUCTURAL CHILLER YARD INFORMATION

CITY OF FORT LAUDERDALE

PROJECT #2020 -045

PUBLIC WORKS ADMINISTRATION BUILDING

HVAC RENOVATION

949 NW 38TH ST

FORT LAUDERDALE, FLORIDA

GENERAL SCOPE OF WORK

THE OBJECTIVES OF THIS PROJECT AS IDENTIFIED ON THE DRAWINGS, INCLUDES:

1. REPLACEMENT OF THE EXISTING ROOFTOP AND INDOOR AIR HANDLING UNITS IN COMPLIANCE WITH THE CURRENT CODES AND REGULATIONS
2. ELECTRICAL UPGRADES NECESSARY TO ACCOMMODATE NEW ROOFTOP AND INDOOR AIR HANDLING UNITS IN COMPLIANCE WITH CURRENT CODES AND REGULATIONS

THIS BRIEF DESCRIPTION OF THE SCOPE OF WORK IS NOT ALL INCLUSIVE AND IS COMPLIMENTED BY THE SET OF CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.

ALL WORK AND MATERIALS SHALL BE IN COMPLIANCE WITH ALL GOVERNING CODES AND STANDARDS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING.

A. NFPA 70 NATIONAL ELECTRICAL CODE (2014 EDITION)
B. FLORIDA BUILDING CODE (2017 SIXTH EDITION)
C. FLORIDA FIRE PREVENTION CODE (2017 SIXTH EDITION)
D. LOCAL REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION

SGM ENGINEERING
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FAX: 954-421-1924
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WWW.SGMENGINEERING.COM

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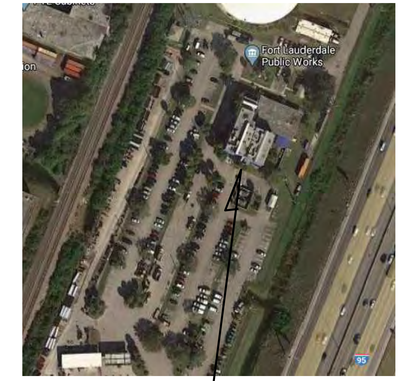
DRAWING INDEX CONTINUED

R01	PARTIAL ROOF PLAN + SPECIFIC NOTES 3
R02	MECHANICAL FLASHING DETAILS
R03	MECHANICAL FABRICATION DETAILS
R04	MISCELLANEOUS DETAILS
R05	GENERAL ROOFING NOTES + FASTENING SCHEDULE

DRAWING INDEX CONTINUED

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	01/15/2021	IG	BS	COMMENT RESPONSES
2	03/15/2021	IG	BS	COMMENT RESPONSES
3	04/09/2021	IG	BS	COMMENT RESPONSES



PROJECT LOCATION

NORTH

LOCATION SKETCH

NOT TO SCALE

PROJECT #2020-045
CITY OF FT. LAUDERDALE
PUBLIC WORKS HVAC RENOVATIONS
949 NW 38ST AVE, FT. LAUDERDALE, FL 33311

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

FORT LAUDERDALE CITY COMMISSION

DEAN J. TRANTALIS	MAYOR
HEATHER MORAITIS	COMMISSIONER - DISTRICT I
STEVEN GLASSMAN	COMMISSIONER - DISTRICT II
ROBERT L. McKINZIE	COMMISSIONER - DISTRICT III
BEN SORENSEN	COMMISSIONER - DISTRICT IV

IRINA TOKAR, R.A.	SENIOR PROJECT MANAGER	954-828-6891
DANICA GRUJICIC	PROJECT MANAGER II	954-828-5055
SGM ENGINEERING, INC.	MECHANICAL & ELECTRICAL	954-421-1944

DATE: 09/15/2020

CAD FILE: 1200-T000-2020045

DRAWING FILE No.: 1200-T000-2020045

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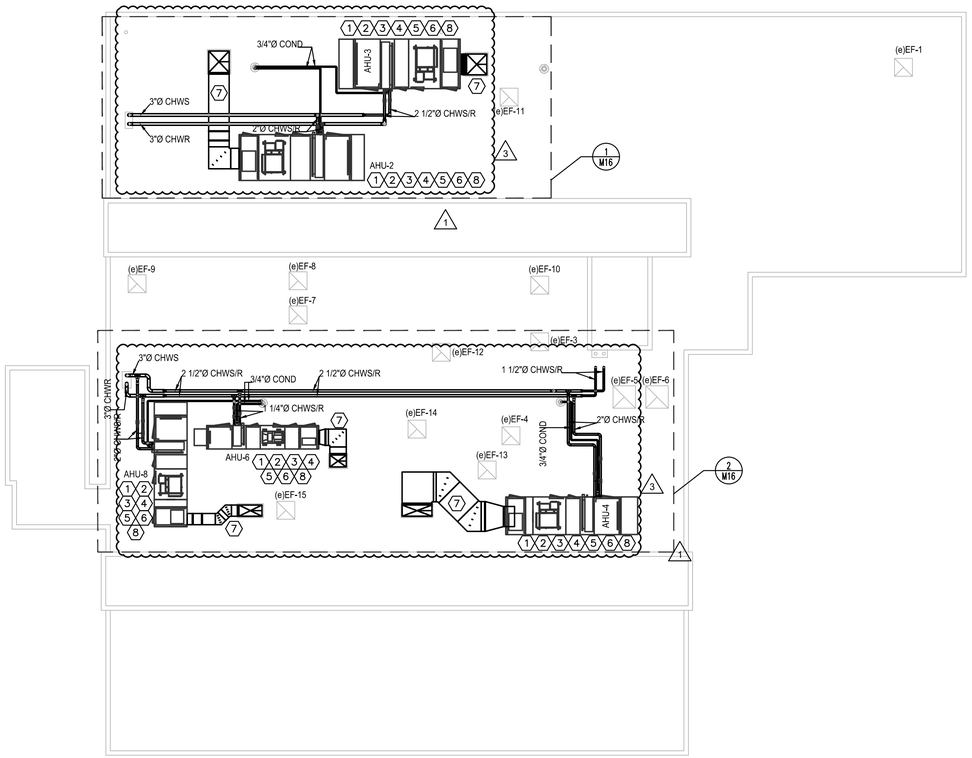
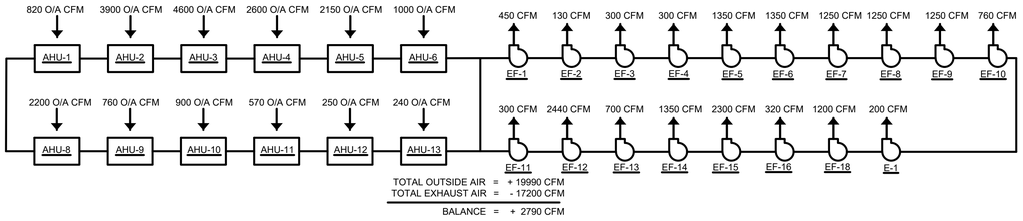


MECHANICAL RENO ROOF PLAN

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

0 4' 8' 16'



AIR BALANCE DIAGRAM ENTIRE BUILDING

GENERAL NOTES:

a. REFER TO SHEET M01 AND M02 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND.

b. REFER TO PROJECT SPECIFICATIONS FOR EQUIPMENT AND INSTALLATION REQUIREMENTS. IF THERE IS ANY DISCREPANCY BETWEEN SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

c. COORDINATE WORK SCHEDULE WITH CITY OF FORT LAUDERDALE PROJECT MANAGER. DISRUPTION OF COOLING TO THE ADJACENT SPACES IS NOT ALLOWED.

d. DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS.

e. LOCATE EQUIPMENT SO THAT MANUFACTURER SERVICE CLEARANCES ARE MAINTAINED.

f. COORDINATE WITH ELECTRICAL CONTRACTOR LOCATION OF DISCONNECTS. DO NOT BLOCK SERVICE CLEARANCE TO EQUIPMENT.

g. PATCH ALL WALLS DISRUPTED DURING DEMOLITION PHASE TO MATCH EXISTING CONDITIONS.

h. ALL MAJOR EQUIPMENT SUCH AS: AHU'S, FANS TERMINAL BOXES, FCU, ETC. SHALL REMAIN PROPERTY OF THE OWNER. ALL SHEET METAL AND PIPING SHALL BE DISPOSED BY THE GENERAL CONTRACTOR.

i. EXISTING DUCTWORK IS TO REMAIN AND SHOWN AS REFERENCE FOR TEST AND BALANCE PURPOSE ONLY. EXCEPT WHERE SHOWN AS NEW.

j. ALL DUCTWORK TO BE REUSED FOR SUPPLY AIR, RETURN AIR, OUTSIDE AIR EXHAUST AIR SHALL BE PROVIDED WITH TEMPORARY CAPS DURING CONSTRUCTION PHASE. THIS CRITERIA ALSO APPLIES TO CHILLED WATER LINES SUPPLY AND RETURN.

k. CONTRACTOR TO VERIFY ALL BACKDRAFT DAMPERS AND REPLACE IF INOPERABLE

l. THE DESIGN INTENT IS TO UTILIZE EXISTING THERMOSTAT LOCATION FOR NEW THERMOSTAT

m. ALL EQUIPMENT LOCATED IN ROOF SHALL BE 10' MIN AWAY FROM ROOF EDGES. OTHERWISE IT SHALL BE PROVIDED WITH GUARD RAILS NO LESS THAN 42" HEIGHT. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION

PLAN KEY NOTES:

1. PROVIDE NEW AHU LOCATED ON ROOF, AND ASSOCIATED COMPONENTS SUCH AS: STARTER/VFD, CONDENSATE LINE,ROOF CURB, AND OTHER COMPONENTS RELATED TO THE UNIT.
2. PROVIDE NEW ROOF CURB. REFER TO MECHANICAL DETAIL SHEETS FOR ROOF CURB DETAIL.
3. PROVIDE NEW SUPPLY DUCTWORK AND OTHER ASSOCIATED COMPONENTS. CONNECT TO EXISTING DUCTWORK AT POINT OF CONNECTION AS SHOWN ON ENLARGED DRAWINGS.
4. PROVIDE NEW CHWS/R LINES, ISOLATION VALVES, AND OTHER ASSOCIATED COMPONENTS. CONNECT TO EXISTING PIPING AT POINT OF CONNECTION AS SHOWN ON ENLARGED DRAWINGS.
5. PROVIDE FACTORY CHILLED WATER VALVE ENCLOSURE
6. PROVIDE FALL PROTECTION FOR ALL SERVICEABLE EQUIPMENT. SE ARCHITECTURAL DRAWINGS FOR DETAILS.
7. FOR OUTDOOR EXPOSED DUCTWORK PROVIDE DOUBLE WALL DUCTWORK WITH VAPOR BARRIER WRAPPED IN FLEX CLAD 250 PROTECTIVE MEMBRANE.
8. PROVIDE FACTORY LUVATA SPRAY COATING TO THE ENTIRE EXTERIOR OF NEW AHU LOCATED ON ROOF.

3

ENGINEER: BOBAK SHAHNAMI
REG. No. 78419
DATE: 06/07/20
TEL: 954-921-1904
FAX: 954-921-1905

BOBAK SHAHNAMI LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

DRAWN BY:
DESIGNED BY:
CHECKED BY:
FIELD BOOK:
DATE: 06/07/20
SCALE: AS SHOWN

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	01/15/2021	IG	BS	COMMENT RESPONSES
3	04/09/2021	IG	BS	COMMENT RESPONSES

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MECHANICAL RENO ROOF PLAN
949 NW 38TH ST, FT. LAUDERDALE, FL.

SGM ENGINEERING
1 EAST BROWARD BLVD. SUITE1503
FT LAUDERDALE, FL 33301
TEL: 954-421-1944
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WWW.SGMENGINEERING.COM

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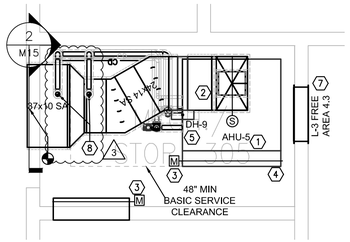
SHEET NO. M11 OF 30

TOTAL: 30

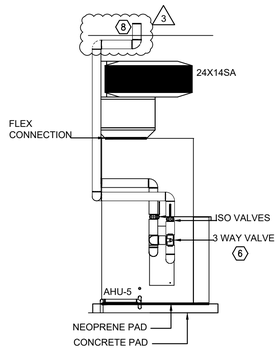
CAD FILE: 1500-M201-2020045.dwg

DRAWING FILE NO. 1500-M201-2020045.dwg



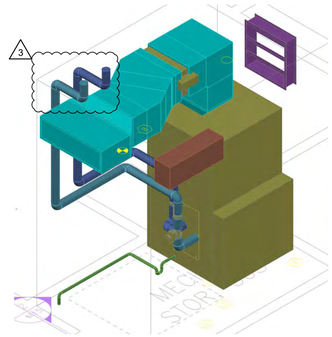
1 MECHANICAL ROOM 305

SCALE: 3/8"=1'-0"



2 MECHANICAL ROOM 305 - SECTION

SCALE: 3/8"=1'-0"



3 MECHANICAL ROOM 305 - ISOMETRIC

SCALE: 3/8"=1'-0"

GENERAL NOTES

a. REFER TO SHEET M01 AND M02 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND. 1

b. REFER TO PROJECT SPECIFICATIONS FOR EQUIPMENT AND INSTALLATION REQUIREMENTS. IF THERE IS ANY DISCREPANCY BETWEEN SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

c. COORDINATE WORK SCHEDULE WITH SITE PROJECT MANAGER.

d. DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS, FOR EXACT BUILDING DIMENSIONS SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

e. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATION OF DIFFUSERS.

f. SEE LIFE SAFETY DRAWINGS FOR WALL RATINGS AND FIRE RESISTANCE ASSEMBLIES REQUIREMENT. PROVIDE FIRE DAMPERS FOR ALL FIRE RATED WALLS.

g. COORDINATE DUCTWORK ROUTING WITH ALL TRADES.

h. COORDINATE WITH ELECTRICAL CONTRACTOR LOCATION OF DISCONNECTS. DO NOT BLOCK SERVICE CLEARANCE TO EQUIPMENT.

i. DUCTWORK SHALL REMAIN SEALED DURING CONSTRUCTION. DURING START-UP INSTALL FILTERS AT ALL RETURN AND EXHAUST GRILLES. IF DUCTWORK IS LEFT UNCOVERED DURING CONSTRUCTION, CONTRACTOR WILL BE REQUIRED TO CLEAN ALL DUCTWORK PRIOR TO UNIT START-UP.

j. PROVIDE DOUBLE WALL INSULATED DUCTWORK FOR THE FIRST 20 FEET OF SUPPLY AND RETURN FOR EACH AIR HANDLING UNIT.

k. PROVIDE 2 PART EPOXY PAINT WITH CLEAR COAT AND FLAKES (TYPICAL FOR ALL MECHANICAL ROOMS).

l. FOR ALL SUPPLY MEDIUM PRESSURE SYSTEMS USE ROUND OR FLAT OVAL DUCT FABRICATED OF GALVANIZE STEEL

m. ALL MAIN BRANCHES SUPPLY AND RETURN SHALL BE INSTALL BETWEEN TRUSSES

n. MATERIALS IN ROOMS 305 SHALL BE PROVIDED PLENUM RATED. INCLUDING PIPING AND ELECTRICAL COMPONENTS THESE ROOMS SHALL BE FULLY COORDINATED WITH ELECTRICAL AND PLUMBING TRADES

KEY NOTES 1

1. PROVIDE NEW AIR HANDLING (AHU). REFER TO SCHEDULES FOR DETAILS
2. PROVIDE NEW SUPPLY DUCTWORK UP TO POINT OF CONNECTION AND ASSOCIATED CONTROLS/ DAMPERS. REFER TO CONTROLS SHEET FOR FURTHER INFORMATION
3. PROVIDE NEW RETURN CONTROLS/ DAMPERS. REFER TO CONTROLS SHEET FOR FURTHER INFORMATION
4. PROVIDE A 4" CONCRETE PAD. EXTEND PAD 6" BEYOND EQUIPMENT.
5. PROVIDE NEW DUCT HEATER. REFER TO SCHEDULES, DETAILS AND CONTROL SHEET FOR FURTHER INFORMATION
6. INSTALL 3-WAY CHILLED WATER VALVE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATION
7. PROVIDE NEW LOUVER. REFER TO MECHANICAL DETAILS.
8. NEW CHWS/R ROOF PENETRATION LOCATION.

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100% CD

ENGINEER: BOBAK SHAHNAMI
REG. No. 78419
DATE: 06/07/20
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TEL: 954-421-1944
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DRAWN BY:	DESIGNED BY:	DATE: 06/07/20
	CHECKED BY:	SCALE: AS SHOWN
		FIELD BOOK:

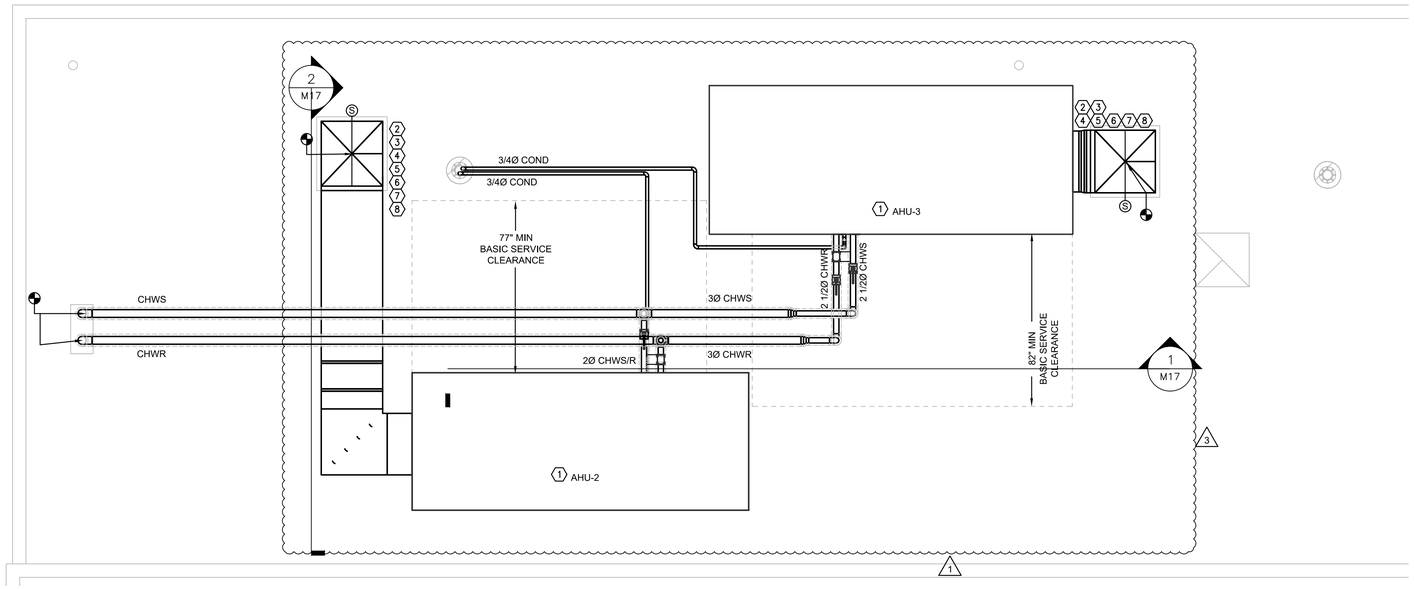
CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	01/15/2021	IG	BS	COMMENT RESPONSES
3	04/09/2021	IG	BS	COMMENT RESPONSES

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MECHANICAL ENLARGED PLANS
949 NW 38TH ST, FT. LAUDERDALE, FL.

SHEET NO.	OF
M15	30
TOTAL:	30
CAD FILE: 1500-M401-2020045.dwg	
DRAWING FILE NO. 1500-M401-2020045.dwg	



1 MECHANICAL ROOF

SCALE: 3/8"=1'-0" 0 1' 2' 4'

GENERAL NOTES

1

a. REFER TO SHEET M01 AND M02 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND.

b. REFER TO PROJECT SPECIFICATIONS FOR EQUIPMENT AND INSTALLATION REQUIREMENTS. IF THERE IS ANY DISCREPANCY BETWEEN SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

c. COORDINATE WORK SCHEDULE WITH SITE PROJECT MANAGER.

d. DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS, FOR EXACT BUILDING DIMENSIONS SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

e. SEE LIFE SAFETY DRAWINGS FOR WALL RATINGS AND FIRE RESISTANCE ASSEMBLIES REQUIREMENT. PROVIDE FIRE DAMPERS FOR ALL FIRE RATED WALLS.

f. COORDINATE DUCTWORK ROUTING WITH ALL TRADES.

g. COORDINATE WITH ELECTRICAL CONTRACTOR LOCATION OF DISCONNECTS. DO NOT BLOCK SERVICE CLEARANCE TO EQUIPMENT.

h. DUCTWORK SHALL REMAIN SEALED DURING CONSTRUCTION. DURING START-UP INSTALL FILTERS AT ALL RETURN AND EXHAUST GRILLES. IF DUCTWORK IS LEFT UNCOVERED DURING CONSTRUCTION, CONTRACTOR WILL BE REQUIRED TO CLEAN ALL DUCTWORK PRIOR TO UNIT START-UP.

i. PROVIDE DOUBLE WALL INSULATED DUCTWORK FOR THE FIRST 20 FEET OF SUPPLY AND RETURN FOR EACH AIR HANDLING UNIT.

j. FOR ALL SUPPLY MEDIUM PRESSURE SYSTEMS USE ROUND OR FLAT OVAL DUCT FABRICATED OF GALVANIZE STEEL

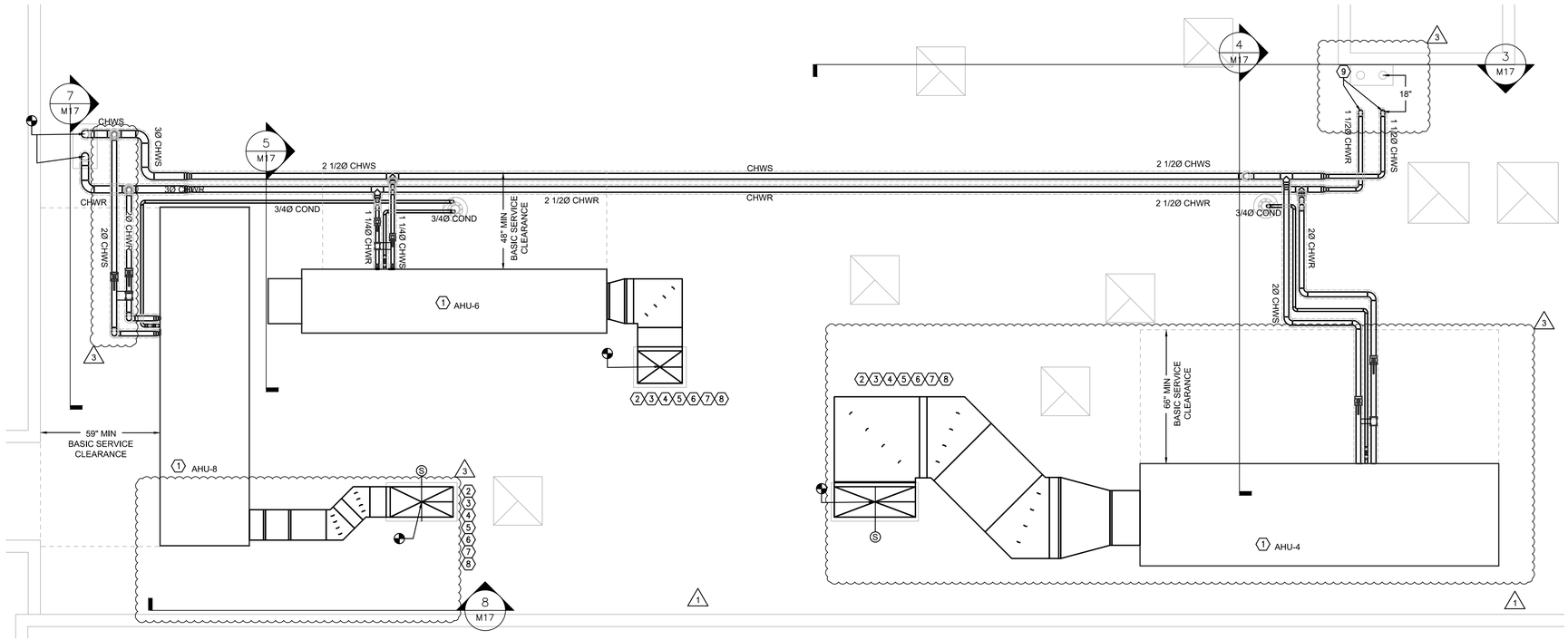
k. ALL MAIN BRANCHES SUPPLY AND RETURN SHALL BE INSTALL BETWEEN TRUSSES

l. ROOF SHALL BE PROVIDED WITH GUARD RAILS FOR UNIT LOCATED 10' OR LESS FROM EDGE OF ROOF

m. ROOF TOP AHU's TO BE LOCATED SO THAT OUTSIDE AIR INTAKE IS 10' AWAY FROM ANY EXHAUST FAN.

KEY NOTES

1. PROVIDE NEW AIR HANDLING (AHU). REFER TO SCHEDULES FOR DETAILS WITH A 18" FACTORY ROOF CURB
2. PANELS SHALL BE 2-INCH-THICK WITH INTERIOR SOLID PANEL SHEETS STAINLESS STEEL. EXTERIOR SOLID PANEL SHEETS SHALL BE 18 GAUGE GALVANIZED STEEL WITH GALVANIZED COATING SUITABLE FOR PAINTING. FILL SHALL BE INCOMBUSTIBLE, INERT, MILDEW RESISTANT AND VERMIN-PROOF.
3. INTERNAL PANEL REINFORCEMENT SHALL BE A MINIMUM OF 18 GAUGE STAINLESS STEEL AND SPACED SO THAT SPAN DOES NOT EXCEED 2 FEET.
4. PRIOR TO ATTACHING THE FACE SHEET, THE PANEL SHALL BE FILLED WITH INSULATING FILL. THE FILL SHALL BE SLIGHTLY LARGER AND THICKER THAN THE INSIDE DIMENSIONS OF THE PANEL. NO VOIDS WILL BE TOLERATED. INSULATION SHALL BE 2 INCHES THICK WITH A K_FACTOR OF 0.23 BTU/HR/SF/°F/INCH AT 75°F MEAN TEMPERATURE.
5. THE FACE SHEET SHALL BE ATTACHED TO THE PANEL ASSEMBLY SO AS TO COMPRESS AND HOLD THE FILL MATERIALS IN PLACE UNDER SEVERE CONDITIONS OF VIBRATION. EXTERIOR JOINTS SHALL BE CONSTRUCTED WITH DUCTMATE FITTINGS. TDC CONNECTION SYSTEM IS NOT PERMITTED. SEAL ALL JOINTS WEATHER TIGHT WITH EXTERIOR GRADE SEALANT.
6. TOP PANELS SHALL BE SLOPED TO SHED WATER. LONGITUDINAL JOINTS SHALL BE LOCATED ON THE UNDERSIDE OF THE DUCTWORK. PROVIDE STAINLESS STEEL HAT CHANNELS OVER EACH DUCTMATE FITTING.
7. THE DUCT STRUCTURE SHALL BE NORMALLY SELF-SUPPORTING. WHERE ROOF SPANS AND WALL LOADINGS REQUIRE ADDITIONAL STRUCTURAL STRENGTH, IT SHALL BE FURNISHED EITHER BY HEAVIER ROOF AND WALL JOINERS OR ADDITIONAL STRUCTURAL MEMBERS.
8. DUCT INSTALLATION SHALL BE CAPABLE OF WITHSTANDING A NEGATIVE INTERNAL STATIC AIR PRESSURE OF 2 INCHES AND A POSITIVE PRESSURE OF 4 INCHES. CONTRACTOR MAY CONSTRUCT DOUBLE WALL DUCTWORK UPON SHOP DRAWING APPROVAL OF SHOP METHODS AND DETAILS.
9. CHWS/R ROOF PENETRATION SHALL BE 18" FROM THE ORIGINAL LOCATION, AS SHOWN. SEE ARCHITECTURAL DRAWINGS FOR NEW ROOF PENETRATION DETAILS. 3



2 MECHANICAL ROOF

SCALE: 3/8"=1'-0" 0 1' 2' 4'

ENGINEER: BOBAK SHAHNAMI
REG. No. 78419
DATE: 06/30/20
BOBAK SHAHNAMI LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER
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DRAWN BY:
DATE: 06/07/20
DESIGNED BY:
SCALE: AS SHOWN
CHECKED BY:
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	01/15/2021	IG	BS	COMMENT RESPONSES
3	04/09/2021	IG	BS	COMMENT RESPONSES

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MECHANICAL ENLARGED PLANS
949 NW 38TH ST, FT. LAUDERDALE, FL.

100% CD

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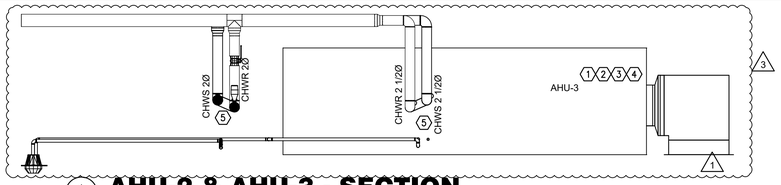
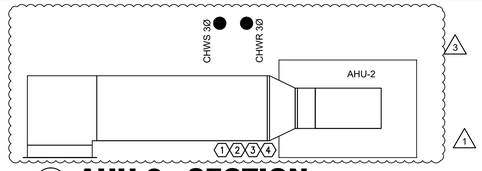
SHEET NO. M16 OF 30
TOTAL: 30
CAD FILE: 1500-M401-2020045.dwg
DRAWING FILE NO. 1500-M401-2020045.dwg



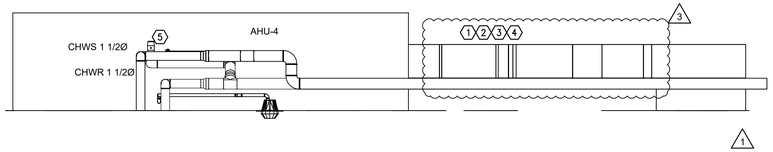
1 **AHU-2 & AHU-3 - SECTION**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



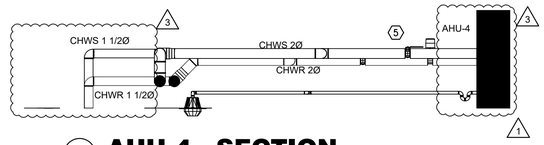
2 **AHU-2 - SECTION**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



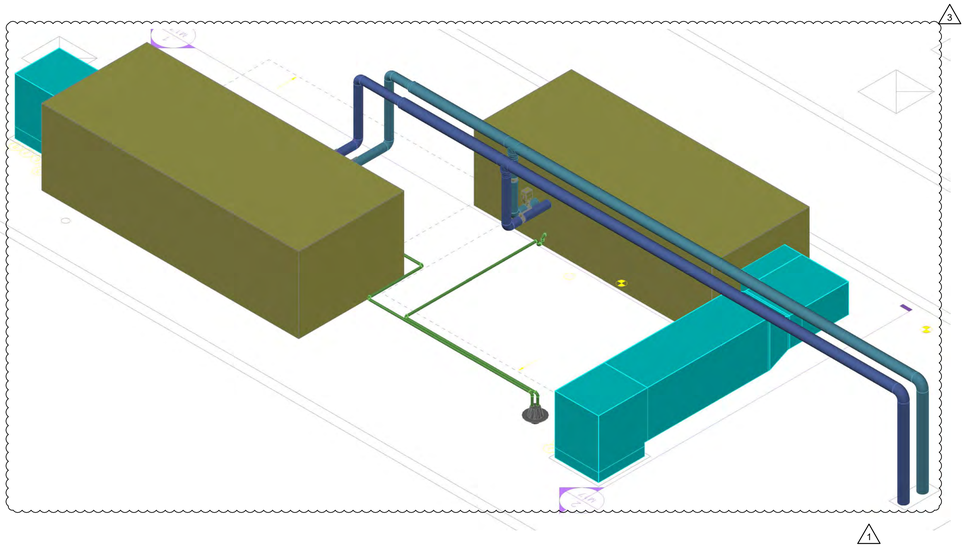
3 **AHU-4 - SECTION**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



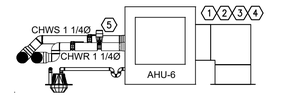
4 **AHU-4 - SECTION**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



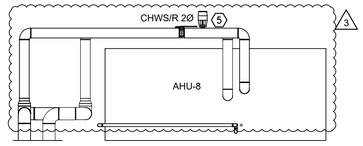
6 **AHU-3 & AHU-2 - ISOMETRIC**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



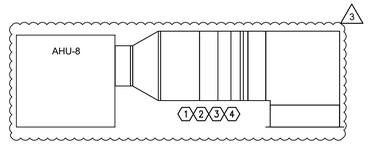
5 **AHU-6 - SECTION**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



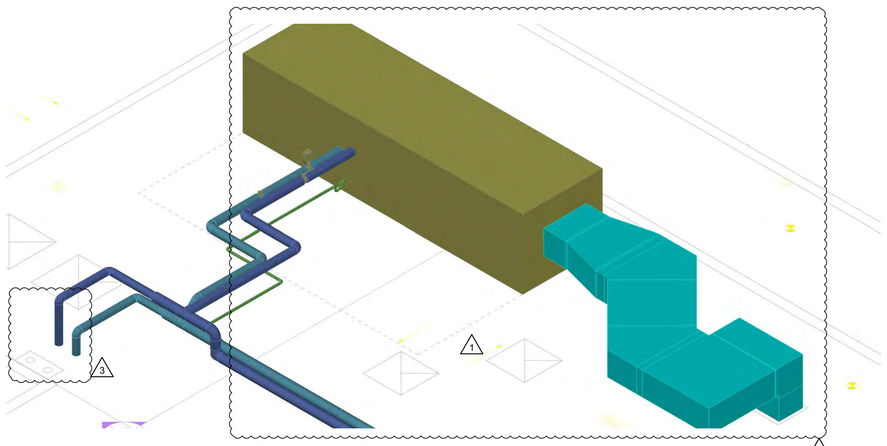
7 **AHU-8 - SECTION**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



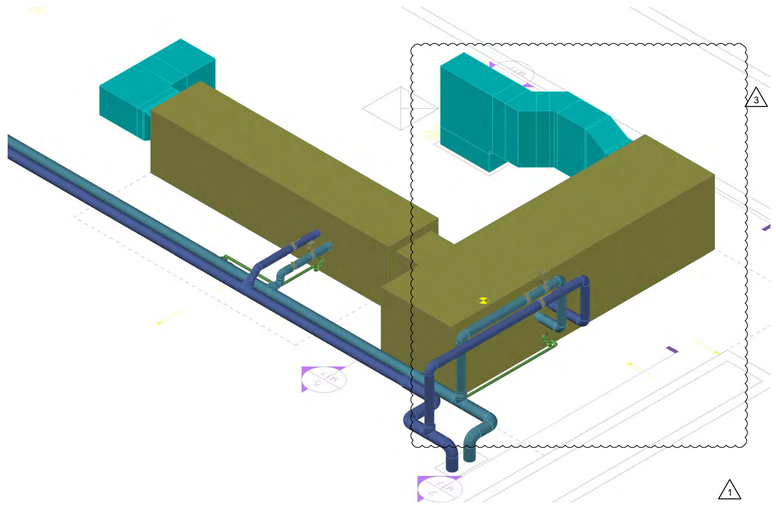
8 **AHU-8 - SECTION**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



9 **AHU-4 - ISOMETRIC**

SCALE: 3/8"=1'-0" 0 1' 2' 4'



10 **AHU-6 & AHU-8 - ISOMETRIC**

SCALE: 3/8"=1'-0" 0 1' 2' 4'

GENERAL NOTES

a. REFER TO SHEET M01 AND M02 FOR MECHANICAL GENERAL NOTES AND SYMBOLS LEGEND.

b. REFER TO PROJECT SPECIFICATIONS FOR EQUIPMENT AND INSTALLATION REQUIREMENTS. IF THERE IS ANY DISCREPANCY BETWEEN SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.

c. COORDINATE WORK SCHEDULE WITH SITE PROJECT MANAGER.

d. DRAWINGS ARE DIAGRAMMATIC AND REPRESENT THE GENERAL LAYOUT OF MECHANICAL COMPONENTS, FOR EXACT BUILDING DIMENSIONS SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.

e. SEE LIFE SAFETY DRAWINGS FOR WALL RATINGS AND FIRE RESISTANCE ASSEMBLIES REQUIREMENT. PROVIDE FIRE DAMPERS FOR ALL FIRE RATED WALLS.

f. COORDINATE DUCTWORK ROUTING WITH ALL TRADES.

g. COORDINATE WITH ELECTRICAL CONTRACTOR LOCATION OF DISCONNECTS. DO NOT BLOCK SERVICE CLEARANCE TO EQUIPMENT.

h. DUCTWORK SHALL REMAIN SEALED DURING CONSTRUCTION. DURING START-UP INSTALL FILTERS AT ALL RETURN AND EXHAUST GRILLES. IF DUCTWORK IS LEFT UNCOVERED DURING CONSTRUCTION, CONTRACTOR WILL BE REQUIRED TO CLEAN ALL DUCTWORK PRIOR TO UNIT START-UP.

i. PROVIDE DOUBLE WALL INSULATED DUCTWORK FOR THE FIRST 20 FEET OF SUPPLY AND RETURN FOR EACH AIR HANDLING UNIT.

j. FOR ALL SUPPLY MEDIUM PRESSURE SYSTEMS USE ROUND OR FLAT OVAL DUCT FABRICATED OF GALVANIZE STEEL

k. ALL MAIN BRANCHES SUPPLY AND RETURN SHALL BE INSTALL BETWEEN TRUSSES

l. ROOF SHALL BE PROVIDED WITH GUARD RAILS FOR UNIT LOCATED 10' OR LESS FROM EDGE OF ROOF

m. ROOF TOP AHU's TO BE LOCATED SO THAT OUTSIDE AIR INTAKE IS 10' AWAY FROM ANY EXHAUST FAN.

KEY NOTES

1. VERIFY SUPPLY AIR DUCT SIZE ON SITE.
2. INSULATION SHALL BE RIGID INSULATION BOARD, MINIMUM DENSITY 6 POUNDS/CUBIC FOOT WITH FACTORY APPLIED FOIL-REINFORCED KRAFT VAPOR BARRIER JACKET. JACKET SHALL BE FLAME RETARDANT. FOR ROUND DUCTWORK, PROVIDE SECTIONAL MOLDED TYPE TO 20 INCHES DIAMETER, ABOVE 20 INCHES AND FOR OVAL DUCTWORK, RIGID INSULATION BOARD ACCURATELY SCORED TO PROVIDE TIGHT FIT.
3. SECURE TO DUCT WITH PINS AND SPEED WASHERS. PINS SHALL BE OF SUFFICIENT LENGTH TO PREVENT DIMPLING OF THE INSULATION. AREAS SUBJECT TO SAGGING INCLUDING, BUT NOT LIMITED TO, UNDERSIDES OF DUCTWORK SHALL BE COATED WITH INSULATION ADHESIVE AND SECURED IN PLACE WITH PINS AND WASHERS AS DESCRIBED ABOVE. PINS SHALL BE 12 INCHES ON CENTER AND 3 INCHES FROM EDGE. PROVIDE ADDITIONAL PINS AND WASHERS AS REQUIRED TO PREVENT SAGGING.
4. LAP DUCTWORK AT EDGES. JOINTS SHALL BE SEALED WITH 5-INCH-WIDE VAPOR BARRIER FOIL ADHERED WITH INSULATION ADHESIVE OR PRESSURE SENSITIVE FOIL TAPE. SEAL VAPOR BARRIER OPENINGS, TEARS, PUNCTURES, ETC., WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM.
5. INSTALL 3-WAY CHILLED WATER VALVE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATION.

ENGINEER: BOBAK SHAHNAMI
REG. No.: 78419
DATE: 06/07/20
FIRM: SGM ENGINEERING
FIRM No.: 8964
FAX: 954-421-1924
BOBAK SHAHNAMI LICENSE No. 78419 STATE OF FLORIDA PROFESSIONAL ENGINEER

DRAWN BY:
DESIGNED BY:
CHECKED BY:
DATE: 06/07/20
SCALE: AS SHOWN
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
1	01/15/2021	IG	BS	COMMENT RESPONSES
3	04/09/2021	IG	BS	COMMENT RESPONSES

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MECHANICAL ENLARGED PLANS
949 NW 38TH ST, FT. LAUDERDALE, FL.

100% CD

SHEET NO. M17 OF 30
TOTAL: 30
CAD FILE: 1500-M401-2020045.dwg
DRAWING FILE NO. 1500-M401-2020045.dwg

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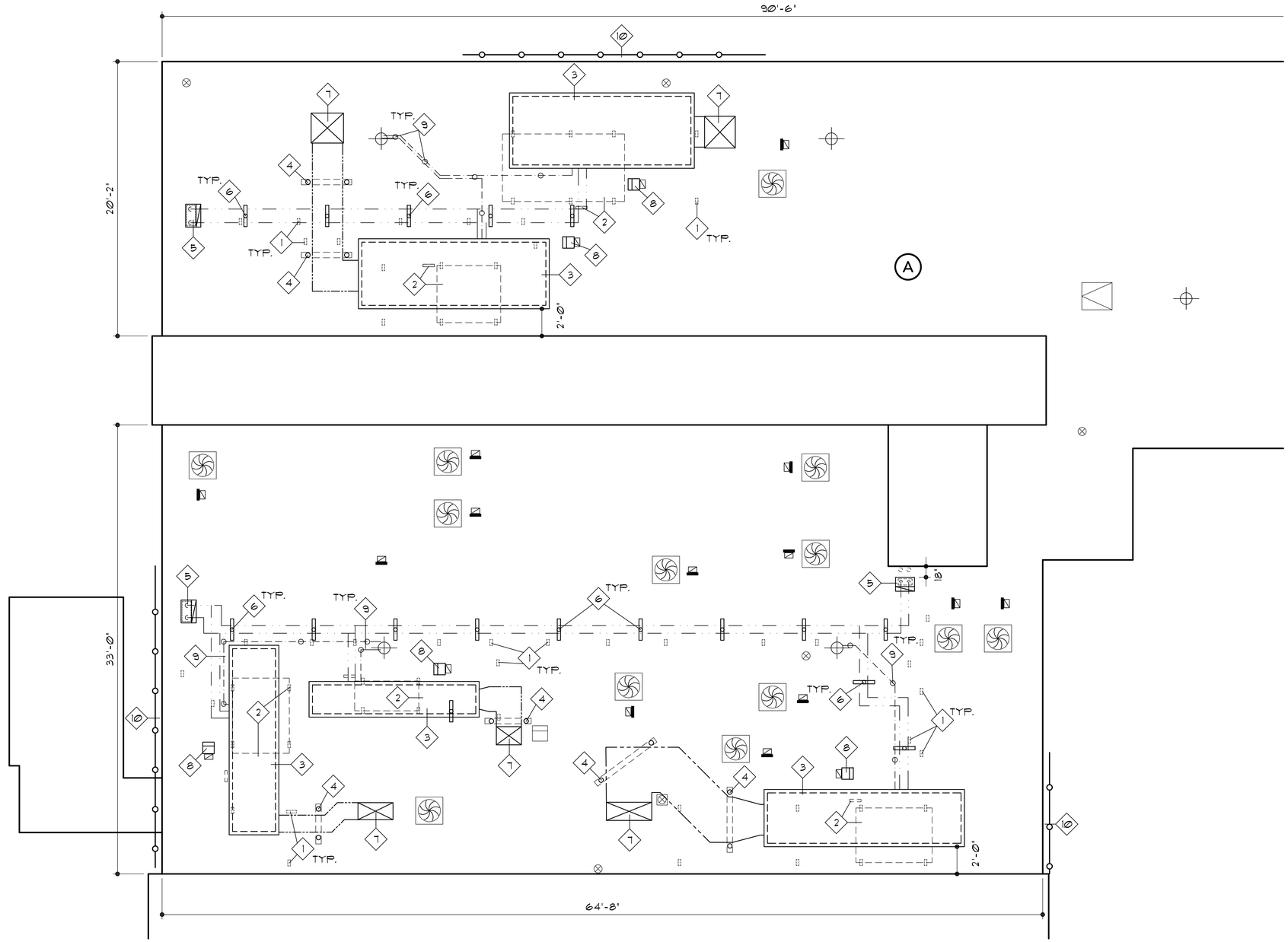
PHYSICAL CHARACTERISTICS SCHEDULE

ROOF AREA	SQ.FT.	PROPOSED SCOPE OF WORK	EXISTING STRUCTURAL DECK TYPE		ESTIMATED SLOPE		ROOFING MEMBRANE TYPE		DECK INSULATION		FLASHING METAL	
			EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED
A	4,149	FLASHING REPAIR	PRECAST CONC.	-	FLAT	-	MOD. BIT.	TORCH MOD. BIT. REPAIRS	LT. WT. INSUL. CONC.	-	-	ST. STL.
TOTAL	4,149	APPROX. SQ. FT. OF EXISTING MOD. BIT. ROOF AREA										

ALL EXISTING CONDITIONS MUST BE FIELD VERIFIED

NOTE: THE AREAS PROVIDED REPRESENT FLAT ROOF AREA AS DETERMINED FROM THIS ROOF PLAN. NO ADJUSTMENT HAS BEEN MADE FOR FLASHINGS SLOPE OR OTHER ROOF PENETRATIONS THAT REQUIRES ADDITIONAL ROOF MEMBRANE. THE INFORMATION IS PROVIDED TO THE CONTRACTOR FOR HIS USE AND VERIFICATION.



PARTIAL ROOF PLAN

SCALE: 3/16" = 1'-0"

SYMBOLS LEGEND

- ROOF EDGE
- CHILLER LINES
- CONDENSATE LINE
- NEW DUCT WORK
- GUARDRAIL SYSTEM
- SANITARY VENT
- PIPE PENETRATION
- EXIST. PITCH PANS (TO BE REMOVED)
- EXIST. EMERGENCY SHUT-OFF TO REMAIN
- EXIST. ROOF DRAIN TO REMAIN
- POWER VENT (TO REMAIN)
- EXIST. WEATHERHEAD
- ROOF HATCH
- EXIST HVAC UNIT (TO BE REMOVED)
- NEW LARGE HVAC UNIT
- NEW DUCT WORK SUPPORT
- DUCT WORK CURB PENETRATION
- NEW CHILLER LINE SUPPORT
- NEW WEATHERHEAD AT CHILLER LINES
- EMERGENCY SHUT-OFF AT NEW WEATHERHEAD
- ROOF I.D.
- DETAIL NUMBER
- SPECIFIC NOTE ROOF AREA ID

SPECIFIC NOTES

1. REMOVE ABANDONED SUPPORT POSTS OR CONDUIT WIRING DOWN TO STRUCTURAL DECK. REMOVE ALL ASSOCIATED PITCH PANS AND PATCH ROOF MEMBRANE PER DETAIL (B03.1).
2. EXISTING LARGE HVAC UNITS, SUPPORT FRAMING, DUCT WORK AND ASSOCIATED ELECTRICAL CONDUIT TO BE REMOVED.
3. NEW HVAC UNIT AND PRE-MANUFACTURED CURB TO BE LOCATED PER PLANS. INSTALL NEW TWO-PIECE RECEIVER AND COUNTERFLASHING TRANSITION PRIOR TO HVAC INSTALLATION- SEE DETAIL (B02.1) FOR FLASHING. COORDINATE INSTALLATION OF NEW UNIT, ELECTRICAL AND CHILLER PIPING CONNECTION WITH MECHANICAL PLANS.
4. NEW DUCT WORK POST SUPPORT STANDS @ MINIMUM 6' O.C. - FLASH PER DETAIL (B03.2). COORDINATE DUCT WORK ROUTING PER MECHANICAL PLANS.
5. INSTALL NEW WEATHERHEAD AND PRE-MANUFACTURED CURB AT EXISTING CHILLER PIPE PENETRATION. FLASH PER DETAIL (B02.5). RELOCATE PENETRATION (WHERE REQ'D.) A MINIMUM 18" FROM EDGE OF ROOF, WALL OR CURB. COORDINATE INSTALLATION WITH MECHANICAL PLANS.
6. NEW CHILLER LINES TO BE FASTENED TO DECK MOUNTED SUPPORTS - SEE DETAIL (B03.3) FOR FLASHING. COORDINATE PIPE ROUTING AND SUPPORT POST SPACING WITH MECHANICAL PLANS.
7. EXISTING DUCT PENETRATION CURB TO BE RAISED. INSTALL TWO-PIECE COUNTERFLASHING RECEIVER (PVC COATED) AND FLASH PER DETAIL (B02.4). APPLY SINGLE-PLY MEMBRANE AROUND PROPOSED DUCT WORK, TERMINATE BY FULLY HEAT WELDING TO NEW FLASHING RECEIVER.
8. AS REQUIRED - PROVIDE NEW SMALL WEATHERHEAD AND PRE-MANUFACTURED CURB FOR ELECTRICAL CONDUIT AND DISCONNECT/SHUT-OFF ASSOCIATED WITH NEW LARGE HVAC UNITS. INSTALL PER DETAIL (B03.4). FIELD VERIFY LOCATION OF CURB. LOCATE A MINIMUM OF 18" FROM NEW OR EXISTING CURBS OR WALL CONDITIONS
9. PROVIDE NEW A/C CONDENSATE DRAIN USING FIELD PAINTED, UV RESISTANT PVC PIPING ON COMPOSITE SUPPORT BLOCK AT 4'-0" O.C. MAX. SEE DETAIL (B04.1).
10. INSTALL NEW ALUMINUM WALL MOUNTED GUARD RAILS ALONG ROOF PERIMETER NEARBY LARGE HVAC UNITS AS INDICATED PER PLANS. FABRICATE RAILS AND SECURE PER DETAIL (B04.2)

ENGINEER: BOBAK SHAHNAMI
REG. No: FL74989
DATE:

TEL: 954-421-1944
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DRAWN BY: TJG | DESIGNED BY: JWR | CHECKED BY: | DATE: 08/07/20 | SCALE: AS SHOWN | FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
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100 North Andrews Avenue, Fort Lauderdale, Florida 33301

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PROJECT # 2020-045
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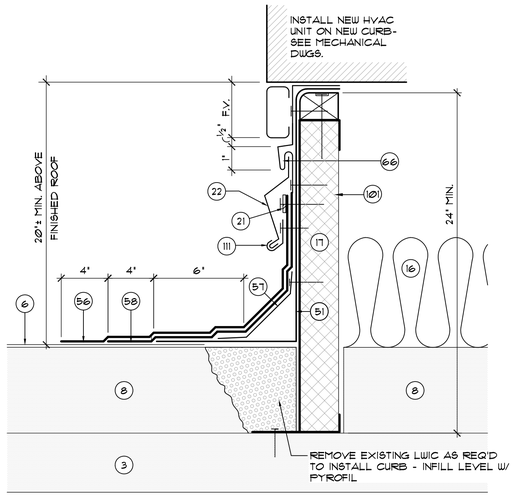
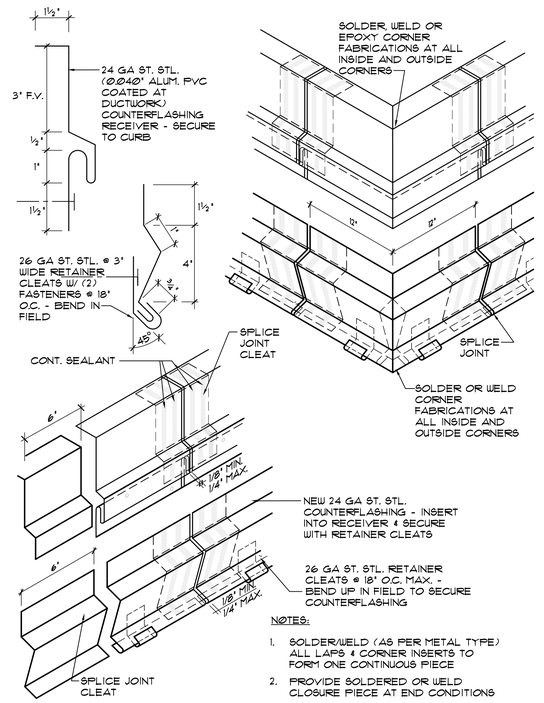
SHEET NO. R01 | OF 1
TOTAL: 5
CAD FILE: 21013.00_DOCUMENTS.dwg
DRAWING FILE NO. 21013.00_DOCUMENTS.dwg



B02.1 TYPICAL CURB AND FLASHING DETAIL AT NEW CURB FOR LARGE HVAC MECHANICAL UNIT

SCALE: 3" = 1'-0"

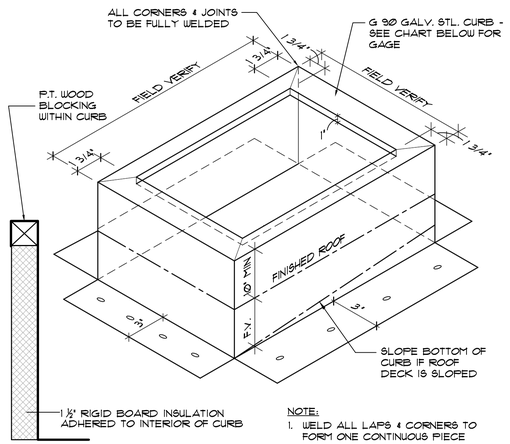


NOTES:

1. SOLDER/WELD (AS PER METAL TYPE) ALL LAPS & CORNER INSERTS TO FORM ONE CONTINUOUS PIECE
2. PROVIDE SOLDERED OR WELD CLOSURE PIECE AT END CONDITIONS

B02.2 TYPICAL COUNTERFLASHING AND RECEIVER FABRICATION AT NEW CURBS

SCALE: NONE



NOTE:

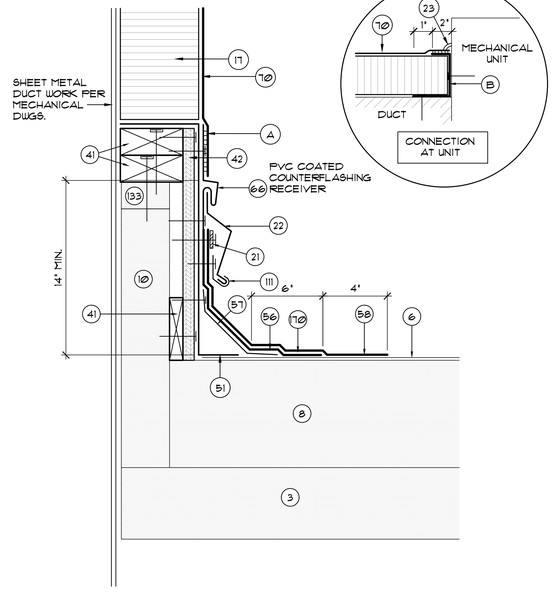
1. WELD ALL LAPS & CORNERS TO FORM ONE CONTINUOUS PIECE
2. DIMENSIONS NOT GIVEN TO BE FIELD VERIFIED.

SECTION

CURB DATA				
MIN SIZE	MAX SIZE	METAL GAGE	ANCHORAGE - CONC DECK	
-	24" SQ	20 GA.	¼"ø x 2¼" LG. TAPCONS@ 24" O.C.	
25" SQ	60" SQ	18 GA.	¼"ø x 2¼" LG. TAPCONS@ 18" O.C.	
61" SQ	120" SQ	16 GA.	¼"ø x 2¼" LG. TAPCONS@ 12" O.C.	
121" SQ	240" SQ	14 GA.	⅜"ø x 3" RAWL-BOLT @ 24" O.C.	

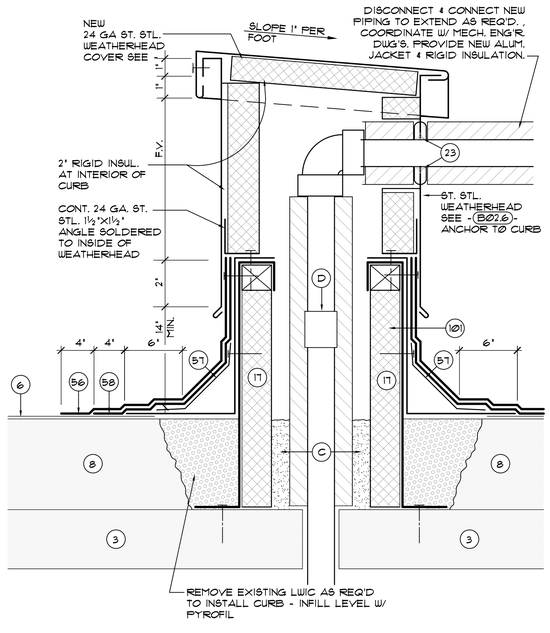
B02.3 TYPICAL CURB FABRICATION AND ANCHORAGE DETAIL

SCALE: NONE



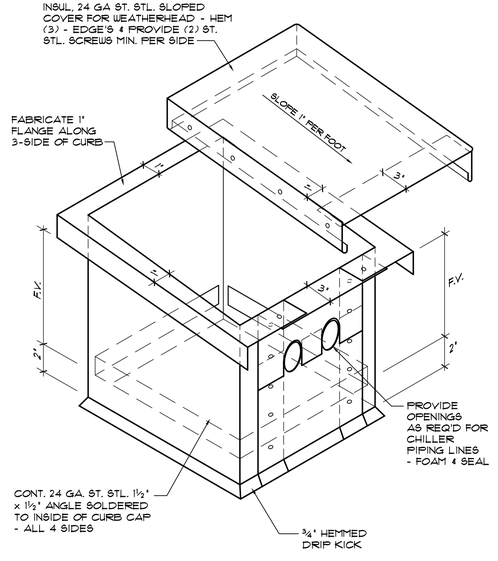
B02.4 CURB AND FLASHING AT PVC WRAPPED DUCTWORK

SCALE: 3" = 1'-0"



B02.5 CURB MOUNTED WEATHERHEAD AND FLASHING DETAILS FOR CHILLER PIPING

SCALE: 3" = 1'-0"



B02.6 CHILLER PIPING WEATHERHEAD FABRICATION DETAIL

SCALE: NONE

DETAIL NOTES

3. EXISTING PRECAST CONCRETE ROOF DECK
6. EXISTING MEMBRANE TO REMAIN
8. EXISTING LT. WT. INSULATING CONCRETE
10. EXISTING CURB TO REMAIN
16. BATT INSULATION
17. NON-TAPERED RIGID INSULATION
21. CONT. ALUM. TERMINATION BAR - SEE DETAIL B03.6
22. TWO-PIECE CURB MOUNTED COUNTERFLASHING AND RECEIVER - SEE DETAIL B02.2 . INSTALL PRIOR TO MECH. INSTALLATION.
23. SEALANT - CONTINUOUS TOOLED BEAD (U.N.O.)
24. CONTINUOUS DOUBLE-SIDED BUTYL FLASHING TAPE.
41. 2 x P.T. WOOD BLOCKING TO BE FASTENED AT 12" O.C. (MAX.) STAGGERED - COUNTERSINK HEADS
42. 5/8" CDX PLYWOOD FLUSH WITH EXISTING CONSTRUCTION ABOVE -SCREW FASTEN @ 8" O.C. (MAX.), TOP & BOTTOM STAGGERED (U.N.O.). - COUNTERSINK SCREWHEADS.
51. SELF-ADHESIVE MODIFIED BITUMEN 'DRY-IN' MEMBRANE.
54. MODIFIED BITUMEN STRIP-IN FLASHING.
56. MODIFIED BITUMEN FLASHING - CAP
57. NON-COMBUSTIBLE CANT
58. MODIFIED BITUMEN FLASHING - INTERPLY
66. Ø.040" ALUM. OR 24 GA. ST. STL. PVC COATED- FLASHING RECEIVER -INSTALL PRIOR INSULATION PLACEMENT
70. PVC ELVALOY KEE, 50 MIL, WHITE THERMOPLASTIC SINGLE-PLY FLASHING MEMBRANE - FULLY ADHERED
101. PREMANUFACTURED CURB W/ NAILER & INSULATION- ANCHOR TO STRUCT. DECK - SEE DETAIL B02.3
111. NEW 3" WIDE RETAINER CLEAT @ 18" O.C. MAX. W/ 2 FASTENERS MIN. - BEND UP IN FIELD TO SECURE C.F.
133. EXISTING WOOD BLOCKING OR TRIM TO REMAIN, REPLACE IN "LIKE-KIND" WHERE DAMAGED OR DETERIORATED
138. MFR'S LIQUID APPLIED FLASHING SYSTEM TO SEAL METAL-TO-MEMBRANE JOINT.
149. METAL SEALANT COVER- FRICTION FIT IN FIELD
170. APPROVED MANUFACTURER'S TROWELABLE MODIFIED BITUMEN ADHESIVE.
A. HEAT WELD MEMBRANE PER MANUFACTURE'S REQUIREMENTS
B. CONTINUOUS PVC COATED CHANNEL CLEAT, MECH. ATTACHED AROUND DUCT
C. FOAM SEALANT
D. COUPLING AT EXIST. PIPE - MATCH SIZE, TYPE AND GAUGE. COORDINATE W/ MECH. ENGR'S. DWG'S.
E. 2" I.D. SCH. 40 ALUM. PIPE W/ WELD CAP & 1/2" THREADED STUD AT TOP (TO BE INSTALLED BY MECH. CONTR.)
F. 3"x3"x1/4" ALUM. ANGLE FASTENED TO PIPE SUPPORT WITH (2) 1/4" ST. STL. U-BOLTS, NUTS & LOCK WASHERS
G. ST. STL. FLASHING SLEEVE WITH INTEGRAL FLANGE AND COLLAR WITH DRAW BAND & SEALANT COVER (2-PC., 24 GA., SOLDERED SLEEVE) - S.B.C. IND. MODEL P/D OR P/S OR APPROVED EQUAL
H. METAL FLANGE
J. PRESOLDERED SEAM
K. NEW ELECTRICAL CONDUIT CABLES ROUTED UP THRU WEATHERHEAD FROM BELOW DECKS.
L. BACKER ROD
M. METAL SCREWS WITH METAL BACKED NEOPRENE WASHERS @ 8" Ø.C. (TWO MIN. PER SIDE)

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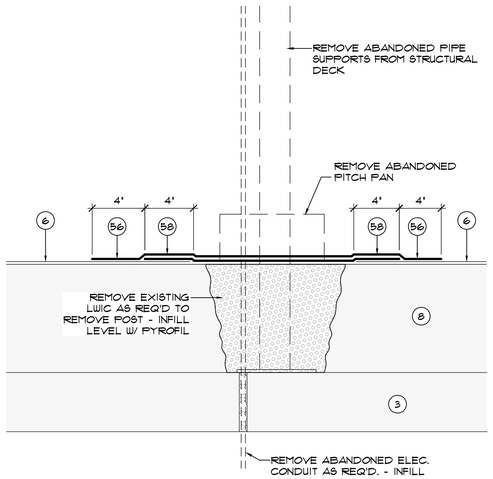
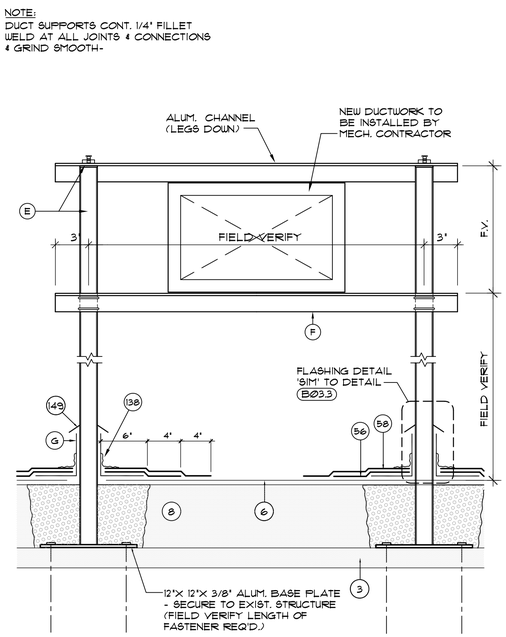


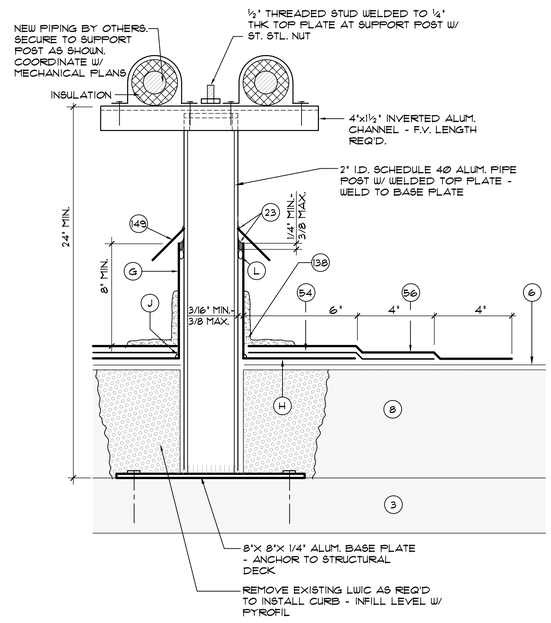
B03.1 FLASHING REPAIR DETAIL AT ABANDONED PITCH PAN OR SUPPORT

SCALE: 3" = 1'-0"



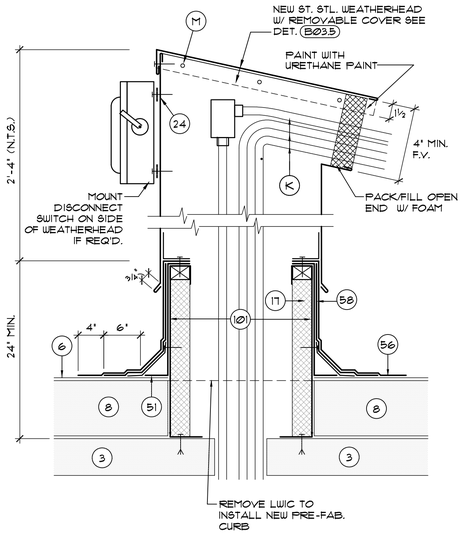
B03.2 DUCT SUPPORT SYSTEM AND FLASHING REPAIR DETAIL

SCALE: NONE



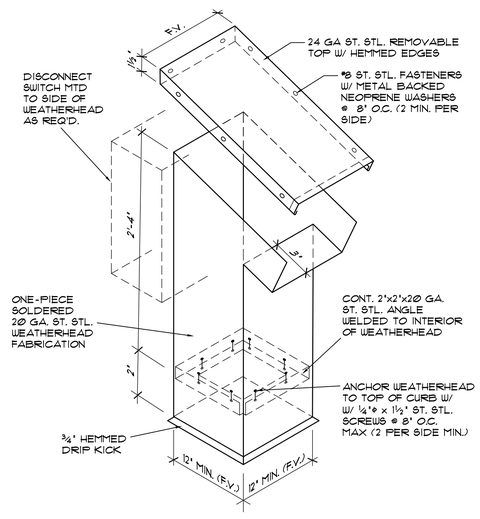
B03.3 ROOF MOUNTED CHILLER SUPPORT POST FLASHING DETAIL

SCALE: 3" = 1'-0"



B03.4 WEATHERHEAD FOR CONDUIT AND CURB INSTALLATION AND FLASHING DETAIL

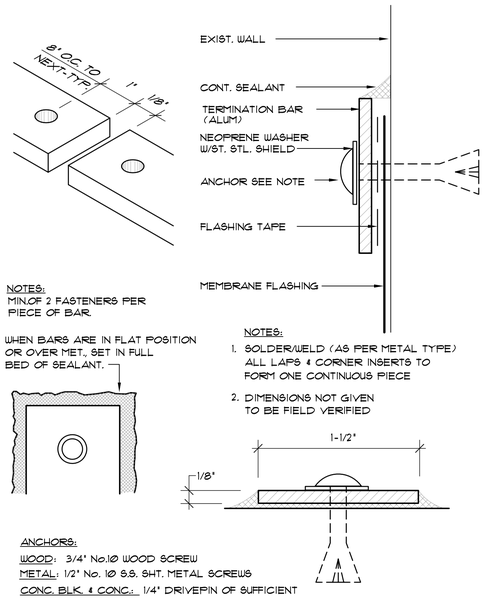
SCALE: 1 1/2" = 1'-0"



NOTE:
1. WELD ALL LAPS & CORNER INSERTS TO FORM ONE CONTINUOUS PIECE
2. DIMENSIONS NOT GIVEN TO BE FIELD VERIFIED.

B03.5 FABRICATION DETAIL FOR CURB MOUNTED UTILITY WEATHERHEAD

SCALE: NONE



B03.6 TYPICAL TERMINATION BAR DETAIL

SCALE: NONE

DETAIL NOTES

3. EXISTING PRECAST CONCRETE ROOF DECK
6. EXISTING MEMBRANE TO REMAIN
8. EXISTING LT. WT. INSULATING CONCRETE
10. EXISTING CURB TO REMAIN
16. BATT INSULATION
17. NON-TAPERED RIGID INSULATION
21. CONT. ALUM. TERMINATION BAR - SEE DETAIL B03.6
22. TWO-PIECE CURB MOUNTED COUNTERFLASHING AND RECEIVER - SEE DETAIL B02.2 . INSTALL PRIOR TO MECH. INSTALLATION.
23. SEALANT - CONTINUOUS TOOLED BEAD (U.N.O.)
24. CONTINUOUS DOUBLE-SIDED BUTY'L FLASHING TAPE.
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56. MODIFIED BITUMEN FLASHING - CAP
57. NON-COMBUSTIBLE CANT
58. MODIFIED BITUMEN FLASHING - INTERPLY
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70. PVC ELVALOY KEE, 50 MIL, WHITE THERMOPLASTIC SINGLE-PLY FLASHING MEMBRANE - FULLY ADHERED
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111. NEW 3" WIDE RETAINER CLEAT @ 18" O.C. MAX. W/ 2 FASTENERS MIN. - BEND UP IN FIELD TO SECURE C.F.
133. EXISTING WOOD BLOCKING OR TRIM TO REMAIN, REPLACE IN "LIKE-KIND" WHERE DAMAGED OR DETERIORATED
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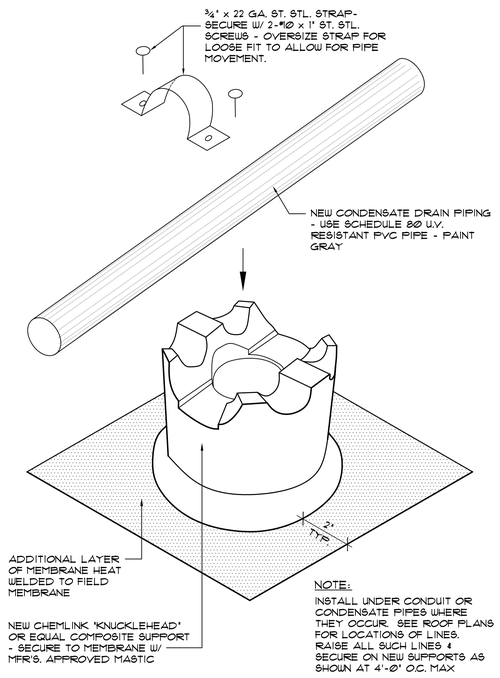
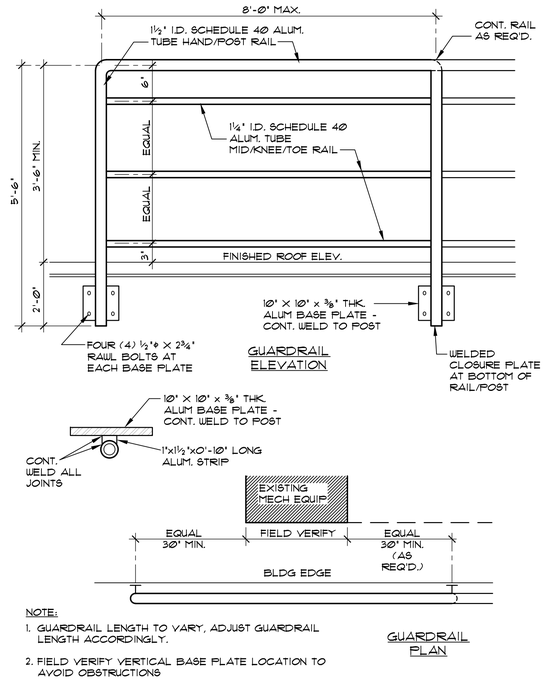


B04.1 TYPICAL CONDENSATE DRAIN SUPPORT BLOCK DETAILS

SCALE: NONE



B04.2 WALL MOUNTED FALL PROTECTION GUARDRAIL DETAIL

SCALE: NONE

DETAIL NOTES

3. EXISTING PRECAST CONCRETE ROOF DECK
6. EXISTING MEMBRANE TO REMAIN
8. EXISTING LT. WT. INSULATING CONCRETE
10. EXISTING CURB TO REMAIN
16. BATT INSULATION
17. NON-TAPERED RIGID INSULATION
21. CONT. ALUM. TERMINATION BAR - SEE DETAIL (B03.6)
22. TWO-PIECE CURB MOUNTED COUNTERFLASHING AND RECEIVER - SEE DETAIL (B02.2) . INSTALL PRIOR TO MECH. INSTALLATION.
23. SEALANT - CONTINUOUS TOOLED BEAD (U.N.O.)
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41. 2 x P.T. WOOD BLOCKING TO BE FASTENED AT 12" O.C. (MAX.) STAGGERED - COUNTERSINK HEADS
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66. Ø040" ALUM. OR 24 GA. ST. STL. PVC COATED- FLASHING RECEIVER -INSTALL PRIOR INSULATION PLACEMENT
70. PVC ELVALOY KEE, 50 MIL. WHITE THERMOPLASTIC SINGLE-PLY FLASHING MEMBRANE - FULLY ADHERED
101. PREMANUFACTURED CURB W/ NAILER & INSULATION- ANCHOR TO STRUCT. DECK - SEE DETAIL (B02.3)
111. NEW 3" WIDE RETAINER CLEAT @ 18" O.C. MAX. W/ 2 FASTENERS MIN. - BEND UP IN FIELD TO SECURE C.F.
133. EXISTING WOOD BLOCKING OR TRIM TO REMAIN, REPLACE IN "LIKE-KIND" WHERE DAMAGED OR DETERIORATED
138. MFR'S LIQUID APPLIED FLASHING SYSTEM TO SEAL METAL-TO-MEMBRANE JOINT.
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190. APPROVED MANUFACTURER'S TROWELABLE MODIFIED BITUMEN ADHESIVE.

A. HEAT WELD MEMBRANE PER MANUFACTURE'S REQUIREMENTS
B. CONTINUOUS PVC COATED CHANNEL CLEAT, MECH. ATTACHED AROUND DUCT
C. FOAM SEALANT
D. COUPLING AT EXIST. PIPE - MATCH SIZE, TYPE AND GAUGE. COORDINATE W/ MECH. ENGR'S. DWG'S.
E. 2" I.D. SCH. 40 ALUM. PIPE W/ WELD CAP & 1/2" THREADED STUD AT TOP (TO BE INSTALLED BY MECH. CONTR.)
F. 3"x3"x1/4" ALUM. ANGLE FASTENED TO PIPE SUPPORT WITH (2) 1/4" ST. STL. U-BOLTS, NUTS & LOCK WASHERS
G. ST. STL. FLASHING SLEEVE WITH INTEGRAL FLANGE AND COLLAR WITH DRAW BAND & SEALANT COVER (2-PC., 24 GA., SOLDERED SLEEVE) - S.B.C. IND. MODEL P/D OR P/S OR APPROVED EQUAL
H. METAL FLANGE
J. PRESOLDERED SEAM
K. NEW ELECTRICAL CONDUIT CABLES ROUTED UP THRU WEATHERHEAD FROM BELOW DECKS.
L. BACKER ROD
M. METAL SCREWS WITH METAL BACKED NEOPRENE WASHERS @ 8" O.C. (TWO MIN. PER SIDE)

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DESIGNED BY: JWR | SCALE: AS SHOWN
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CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
3	4/9/2021	TJG	JWR	ROOF REPAIR

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
MISCELLANEOUS DETAILS
949 NW 38TH ST, FT. LAUDERDALE, FL.

SHEET NO. R04 | OF 4
TOTAL: 5
CAD FILE: 21013.00_DOCUMENTS.dwg
DRAWING FILE NO. 21013.00_DOCUMENTS.dwg

GENERAL ROOFING NOTES

1. THE DIMENSIONS SHOWN ON THE PLANS OF THIS PROJECT WERE TAKEN FROM THE OWNER'S ARCHITECTURAL DOCUMENTS OR ARE THE RESULT OF FIELD MEASUREMENTS TAKEN BY A/R/C ASSOCIATES. THIS INFORMATION IS GIVEN TO ASSIST PROSPECTIVE BIDDERS IN ESTABLISHING THE APPROXIMATE SCOPE OF THE PROJECT, AS A PRE-REQUISITE FOR BIDDING THE PROJECT. HOWEVER, ALL DIMENSIONS SHALL BE FIELD VERIFIED BY EACH BIDDER SO THAT THE DIMENSIONS UTILIZED IN BIDDING THE PROJECT WILL BE THOSE DIMENSIONS TAKEN, CONFIRMED OR CORRECTED BY THE BIDDER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS, AND EQUIPMENT NOTED AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.
2. THE PLANS ARE GENERAL IN NATURE & INDICATE APPROXIMATE EXISTING CONDITIONS AT THE PROJECT SITE. ALL BLDGS. ON THE SITE ARE INCLUDED IN THE PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE (N.I.C.). THE CONTRACTOR SHALL BE RESPONSIBLE FOR A VISUAL FIELD SURVEY (PRIOR TO BID) IN REGARD TO QUANTITIES, & VERIFICATION OF CONFORMANCE WITH THE LOCAL BUILDING CODE.
3. PRIOR TO THE START OF ANY WORK, THE CONTRACTOR WITH THE PROJECT ARCHITECT AND OWNERS REPRESENTATIVE SHALL VISIT THE SITE AND PHOTO AND VIDEO TAPE THE SITE AND ALL SPACES NEARBY THAT MAY BE AFFECTED BY THIS PROJECT IN ORDER TO DETERMINE THE CONTRACTOR'S RESPONSIBILITY IN KEEPING THOSE ITEMS IN THEIR CURRENT STATUS, SPECIAL ATTENTION SHALL BE GIVEN TO CEILING, LIGHT FIXTURES, EXTERIOR AND INTERIOR WALL FINISHES, AND SIDEWALKS, ETC. PARTICULARLY IN THOSE AREAS WHERE EXISTING LEAKS HAVE BEEN OBSERVED.
4. ALL MECHANICAL SYSTEMS & INDIVIDUAL COMPONENTS (EQUIPMENT) SHALL BE OPERATED IN THE PRESENCE OF REPRESENTATIVES OF BOTH THE CONTRACTOR AND OWNER PRIOR TO ANY DEMOLITION OR DISCONNECTION OF MECHANICAL FUNCTIONS, IN ORDER TO ESTABLISH WORKING ORDER AND OPERATING CONDITIONS.
5. CONTRACTOR SHALL EXERCISE CARE DURING DEMOLITION AND REMOVAL TO ASSURE THAT ITEMS SCHEDULED FOR DEMOLITION ARE PROPERLY REMOVED AND ITEMS TO REMAIN AND/OR TO BE RELOCATED ARE PROTECTED FROM DAMAGE. ALL SALVAGEABLE ITEMS REMOVED THAT ARE NOT TO RE REUSED SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER.
6. NO EXISTING FACILITY SHALL BE OCCUPIED DURING REMODELING OR RENOVATION UNLESS ALL EXISTING EXITS AND ANY EXISTING FIRE PROTECTION ARE CONTINUOUSLY MAINTAINED, OR IN LIEU THEREOF OTHER MEASURES ARE TAKEN WHICH PROVIDE EQUIVALENT SAFETY.
7. IN THE EVENT OF WATER DAMAGE TO THE INTERIOR OF STRUCTURES, A DAMAGE REPORT, WITH PHOTOGRAPHS SHALL BE COMPLETED BY THE PROJECT ARCHITECT ONCE THEY HAVE BEEN NOTIFIED. THE REPORT SHALL BE SUBMITTED TO THE OWNER AND THE CONTRACTOR FOR THEIR RECORDS.
8. NOTIFY THE LOCAL POLICE OFFICIALS, THE OWNER OR ARCHITECT BY TELEPHONE IN EACH INSTANCE OF PROPERTY DAMAGE RESULTING FROM FIRE, WATER DAMAGE, ILLEGAL ENTRY, VANDALISM, THEFT OR BURGLARY, OR VEHICLE DAMAGE WITHIN 24 HOURS OF DISCOVERING THE INCIDENT.
9. DETAILS REFERENCED ON THE CONTRACT DRAWINGS ARE 'TYPICAL' AND ARE NOT CUT AT EVERY LOCATION WHERE THE CONDITION OCCURS. BID AND EXECUTE A COMPLETE PROJECT AS IF DETAILS WERE 'CUT' AT EVERY LOCATION WHERE SUCH CONDITION OR SIMILAR CONDITION OCCURS.
10. SHEET METAL DETAILS AND TRANSITIONS NOT SHOWN SHALL BE REQUIRED AS IF SHOWN. PREPARE, AND SUBMIT SHOP DRAWINGS OF THESE REQUIREMENTS TO THE ARCHITECT FOR APPROVAL PRIOR TO SHOP FABRICATION.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND PAINTING / FINISHING OF ALL SURFACES EXPOSED OR DAMAGED AS A RESULT THE WORK. WORK NOT COVERED BY NEWLY INSTALLED WORK. REPAIRS AND FINISHES SHALL MATCH EXISTING ADJACENT CONDITIONS TO REMAIN UNCHANGED.
12. CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE, REINSTALL, OR REPLACE INTERIOR FINISHES WHICH MAY HAVE BEEN DISTURBED OR DAMAGED DURING THE CONSTRUCTION PROCESS.
13. CONTRACTOR SHALL PROVIDE ALL SUPPLEMENTAL MATERIALS REQUIRED TO PROPERLY INSTALL, SUPPORT AND BRACE ALL ITEMS AND COMPONENTS WITHIN THE WORK.

ABBREVIATIONS

ADJ	ADJACENT
A/C	AIR CONDITIONING
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
BRG	BEARING
BIT	BITUMINOUS BITUMEN
BLK	BLOCK
BLKG	BLOCKING
BD	BOARD
BOT	BOTTOM
BLDG	BUILDING
BUR	BUILT UP ROOF
CIP	CAST-IN-PLACE
CB	CATCH BASIN
CLG	CEILING
COL	COLUMN
COMP	COMPRESS, (ION), (IBLE)
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONST	CONSTRUCTION
CONT	CONTINUOUS OR CONTINUE
CJ	CONTROL JOINT
CTR	CENTER
C.F.	CUBIC FOOT
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DIAG	DIAGONAL
DIA	DIAMETER
DIM	DIMENSION
DS	DOWNSPOUT
DWG	DRAWING
E	EAST
ELEC	ELECTRIC(AL)
EL (ELEV)	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FIN	FINISH(ED)
FLASH	FLASHING
FLEX	FLEXIBLE
FTG	FOOTING
FDN	FOUNDATION
GA	GAGE (GAUGE)
GALV	GALVANIZED
GWB	GYPSUM WALL BOARD
HDWE	HARDWARE
HVAC	HEATING/VENTILATION /AIR CONDITIONING
HT (HGT)	HEIGHT
HM	HOLLOW METAL
HORIZ	HORIZONTAL
INCL	INCLUDE(D), (ING)
ID	INSIDE DIAMETER INSIDE DIMENSION
INSUL	INSULATE(D), (ION)
INT	INTERIOR
LW	LIGHTWEIGHT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MFR	MANUFACTURE(ER)
MATL	MATERIAL(S)
MAX	MAXIMUM
MECH	MECHANIC(AL)
MTL	METAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODIFY / MODIFIED
MTD	MOUNTED(ING)
NOM	NOMINAL
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
OC	ON CENTER(S)
OCEW	ON CENTER EACH WAY
OPG	OPENING
OPP	OPPOSITE
OD	OUTSIDE DIAMETER OUTSIDE DIMENSION
PTD	PAINT(ED)
PR	PAIR
PL	PLATE
PLYWD	PLYWOOD
PVC	POLYVINYL CHLORIDE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PC	PRECAST CONCRETE
PT	PRESSURE TREATED
RAD	RADIUS
RWL	RAINWATER LEADER
REF	REFERENCE
REINF	REINFORCE (D), (MENT)
RCP	REINF. CONCRETE PIPE
REV	REVISION
RD	ROOF DRAIN
RO	ROUGH OPENING
SCH	SCHEDULE
SEAL	SEALANT
SHT	SHEET
SIM	SIMILAR
S	SOUTH
SPK	SPEAKER
SPEC	SPECIFICATION(S)
SQ	SQUARE
SF	SQUARE FEET
ST STL	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
THK	THICK(NESS)
T & G	TONGUE AND GROOVE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
WWF	WELDED WIRE FABRIC
W	WEST
WM	WIRE MESH
W/	WITH
W/O	WITHOUT
WD	WOOD

ROOF COMPONENT FASTENING SCHEDULE

A. GENERAL NOTES:

1. THIS SCHEDULE AND THE FASTENING METHODS INDICATED HEREIN ARE INTENDED TO ADDRESS TYPICAL CONDITIONS, AND MAY NOT APPLY TO ALL CONDITIONS FOR THIS PROJECT.
2. CONTRACTOR / INSTALLER MUST ALSO REFER TO THE DETAILS FOR THIS SPECIFIC PROJECT. IN THE CASE OF CONFLICTING DATA, THE PROJECT SPECIFIC DETAILS SHALL GOVERN.
3. FOR ALL CONDITIONS NOT COVERED WITHIN SCHEDULE, REFER TO FASTENER REQUIREMENTS OF THE SPECIFICATIONS OR CONSULT WITH THE ARCHITECT.
4. MANUFACTURERS OF SPECIALITY FASTENER SHALL PERFORM FIELD TESTS TO VERIFY WITHDRAWAL VALUES AND FASTENING PATTERNS FOR THE SPECIFIC PROJECT CONDITIONS PRIOR TO INSTALLATION. A WRITTEN REPORT SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL.
5. ALL EXPOSED FASTENERS AND THOSE USED IN PRESSURE TREATED LUMBER SHALL BE STAINLESS STEEL, ALL OTHERS MUST HAVE A CORROSION RESISTANT COATING THAT EXCEEDS F.M. APPROVAL STANDARD 4470, UNLESS NOTED OTHERWISE.
6. ALL FASTENERS AND THEIR INSTALLATION METHODS MUST COMPLY WITH THE REQUIREMENTS DEFINED IN THE FLORIDA BUILDING CODE, ROOFING APPLICATION STANDARD (RAS) NO. 111 - "STANDARD REQUIREMENTS FOR ATTACHMENT OF PERIMETER WOOD BLOCKING AND METAL FLASHINGS", UNLESS NOTED OTHERWISE.

B. WOOD BLOCKING (2" NOMINAL THICKNESS):

1. CONCRETE: 3/8" DIA. ST. STL. SELF-TAPPING MASONRY SCREW AT 16" O.C., MAX., LENGTH AS REQUIRED FOR 1.75" MIN. EMBEDMENT. OPTION: 5/16" DIA. DEFORMED OR FLUTED NAIL AT 12" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT. COUNTERSINK HEADS AS REQUIRED.
2. CONCRETE BLOCK (CMU): 3/8" DIA. ST. STL. SELF-TAPPING MASONRY SCREW AT 12" O.C., MAX., LENGTH AS REQUIRED FOR 1.75" MIN. EMBEDMENT. OPTION: 3/8" DIA. HEAVY DUTY SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 18" O.C., LENGTH AS REQUIRED FOR 2" MIN. EMBEDMENT. COUNTERSINK HEADS AS REQUIRED.
3. BRICK: 3/8" DIA. ST. STL. SELF-TAPPING MASONRY SCREW AT 12" O.C., MAX., LENGTH AS REQUIRED FOR 1.75" MIN. EMBEDMENT. OPTION: 3/8" DIA. HEAVY DUTY SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL - BOLT) @ 18" O.C., LENGTH AS REQUIRED FOR 2" MIN. EMBEDMENT. COUNTERSINK HEADS AS REQUIRED.
4. STRUCTURAL STEEL: 1/4" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING SCREWS WITH "WINGS" @ 16" O.C. MAX., LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL. COUNTERSINK HEADS AS REQUIRED.
5. METAL DECK: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX., LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION THROUGH UNDERSIDE OF DECK. COUNTERSINK HEADS REQUIRED.
6. LIGHT GAGE METAL FRAMING: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS, ONE MIN. PER FRAMING MEMBER, LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION THROUGH FRAMING. COUNTERSINK HEADS AS REQUIRED.
7. PLYWOOD DECK: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS, ONE MIN. PER FRAMING MEMBER, LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION THROUGH UNDERSIDE OF DECK. COUNTERSINK HEADS AS REQUIRED.
8. WOOD BLOCKING: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX., LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: TWO 3/8" DIA. CONTINUOUS BEADS OF CONSTRUCTION ADHESIVE THE FULL LENGTH OF THE BOARD TO BE APPLIED, & 12d NAILS @ 4" O.C. (IN 2 ROWS-STAGGERED).

C. PLYWOOD SHEATHING:

1. CONCRETE: 1/4" DIA. ST. STL. SELF-TAPPING MASONRY SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. DEFORMED OR FLUTED NAIL AT SAME SPACING AS ABOVE, LENGTH AS REQ'D. FOR 1¼" MIN. EMBEDMENT.
2. CONCRETE BLOCK (CMU): 1/4" DIA. ST. STL. SELF-TAPPING MASONRY SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. DEFORMED OR FLUTED NAIL AT SAME SPACING AS ABOVE, LENGTH AS REQ'D. FOR 1¼" MIN. EMBEDMENT.
3. BRICK: 1/4" DIA. ST. STL. SELF-TAPPING MASONRY SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. DEFORMED OR FLUTED NAIL AT SAME SPACING AS ABOVE, LENGTH AS REQ'D. FOR 1¼" MIN. EMBEDMENT.
4. STRUCTURAL STEEL: #10 DIA. ST. STL. SELF-DRILLING, SELF-TAPPING SCREWS WITH "WINGS" AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQ'D. FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL.
5. METAL DECK: #10 DIA. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION THROUGH UNDERSIDE OF DECK.
6. LIGHT GAGE METAL FRAMING: #10 DIA. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX. (AT EDGES),AND 16" O.C. MAX. ALONG EACH FRAMING MEMBER, LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION THROUGH FRAMING. FRAMING TO BE SPACED AT 24" O.C. MAX., UNLESS NOTED OTHERWISE BY DETAILS.
7. WOOD FRAMING: #10 DIA. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX. ALONG EACH FRAMING MEMBER, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 8d ANNULAR RING NAILS AT 6" O.C. MAX. (AT EDGES) AND 12" O.C. MAX. IN FIELD OF PANEL. DECREASE SPACING AT ROOF EDGE & CORNER WIND ZONES TO 4" O.C. MAX. AT EDGES, AND 8" O.C. MAX. IN FIELD.

D. METAL DECKING:

1. INSTALL AND SECURE PER STEEL JOIST INSTITUTE (SJI) GUIDELINES, SEE SPECIFICATIONS OR STRUCTURAL DETAILS FOR ADDITIONAL INFORMATION.

E. MINOR STRUCTURAL STEEL:

1. ANCHORAGE OF LOAD BEARING STEEL AND LARGE STEEL FABRICATIONS, (SUCH AS LADDERS), IS TO BE AS DEFINED BY STRUCTURAL ENGINEERING DRAWINGS, OR AS ENGINEERED BY THE SUPPLIER. MINOR STRUCTURAL STEEL WOULD BE CONSIDERED ITEMS SUCH AS SUPPORT STANDS, WALL LEDGER ANGLES, ETC.
2. CONCRETE: 3/8" DIA. HEAVY-DUTY, SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 16" O.C., LENGTH AS REQ'D FOR 2" MIN. EMBEDMENT.
3. CONCRETE BLOCK (CMU): 3/8" DIA. HEAVY-DUTY, SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 16" O.C., LENGTH AS REQUIRED FOR 2" MIN. EMBEDMENT. IF CMU IS HOLLOW, BREAK INTO BLOCK ABOVE, AND FILL CELL OF BLOCK TO RECEIVE ANCHOR SOLID, PERFORM ANY REPAIR AND PATCHING NECESSARY
4. BRICK: 3/8" DIA. HEAVY-DUTY, SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 16" O.C., LENGTH AS REQ'D FOR 2" MIN. EMBEDMENT.
5. STRUCTURAL STEEL: 1/4" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING SCREWS @ 16" O.C. MAX., LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL.

F. RIGID INSULATION BOARD:

1. INSTALL AND SECURE PER THE MANUFACTURER'S RECOMMENDATIONS, TESTING AND APPROVALS TO COMPLY WITH THE DESIGN REQUIREMENTS OF THIS PROJECT. SEE PROJECT SPECIFICATIONS AND FASTENING DETAIL FOR ADDITIONAL INFORMATION.

G. ROOF MEMBRANE SYSTEM:

1. INSTALL AND SECURE PER THE MANUFACTURER'S RECOMMENDATIONS, TESTING AND APPROVALS TO COMPLY WITH THE DESIGN REQUIREMENTS OF THIS PROJECT. SEE PROJECT SPECIFICATIONS AND FASTENING DETAIL FOR ADDITIONAL INFORMATION.

H. FLANGED SHEETMETAL (EDGE METAL):

1. WOOD BLOCKING: #12 GAGE x 1.50" ANNULAR RING STAINLESS STEEL ROOFING NAILS AT 4" O.C. MAX., STAGGERED IN 2 ROWS INSET AT 3/4"± FROM EACH EDGE OF THE FLANGE.
2. LIGHTGAGE METAL: #10 DIA. STAINLESS STEEL, SELF TAPPING, WAFER OR FLAT HEAD SCREWS AT 12" O.C. MAX., 8" O.C. WITHIN ROOF CORNER ZONES, LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL.
3. CONCRETE: 3/16" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 12" O.C. MAX., 8" O.C. WITHIN ROOF CORNER ZONES

I. CLEATS FOR SHEETMETAL FLASHINGS:

1. WOOD BLOCKING: #12 GAGE x 1.50" ANNULAR RING, STAINLESS STEEL ROOFING NAILS AT 8" O.C. MAX., (4" O.C. AT CORNER ZONES OF ROOF)
2. LIGHTGAGE METAL: #10 DIA. STAINLESS STEEL, SELF TAPPING, WAFER OR FLAT HEAD SCREWS, LENGTH AS REQ'D FOR ½" MIN. PENETRATION OF THREADS THROUGH STEEL, LOCATE AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.
3. CONCRETE: 3/16" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.
4. CONCRETE BLOCK (CMU): 3/16" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.
5. BRICK: 1/4" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.

J. APPLIED SHEETMETAL (COUNTERFLASHINGS, ETC.):

1. WOOD BLOCKING: #12 DIA. SELF-TAPPING, STAINLESS STEEL SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT INTO WOOD. IF EXPOSED TO THE WEATHER, USE "SCOTS" TYPE SCREW WITH INTEGRAL NEOPRENE SEALING WASHER.
2. SHEETMETAL BACKING: #12" DIA. SELF-TAPPING STAINLESS STEEL SCREWS AT 8" O.C. MAX., LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL. IF EXPOSED TO THE WEATHER PROVIDE "SCOTS" TYPE SCREW WITH INTEGRAL NEOPRENE SEALING WASHER.
3. CONCRETE: 1/4" DIA SELF-TAPPING STAINLESS STEEL MASONRY SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1¼" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" ZAMAC "NAILIN" DRIVE PIN, EXPANSION TYPE FASTENERS @ 8" O.C. MAX., WITH STAINLESS STEEL DRIVE PIN. IF EXPOSED TO THE WEATHER PROVIDE METAL BACKED NEOPRENE SEALING WASHERS - ADJUST LENGTH AS REQ'D BY OVERLYING FINISH TO MAINTAIN 1.25" MIN. EMBEDMENT INTO CONCRETE.
4. CONCRETE BLOCK (CMU): 1/4" DIA. SELF-TAPPING STAINLESS STEEL MASONRY SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" ZAMAC "NAILIN" DRIVE PIN EXPANSION TYPE FASTENERS @ 8" O.C. MAX., WITH STAINLESS STEEL DRIVE PIN. IF EXPOSED TO THE WEATHER PROVIDE METAL BACKED NEOPRENE SEALING WASHERS- INCREASE LENGTH IF REQ'D BY OVERLYING FINISH FOR 1.25" MIN. EMBEDMENT INTO CONCRETE BLOCK.
5. BRICK: 1/4" DIA. SELF-TAPPING STAINLESS STEEL MASONRY SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" ZAMAC "NAILIN" DRIVE PIN EXPANSION TYPE FASTENERS @ 8" O.C. MAX., WITH STAINLESS STEEL DRIVE PIN. IF EXPOSED TO THE WEATHER PROVIDE METAL BACKED NEOPRENE SEALING WASHERS- INCREASE LENGTH IF REQ'D BY OVERLYING FINISH FOR 1.25" MIN. EMBEDMENT INTO BRICK.

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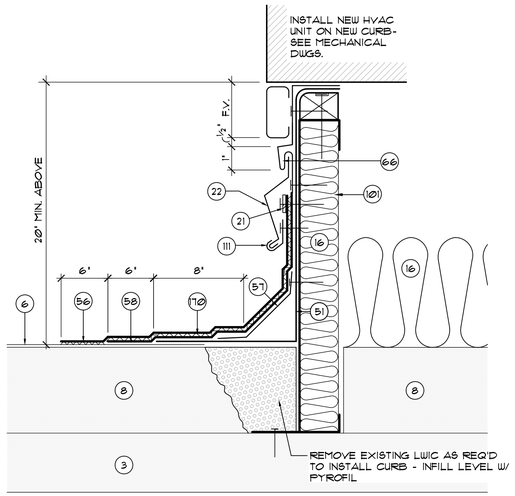
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

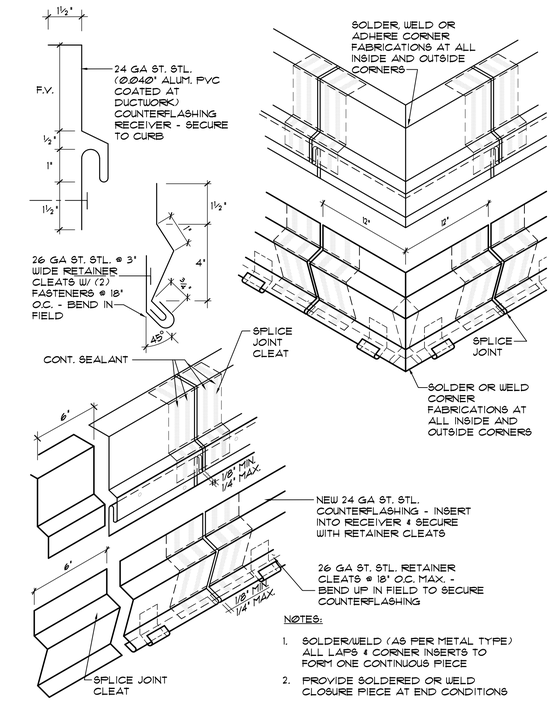
PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
GEN. ROOFING NOTES & FASTENING SCH.
949 NW 38TH ST, FT. LAUDERDALE, FL.

SHEET NO. R05 | OF 5
TOTAL: 5
CAD FILE: 21013.00_DOCUMENTS.dwg
DRAWING FILE NO. 21013.00_DOCUMENTS.dwg



B02.1 TYPICAL CURB AND FLASHING DETAIL AT NEW CURB FOR LARGE HVAC MECHANICAL UNIT

SCALE: 3" = 1'-0"

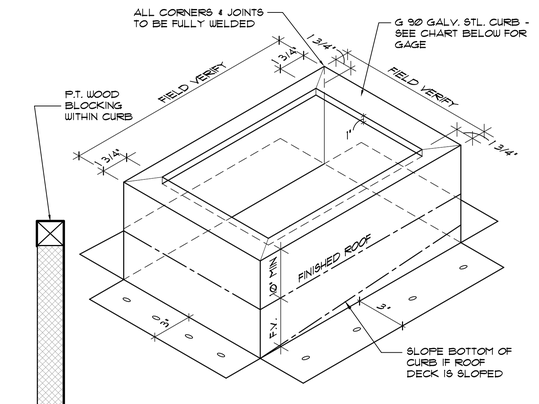


NOTES:

1. SOLDER/WELD (AS PER METAL TYPE) ALL LAPS & CORNER INSERTS TO FORM ONE CONTINUOUS PIECE
2. PROVIDE SOLDERED OR WELD CLOSURE PIECE AT END CONDITIONS

B02.2 TYPICAL COUNTERFLASHING AND RECEIVER FABRICATION AT NEW CURBS

SCALE: NONE



NOTE:

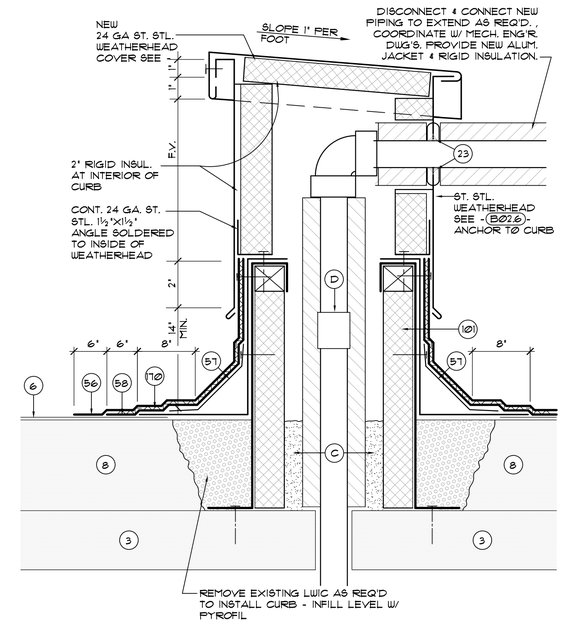
1. WELD ALL LAPS & CORNERS TO FORM ONE CONTINUOUS PIECE
2. DIMENSIONS NOT GIVEN TO BE FIELD VERIFIED.

SECTION

CURB DATA				
MIN SIZE	MAX SIZE	METAL GAGE	ANCHORAGE - CONC DECK	
-	24" SQ	20 GA.	¼"ø x 2¼" LG. TAPCONS@ 24" O.C.	
25" SQ	60" SQ	18 GA.	¼"ø x 2¼" LG. TAPCONS@ 18" O.C.	
61" SQ	120" SQ	16 GA.	¼"ø x 2¼" LG. TAPCONS@ 12" O.C.	
121" SQ	240" SQ	14 GA.	⅜"ø x 3" RAWL-BOLT @ 24" O.C.	

B02.3 TYPICAL CURB FABRICATION AND ANCHORAGE DETAIL

SCALE: NONE

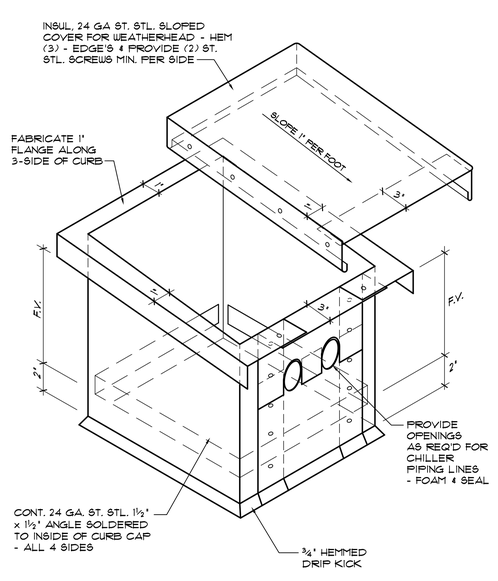


B02.4 TRANSITION FLASHING AT DUCTWORK ALONG EXISTING CURB FLASHING DETAIL

SCALE: 3" = 1'-0"

B02.5 WEATHERHEAD CURB AND FLASHING DETAILS AT CHILLER PIPING PENETRATION

SCALE: 3" = 1'-0"



B02.6 CHILLER PIPING WEATHERHEAD FABRICATION DETAIL

SCALE: NONE

DETAIL NOTES

3. EXISTING PRECAST CONCRETE ROOF DECK
6. EXISTING MEMBRANE TO REMAIN
8. EXISTING LT. WT. INSULATING CONCRETE
10. EXISTING CURB TO REMAIN
16. BATT INSULATION
17. NON-TAPERED RIGID INSULATION
21. CONT. ALUM. TERMINATION BAR - SEE DETAIL (B03.6)
22. TWO-PIECE CURB MOUNTED COUNTERFLASHING AND RECEIVER - SEE DETAIL (B02.2) . INSTALL PRIOR TO MECH. INSTALLATION.
23. SEALANT - CONTINUOUS TOOLED BEAD (U.N.O.)
24. CONTINUOUS DOUBLE-SIDED BUTY'L FLASHING TAPE.
41. 2 x P.T. WOOD BLOCKING TO BE FASTENED AT 12" O.C. (MAX.) STAGGERED - COUNTERSINK HEADS
42. 5/8" CDX PLYWOOD FLUSH WITH EXISTING CONSTRUCTION ABOVE -SCREW FASTEN @ 8" O.C. (MAX.), TOP & BOTTOM STAGGERED (U.N.O.) - COUNTERSINK SCREWHEADS.
51. SELF-ADHESIVE MODIFIED BITUMEN 'DRY-IN' MEMBRANE.
54. MODIFIED BITUMEN STRIP-IN FLASHING.
56. MODIFIED BITUMEN FLASHING - CAP
57. NON-COMBUSTIBLE CANT
58. MODIFIED BITUMEN FLASHING - INTERPLY
66. NEW Ø.040" ALUM. PVC COATED- FLASHING RECEIVER -INSTALL PRIOR TO MECH. UNIT PLACEMENT
70. PVC ELVALOY KEE, 50 MIL, WHITE THERMOPLASTIC SINGLE-PLY FLASHING MEMBRANE - FULLY ADHERED
111. NEW 3" WIDE RETAINER CLEAT @ 18" O.C. MAX. W/ 2 FASTENERS MIN. - BEND UP IN FIELD TO SECURE C.F.
133. EXISTING WOOD BLOCKING OR TRIM TO REMAIN, REPLACE IN "LIKE-KIND" WHERE DAMAGED OR DETERIORATED
138. MFR'S LIQUID APPLIED FLASHING SYSTEM TO SEAL METAL-TO-MEMBRANE JOINT.
149. METAL SEALANT COVER- FRICTION FIT IN FIELD
170. APPROVED MANUFACTURER'S TROWELABLE MODIFIED BITUMEN ADHESIVE.

A. HEAT WELD MEMBRANE PER MANUFACTURE'S REQUIREMENTS
B. CONTINUOUS PVC COATED CHANNEL CLEAT, MECH. ATTACHED AROUND DUCT
C. FOAM SEALANT
D. COUPLING AT EXIST. PIPE - MATCH SIZE, TYPE AND GAUGE. COORDINATE W/ MECH. ENGR'S. DWG'S.
E. 2" I.D. SCH. 40 PIPE W/ WELD CAP & 1/2" THREADED STUD AT TOP (TO BE INSTALLED BY MECH. CONTR.)
F. 3"x3"x1/4" STL. ANGLE FASTENED TO PIPE SUPPORT WITH (2) 1/4" U-BOLTS, NUTS & LKWASHERS
G. ST. STL. FLASHING SLEEVE WITH INTEGRAL FLANGE AND COLLAR WITH DRAW BAND & SEALANT COVER (2-PC., 24 GA., SOLDERED SLEEVE) - S.B.C. IND. MODEL P/D OR P/S OR APPROVED EQUAL
H. METAL FLANGE
J. PRESOLDERED SEAM
K. NEW ELECTRICAL CONDUIT CABLES ROUTED BELOW DECK
L. BACKER ROD
M. METAL SCREWS WITH METAL BACKED NEOPRENE WASHERS @ 8" O.C. (TWO MIN. PER SIDE)

ENGINEER: BOBAK SHAHNAMI
REG. No: FL74989
DATE:
TEL: 954-421-1944
FAX: 954-421-1954

DRAWN BY: TJQ | DESIGNED BY: JWR | CHECKED BY: | DATE: 08/07/20 | SCALE: AS SHOWN | FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
3	4/9/2021	TJQ	JWR	ROOF REPAIR

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SHEET NO. R02 | OF 2

TOTAL: 5

CAD FILE: 21013.00_DOCUMENTS.dwg

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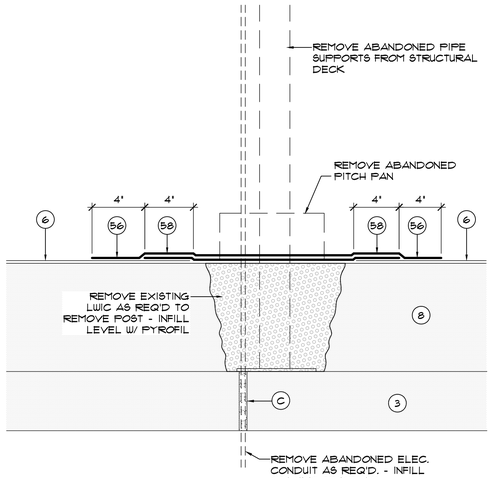
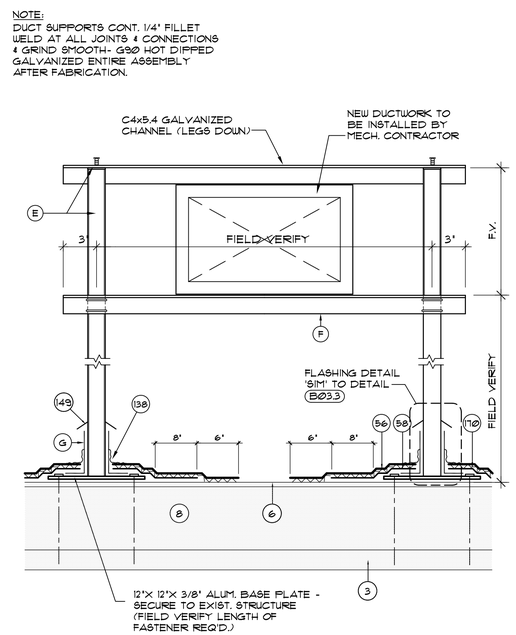


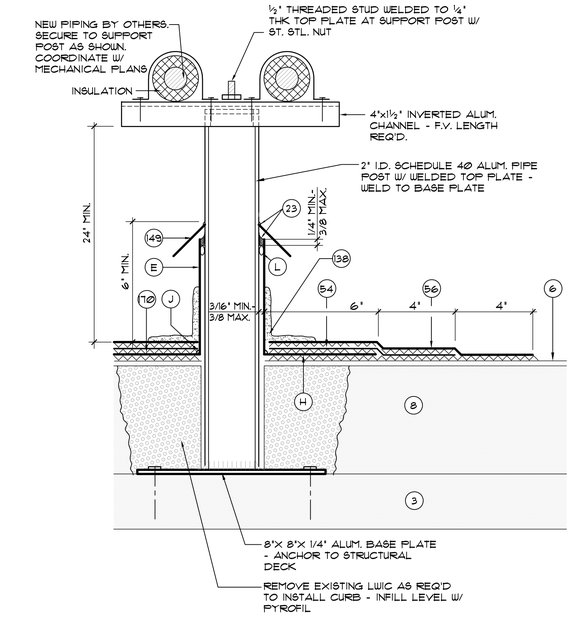
B03.1 FLASHING REPAIR AT ABANDONED PITCH PAN DETAILS

SCALE: 3" = 1'-0"



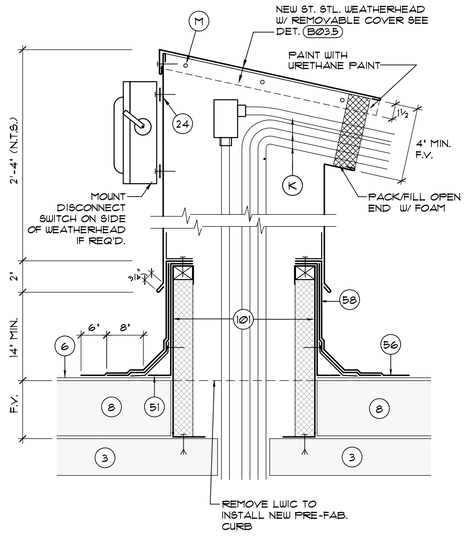
B03.2 TYPICAL COUNTERFLASHING AND RECEIVER FABRICATION AT NEW CURBS

SCALE: NONE



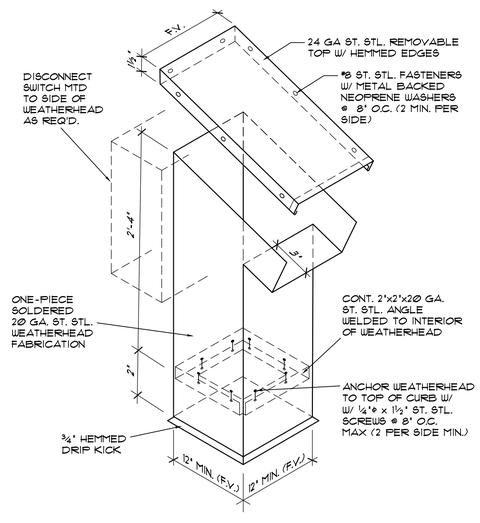
B03.3 ROOF MOUNTED CHILLER SUPPORT POST FLASHING DETAIL

SCALE: 3" = 1'-0"



B03.4 WEATHERHEAD FOR CABLE CONDUIT AND EMERGENCY SHUT-OFF MOUNT FLASHING DETAIL

SCALE: 1 1/2" = 1'-0"



NOTE:
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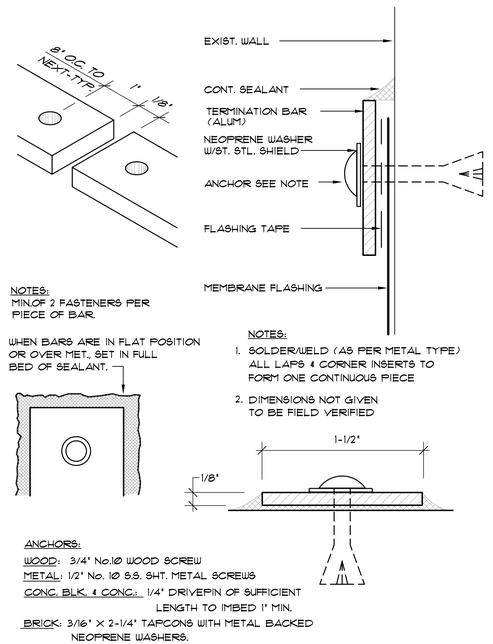
2. DIMENSIONS NOT GIVEN TO BE FIELD VERIFIED.

B03.5 FABRICATION DETAIL FOR WEATHERHEAD AND EMERGENCY SHUT-OFF MOUNT

SCALE: NONE



B03.6 TYPICAL TERMINATION BAR DETAIL

SCALE: NONE

DETAIL NOTES

3. EXISTING PRECAST CONCRETE ROOF DECK
6. EXISTING MEMBRANE TO REMAIN
8. EXISTING LT. WT. INSULATING CONCRETE
10. EXISTING CURB TO REMAIN
16. BATT INSULATION
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ENGINEER: BOBAK SHAHNAMI
REG. No: FL74989
DATE:
TEL 954-421-1944
FAX: 954-421-1924

DRAWN BY: TJQ | DATE: 08/07/20
DESIGNED BY: JWR | SCALE: AS SHOWN
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CITY OF FORT LAUDERDALE
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ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

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3	4/9/2021	TJQ	JWR	ROOF REPAIR

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SHEET NO.	OF
R03	3
TOTAL:	5
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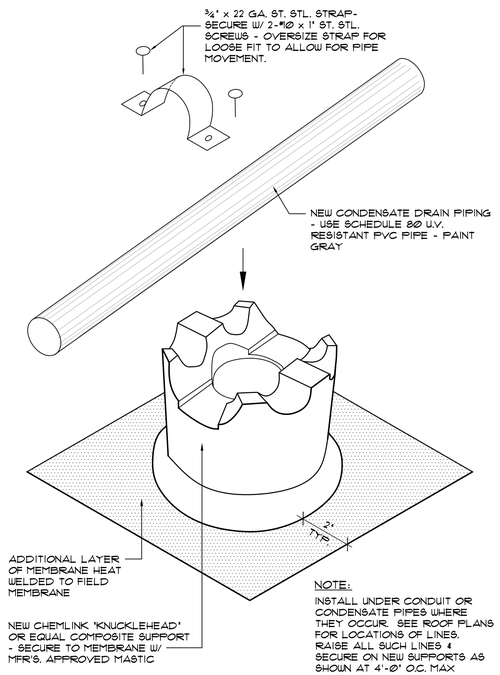
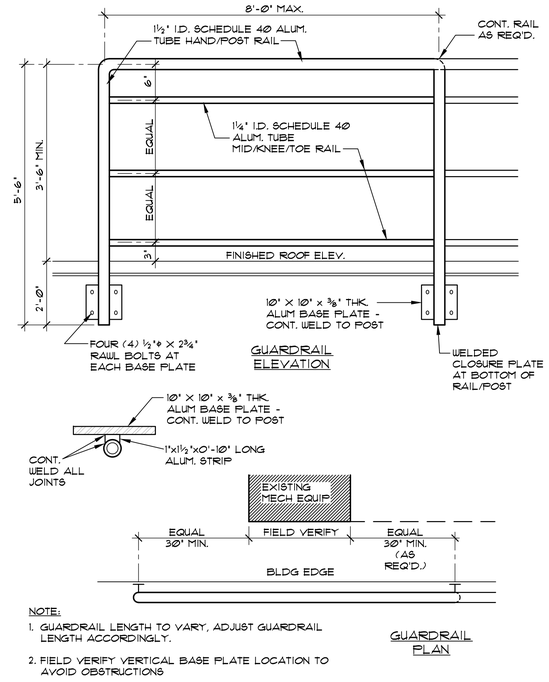


B04.1 TYPICAL CONDENSATE DRAIN SUPPORT BLOCK DETAILS

SCALE: 3" = 1'-0"



B04.2 WALL MOUNTED FALL PROTECTION GUARDRAIL DETAIL

SCALE: NONE

DETAIL NOTES

3. EXISTING PRECAST CONCRETE ROOF DECK
6. EXISTING MEMBRANE TO REMAIN
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SHEET NO. R04 | OF 4
TOTAL: 5
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GENERAL ROOFING NOTES

1. THE DIMENSIONS SHOWN ON THE PLANS OF THIS PROJECT WERE TAKEN FROM THE OWNER'S ARCHITECTURAL DOCUMENTS OR ARE THE RESULT OF FIELD MEASUREMENTS TAKEN BY A/R/C ASSOCIATES. THIS INFORMATION IS GIVEN TO ASSIST PROSPECTIVE BIDDERS IN ESTABLISHING THE APPROXIMATE SCOPE OF THE PROJECT, AS A PRE-REQUISITE FOR BIDDING THE PROJECT. HOWEVER, ALL DIMENSIONS SHALL BE FIELD VERIFIED BY EACH BIDDER SO THAT THE DIMENSIONS UTILIZED IN BIDDING THE PROJECT WILL BE THOSE DIMENSIONS TAKEN, CONFIRMED OR CORRECTED BY THE BIDDER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS, AND EQUIPMENT NOTED AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.
2. THE PLANS ARE GENERAL IN NATURE & INDICATE APPROXIMATE EXISTING CONDITIONS AT THE PROJECT SITE. ALL BLDGS. ON THE SITE ARE INCLUDED IN THE PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE (N.I.C.). THE CONTRACTOR SHALL BE RESPONSIBLE FOR A VISUAL FIELD SURVEY (PRIOR TO BID) IN REGARD TO QUANTITIES, & VERIFICATION OF CONFORMANCE WITH THE LOCAL BUILDING CODE.
3. PRIOR TO THE START OF ANY WORK, THE CONTRACTOR WITH THE PROJECT ARCHITECT AND OWNERS REPRESENTATIVE SHALL VISIT THE SITE AND PHOTO AND VIDEO TAPE THE SITE AND ALL SPACES NEARBY THAT MAY BE AFFECTED BY THIS PROJECT IN ORDER TO DETERMINE THE CONTRACTOR'S RESPONSIBILITY IN KEEPING THOSE ITEMS IN THEIR CURRENT STATUS, SPECIAL ATTENTION SHALL BE GIVEN TO CEILING, LIGHT FIXTURES, EXTERIOR AND INTERIOR WALL FINISHES, AND SIDEWALKS, ETC. PARTICULARLY IN THOSE AREAS WHERE EXISTING LEAKS HAVE BEEN OBSERVED.
4. ALL MECHANICAL SYSTEMS & INDIVIDUAL COMPONENTS (EQUIPMENT) SHALL BE OPERATED IN THE PRESENCE OF REPRESENTATIVES OF BOTH THE CONTRACTOR AND OWNER PRIOR TO ANY DEMOLITION OR DISCONNECTION OF MECHANICAL FUNCTIONS, IN ORDER TO ESTABLISH WORKING ORDER AND OPERATING CONDITIONS.
5. CONTRACTOR SHALL EXERCISE CARE DURING DEMOLITION AND REMOVAL TO ASSURE THAT ITEMS SCHEDULED FOR DEMOLITION ARE PROPERLY REMOVED AND ITEMS TO REMAIN AND/OR TO BE RELOCATED ARE PROTECTED FROM DAMAGE. ALL SALVAGEABLE ITEMS REMOVED THAT ARE NOT TO RE REUSED SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER.
6. NO EXISTING FACILITY SHALL BE OCCUPIED DURING REMODELING OR RENOVATION UNLESS ALL EXISTING EXITS AND ANY EXISTING FIRE PROTECTION ARE CONTINUOUSLY MAINTAINED, OR IN LIEU THEREOF OTHER MEASURES ARE TAKEN WHICH PROVIDE EQUIVALENT SAFETY.
7. IN THE EVENT OF WATER DAMAGE TO THE INTERIOR OF STRUCTURES, A DAMAGE REPORT, WITH PHOTOGRAPHS SHALL BE COMPLETED BY THE PROJECT ARCHITECT ONCE THEY HAVE BEEN NOTIFIED. THE REPORT SHALL BE SUBMITTED TO THE OWNER AND THE CONTRACTOR FOR THEIR RECORDS.
8. NOTIFY THE LOCAL POLICE OFFICIALS, THE OWNER OR ARCHITECT BY TELEPHONE IN EACH INSTANCE OF PROPERTY DAMAGE RESULTING FROM FIRE, WATER DAMAGE, ILLEGAL ENTRY, VANDALISM, THEFT OR BURGLARY, OR VEHICLE DAMAGE WITHIN 24 HOURS OF DISCOVERING THE INCIDENT.
9. DETAILS REFERENCED ON THE CONTRACT DRAWINGS ARE 'TYPICAL' AND ARE NOT CUT AT EVERY LOCATION WHERE THE CONDITION OCCURS. BID AND EXECUTE A COMPLETE PROJECT AS IF DETAILS WERE 'CUT' AT EVERY LOCATION WHERE SUCH CONDITION OR SIMILAR CONDITION OCCURS.
10. SHEET METAL DETAILS AND TRANSITIONS NOT SHOWN SHALL BE REQUIRED AS IF SHOWN. PREPARE, AND SUBMIT SHOP DRAWINGS OF THESE REQUIREMENTS TO THE ARCHITECT FOR APPROVAL PRIOR TO SHOP FABRICATION.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND PAINTING / FINISHING OF ALL SURFACES EXPOSED OR DAMAGED AS A RESULT THE WORK. WORK NOT COVERED BY NEWLY INSTALLED WORK. REPAIRS AND FINISHES SHALL MATCH EXISTING ADJACENT CONDITIONS TO REMAIN UNCHANGED.
12. CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE, REINSTALL, OR REPLACE INTERIOR FINISHES WHICH MAY HAVE BEEN DISTURBED OR DAMAGED DURING THE CONSTRUCTION PROCESS.
13. CONTRACTOR SHALL PROVIDE ALL SUPPLEMENTAL MATERIALS REQUIRED TO PROPERLY INSTALL, SUPPORT AND BRACE ALL ITEMS AND COMPONENTS WITHIN THE WORK.

ABBREVIATIONS

ADJ	ADJACENT	DIA	DIAMETER	LW	LIGHTWEIGHT	RAD	RADIUS
A/C	AIR CONDITIONING	DIM	DIMENSION	LLH	LONG LEG HORIZONTAL	RWL	RAINWATER LEADER
ALT	ALTERNATE	DS	DOWNSPOUT	LLV	LONG LEG VERTICAL	REF	REFERENCE
ALUM	ALUMINUM	DWG	DRAWING	MFR	MANUFACTURE(ER)	REINF	REINFORCE (D), (MENT)
ANOD	ANODIZED	E	EAST	MATL	MATERIAL(S)	RCP	REINF. CONCRETE PIPE
APPROX	APPROXIMATE	ELEC	ELECTRIC(AL)	MAX	MAXIMUM	REV	REVISION
ARCH	ARCHITECT(URAL)	EL (ELEV)	ELEVATION	MECH	MECHANIC(AL)	RD	ROOF DRAIN
BRG	BEARING	EQ	EQUAL	MTL	METAL	RO	ROUGH OPENING
BIT	BITUMINOUS BITUMEN	EQUIP	EQUIPMENT	MIN	MINIMUM	SCH	SCHEDULE
BLK	BLOCK	EXH	EXHAUST	MISC	MISCELLANEOUS	SEAL	SEALANT
BLKG	BLOCKING	EXIST	EXISTING	MOD	MODIFY / MODIFIED	SHT	SHEET
BD	BOARD	EXP	EXPANSION	MTD	MOUNTED(ING)	SIM	SIMILAR
BOT	BOTTOM	EXT	EXTERIOR	NOM	NOMINAL	S	SOUTH
BLDG	BUILDING	FIN	FINISH(ED)	N	NORTH	SPK	SPEAKER
BUR	BUILT UP ROOF	FLASH	FLASHING	NIC	NOT IN CONTRACT	SPEC	SPECIFICATION(S)
CIP	CAST-IN-PLACE	FLEX	FLEXIBLE	NTS	NOT TO SCALE	SQ	SQUARE
CB	CATCH BASIN	FTG	FOOTING	NO	NUMBER	SF	SQUARE FEET
CLG	CEILING	FDN	FOUNDATION	OC	ON CENTER(S)	ST STL	STAINLESS STEEL
COL	COLUMN	GA	GAGE (GAUGE)	OCEW	ON CENTER EACH WAY	STD	STANDARD
COMP	COMPRESS, (ION), (IBLE)	GALV	GALVANIZED	OPG	OPENING	STL	STEEL
CONC	CONCRETE	GWB	GYPSUM WALL BOARD	OPP	OPPOSITE	STRUCT	STRUCTURAL
CMU	CONCRETE MASONRY UNIT	HDWE	HARDWARE	OD	OUTSIDE DIAMETER OUTSIDE DIMENSION	THK	THICK(NESS)
CONST	CONSTRUCTION	HVAC	HEATING/VENTILATION /AIR CONDITIONING	PTD	PAINT(ED)	T & G	TONGUE AND GROOVE
CONT	CONTINUOUS OR CONTINUE	HT (HGT)	HEIGHT	PR	PAIR	TYP	TYPICAL
CJ	CONTROL JOINT	HM	HOLLOW METAL	PL	PLATE	UNO	UNLESS NOTED OTHERWISE
CTR	CENTER	HORIZ	HORIZONTAL	PLYWD	PLYWOOD	VERT	VERTICAL
C.F.	CUBIC FOOT	INCL	INCLUDE(D), (ING)	PVC	POLYVINYL CHLORIDE	WWF	WELDED WIRE FABRIC
DEMO	DEMOLISH, DEMOLITION	ID	INSIDE DIAMETER INSIDE DIMENSION	PSF	POUNDS PER SQUARE FOOT	W	WEST
DET	DETAIL	INSUL	INSULATE(D), (ION)	PSI	POUNDS PER SQUARE INCH	WM	WIRE MESH
DIAG	DIAGONAL	INT	INTERIOR	PC	PRECAST CONCRETE	W/	WITH
				PT	PRESSURE TREATED	W/O	WITHOUT
						WD	WOOD

ROOF COMPONENT FASTENING SCHEDULE

A. GENERAL NOTES:

1. THIS SCHEDULE AND THE FASTENING METHODS INDICATED HEREIN ARE INTENDED TO ADDRESS TYPICAL CONDITIONS, AND MAY NOT APPLY TO ALL CONDITIONS FOR THIS PROJECT.
2. CONTRACTOR / INSTALLER MUST ALSO REFER TO THE DETAILS FOR THIS SPECIFIC PROJECT. IN THE CASE OF CONFLICTING DATA, THE PROJECT SPECIFIC DETAILS SHALL GOVERN.
3. FOR ALL CONDITIONS NOT COVERED WITHIN SCHEDULE, REFER TO FASTENER REQUIREMENTS OF THE SPECIFICATIONS OR CONSULT WITH THE ARCHITECT.
4. MANUFACTURERS OF SPECIALITY FASTENER SHALL PERFORM FIELD TESTS TO VERIFY WITHDRAWAL VALUES AND FASTENING PATTERNS FOR THE SPECIFIC PROJECT CONDITIONS PRIOR TO INSTALLATION. A WRITTEN REPORT SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL.
5. ALL EXPOSED FASTENERS AND THOSE USED IN PRESSURE TREATED LUMBER SHALL BE STAINLESS STEEL, ALL OTHERS MUST HAVE A CORROSION RESISTANT COATING THAT EXCEEDS F.M. APPROVAL STANDARD 4470, UNLESS NOTED OTHERWISE.
6. ALL FASTENERS AND THEIR INSTALLATION METHODS MUST COMPLY WITH THE REQUIREMENTS DEFINED IN THE FLORIDA BUILDING CODE, ROOFING APPLICATION STANDARD (RAS) NO. 111 - "STANDARD REQUIREMENTS FOR ATTACHMENT OF PERIMETER WOOD BLOCKING AND METAL FLASHINGS", UNLESS NOTED OTHERWISE.

B. WOOD BLOCKING (2" NOMINAL THICKNESS):

1. CONCRETE: 3/8" DIA. ST. STL. SELF-TAPPING MASONRY SCREW AT 16" O.C., MAX., LENGTH AS REQUIRED FOR 1.75" MIN. EMBEDMENT. OPTION: 5/16" DIA. DEFORMED OR FLUTED NAIL AT 12" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT. COUNTERSINK HEADS AS REQUIRED.
2. CONCRETE BLOCK (CMU): 3/8" DIA. ST. STL. SELF-TAPPING MASONRY SCREW AT 12" O.C., MAX., LENGTH AS REQUIRED FOR 1.75" MIN. EMBEDMENT. OPTION: 3/8" DIA. HEAVY DUTY SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 18" O.C., LENGTH AS REQUIRED FOR 2" MIN. EMBEDMENT. COUNTERSINK HEADS AS REQUIRED.
3. BRICK: 3/8" DIA. ST. STL. SELF-TAPPING MASONRY SCREW AT 12" O.C., MAX., LENGTH AS REQUIRED FOR 1.75" MIN. EMBEDMENT. OPTION: 3/8" DIA. HEAVY DUTY SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL - BOLT) @ 18" O.C., LENGTH AS REQUIRED FOR 2" MIN. EMBEDMENT. COUNTERSINK HEADS AS REQUIRED.
4. STRUCTURAL STEEL: 1/4" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING SCREWS WITH "WINGS" @ 16" O.C. MAX., LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL. COUNTERSINK HEADS AS REQUIRED.
5. METAL DECK: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX., LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION THROUGH UNDERSIDE OF DECK. COUNTERSINK HEADS REQUIRED.
6. LIGHT GAGE METAL FRAMING: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS, ONE MIN. PER FRAMING MEMBER, LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION THROUGH FRAMING. COUNTERSINK HEADS AS REQUIRED.
7. PLYWOOD DECK: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS, ONE MIN. PER FRAMING MEMBER, LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION THROUGH UNDERSIDE OF DECK. COUNTERSINK HEADS AS REQUIRED.
8. WOOD BLOCKING: 1/4" DIA. ST. STL. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX., LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: TWO 3/8" DIA. CONTINUOUS BEADS OF CONSTRUCTION ADHESIVE THE FULL LENGTH OF THE BOARD TO BE APPLIED, & 12d NAILS @ 4" O.C. (IN 2 ROWS-STAGGERED).

C. PLYWOOD SHEATHING:

1. CONCRETE: 1/4" DIA. ST. STL. SELF-TAPPING MASONRY SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. DEFORMED OR FLUTED NAIL AT SAME SPACING AS ABOVE, LENGTH AS REQ'D. FOR 1¼" MIN. EMBEDMENT.
2. CONCRETE BLOCK (CMU): 1/4" DIA. ST. STL. SELF-TAPPING MASONRY SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. DEFORMED OR FLUTED NAIL AT SAME SPACING AS ABOVE, LENGTH AS REQ'D. FOR 1¼" MIN. EMBEDMENT.
3. BRICK: 1/4" DIA. ST. STL. SELF-TAPPING MASONRY SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. DEFORMED OR FLUTED NAIL AT SAME SPACING AS ABOVE, LENGTH AS REQ'D. FOR 1¼" MIN. EMBEDMENT.
4. STRUCTURAL STEEL: #10 DIA. ST. STL. SELF-DRILLING, SELF-TAPPING SCREWS WITH "WINGS" AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQ'D. FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL.
5. METAL DECK: #10 DIA. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX. (AT EDGES), AND 16" O.C. MAX. IN THE FIELD, LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION THROUGH UNDERSIDE OF DECK.
6. LIGHT GAGE METAL FRAMING: #10 DIA. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX. (AT EDGES),AND 16" O.C. MAX. ALONG EACH FRAMING MEMBER, LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION THROUGH FRAMING. FRAMING TO BE SPACED AT 24" O.C. MAX., UNLESS NOTED OTHERWISE BY DETAILS.
7. WOOD FRAMING: #10 DIA. SELF-TAPPING "DECK" SCREWS AT 12" O.C. MAX. ALONG EACH FRAMING MEMBER, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 8d ANNULAR RING NAILS AT 6" O.C. MAX. (AT EDGES) AND 12" O.C. MAX. IN FIELD OF PANEL. DECREASE SPACING AT ROOF EDGE & CORNER WIND ZONES TO 4" O.C. MAX. AT EDGES, AND 8" O.C. MAX. IN FIELD.

D. METAL DECKING:

1. INSTALL AND SECURE PER STEEL JOIST INSTITUTE (SJI) GUIDELINES, SEE SPECIFICATIONS OR STRUCTURAL DETAILS FOR ADDITIONAL INFORMATION.

E. MINOR STRUCTURAL STEEL:

1. ANCHORAGE OF LOAD BEARING STEEL AND LARGE STEEL FABRICATIONS, (SUCH AS LADDERS), IS TO BE AS DEFINED BY STRUCTURAL ENGINEERING DRAWINGS, OR AS ENGINEERED BY THE SUPPLIER. MINOR STRUCTURAL STEEL WOULD BE CONSIDERED ITEMS SUCH AS SUPPORT STANDS, WALL LEDGER ANGLES, ETC.
2. CONCRETE: 3/8" DIA. HEAVY-DUTY, SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 16" O.C., LENGTH AS REQ'D FOR 2" MIN. EMBEDMENT.
3. CONCRETE BLOCK (CMU): 3/8" DIA. HEAVY-DUTY, SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 16" O.C., LENGTH AS REQUIRED FOR 2" MIN. EMBEDMENT. IF CMU IS HOLLOW, BREAK INTO BLOCK ABOVE, AND FILL CELL OF BLOCK TO RECEIVE ANCHOR SOLID, PERFORM ANY REPAIR AND PATCHING NECESSARY
4. BRICK: 3/8" DIA. HEAVY-DUTY, SLEEVE STYLE EXPANSION BOLT ANCHOR (RAWL-BOLT) @ 16" O.C., LENGTH AS REQ'D FOR 2" MIN. EMBEDMENT.
5. STRUCTURAL STEEL: 1/4" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING SCREWS @ 16" O.C. MAX., LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL.

F. RIGID INSULATION BOARD:

1. INSTALL AND SECURE PER THE MANUFACTURER'S RECOMMENDATIONS, TESTING AND APPROVALS TO COMPLY WITH THE DESIGN REQUIREMENTS OF THIS PROJECT. SEE PROJECT SPECIFICATIONS AND FASTENING DETAIL FOR ADDITIONAL INFORMATION.

G. ROOF MEMBRANE SYSTEM:

1. INSTALL AND SECURE PER THE MANUFACTURER'S RECOMMENDATIONS, TESTING AND APPROVALS TO COMPLY WITH THE DESIGN REQUIREMENTS OF THIS PROJECT. SEE PROJECT SPECIFICATIONS AND FASTENING DETAIL FOR ADDITIONAL INFORMATION.

H. FLANGED SHEETMETAL (EDGE METAL):

1. WOOD BLOCKING: #12 GAGE x 1.50" ANNULAR RING STAINLESS STEEL ROOFING NAILS AT 4" O.C. MAX., STAGGERED IN 2 ROWS INSET AT 3/4"± FROM EACH EDGE OF THE FLANGE.
2. LIGHTGAGE METAL: #10 DIA. STAINLESS STEEL, SELF TAPPING, WAFER OR FLAT HEAD SCREWS AT 12" O.C. MAX., 8" O.C. WITHIN ROOF CORNER ZONES, LENGTH AS REQUIRED FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL.
3. CONCRETE: 3/16" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 12" O.C. MAX., 8" O.C. WITHIN ROOF CORNER ZONES

I. CLEATS FOR SHEETMETAL FLASHINGS:

1. WOOD BLOCKING: #12 GAGE x 1.50" ANNULAR RING, STAINLESS STEEL ROOFING NAILS AT 8" O.C. MAX., (4" O.C. AT CORNER ZONES OF ROOF)
2. LIGHTGAGE METAL: #10 DIA. STAINLESS STEEL, SELF TAPPING, WAFER OR FLAT HEAD SCREWS, LENGTH AS REQ'D FOR ½" MIN. PENETRATION OF THREADS THROUGH STEEL, LOCATE AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.
3. CONCRETE: 3/16" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.
4. CONCRETE BLOCK (CMU): 3/16" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.
5. BRICK: 1/4" DIA. ST. STL. SELF-DRILLING, SELF-TAPPING, MASONRY SCREW, LENGTH AS REQUIRED FOR 1.50" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" LONG ZAMAC "NAIL-IN" DRIVE PIN, EXPANSION TYPE FASTENER WITH A STAINLESS STEEL DRIVE PIN. INSTALL AT 10" O.C. MAX., 6" O.C. WITHIN ROOF CORNER ZONES.

J. APPLIED SHEETMETAL (COUNTERFLASHINGS, ETC.):

1. WOOD BLOCKING: #12 DIA. SELF-TAPPING, STAINLESS STEEL SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT INTO WOOD. IF EXPOSED TO THE WEATHER, USE "SCOTS" TYPE SCREW WITH INTEGRAL NEOPRENE SEALING WASHER.
2. SHEETMETAL BACKING: #12" DIA. SELF-TAPPING STAINLESS STEEL SCREWS AT 8" O.C. MAX., LENGTH AS REQ'D FOR 1/2" MIN. PENETRATION OF THREADS THROUGH STEEL. IF EXPOSED TO THE WEATHER PROVIDE "SCOTS" TYPE SCREW WITH INTEGRAL NEOPRENE SEALING WASHER.
3. CONCRETE: 1/4" DIA SELF-TAPPING STAINLESS STEEL MASONRY SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1¼" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" ZAMAC "NAILIN" DRIVE PIN, EXPANSION TYPE FASTENERS @ 8" O.C. MAX., WITH STAINLESS STEEL DRIVE PIN. IF EXPOSED TO THE WEATHER PROVIDE METAL BACKED NEOPRENE SEALING WASHERS - ADJUST LENGTH AS REQ'D BY OVERLYING FINISH TO MAINTAIN 1.25" MIN. EMBEDMENT INTO CONCRETE.
4. CONCRETE BLOCK (CMU): 1/4" DIA. SELF-TAPPING STAINLESS STEEL MASONRY SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" ZAMAC "NAILIN" DRIVE PIN EXPANSION TYPE FASTENERS @ 8" O.C. MAX., WITH STAINLESS STEEL DRIVE PIN. IF EXPOSED TO THE WEATHER PROVIDE METAL BACKED NEOPRENE SEALING WASHERS- INCREASE LENGTH IF REQ'D BY OVERLYING FINISH FOR 1.25" MIN. EMBEDMENT INTO CONCRETE BLOCK.
5. BRICK: 1/4" DIA. SELF-TAPPING STAINLESS STEEL MASONRY SCREWS AT 8" O.C. MAX., LENGTH AS REQUIRED FOR 1.25" MIN. EMBEDMENT. OPTION: 1/4" DIA. x 1.50" ZAMAC "NAILIN" DRIVE PIN EXPANSION TYPE FASTENERS @ 8" O.C. MAX., WITH STAINLESS STEEL DRIVE PIN. IF EXPOSED TO THE WEATHER PROVIDE METAL BACKED NEOPRENE SEALING WASHERS- INCREASE LENGTH IF REQ'D BY OVERLYING FINISH FOR 1.25" MIN. EMBEDMENT INTO BRICK.

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CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION
3	4/9/2021	TJG	JWR	ROOF REPAIR

PROJECT # 2020-045
PUBLIC WORKS ADMINISTRATION BUILDING
HVAC RENOVATIONS
GEN. ROOFING NOTES & FASTENING SCH.
949 NW 38TH ST, FT. LAUDERDALE, FL.

SHEET NO. R05 | OF 5
TOTAL: 5
CAD FILE: 21013.00_DOCUMENTS.dwg
DRAWING FILE NO. 21013.00_DOCUMENTS.dwg

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Shop fabricated aluminum exterior wall rails and related items.
2. Miscellaneous steel tubing and angles required for elevating and supporting HVAC equipment, piping and duct work.
3. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division - 1 Specification sections, apply to work of this section.

B. Related Sections:
1. Section 07 62 00 – Sheet Metal Flashing

1.2 REFERENCES

A. ASTM– American Society for Testing and Materials
1. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
2. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
3. ASTM B 241 - Standard Specification for Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
4. ASTM E 985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.

B. AAMA - American Architectural Manufacturers Association
1. 611 - Voluntary Specification for Anodized Architectural Aluminum.
2. 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Architectural Extrusions and Panels.
3. 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Architectural Extrusions and Panels.
4. 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Architectural Extrusions and Panels.

C. ANSI – American National Standards Institute
1. ANSI A14.3 - Ladders, Fixed, Safety Requirements

D. AWS - American Welding Society
   1. AWS D1.2 - Structural Welding Code - Aluminum.

E. SSPC - Society for Protective Coatings
   1. SSPC Painting Manual

1.3 DESCRIPTION OF WORK

A. Definition: Metal fabrications include items made from aluminum and/or steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of other structural metal systems specified elsewhere.

B. Types of work in this section include metal fabrications for:
   1. Wall mounted ladders (aluminum).
   2. Roof and wall mounted guardrails (aluminum).
   3. Miscellaneous aluminum and/or fabrications.

1.4 SUBMITTALS

A. Submittals in accordance with Division 1 provisions.

B. Shop Drawings:
   1. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   2. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.
   3. Submit shop drawings for fabrication and erection of miscellaneous metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.
   4. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

C. Welder Certificates
   1. Submit Welder Certificates certifying welders employed on the Work, have been AWS qualified within the previous 12 months.

D. Shop Assembly:
   1. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

E. Samples: Typical Joint Sample finished in accordance with NOMMA Guideline #

1.5 QUALITY ASSURANCE

A. Finish joints in accordance with NOMMA Guideline 1.

B. Perform Work in accordance with good industry standards and the current Florida Building Code.

1.6 QUALIFICATIONS

A. Fabricator Qualifications: Minimum 10 years documented experience in work of this Section

B. Design ladders and railings under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State of Florida.

C. Mockup:
1. Provide a mock-up of requested metal fabrications. Locate where directed.
2. Approved mockup may remain as part of the Work.

1.7 JOB CONDITIONS

A. Existing Conditions
1. This project involves metal fabrication work on existing building(s). Verify existing conditions and other fabrications visible conditions prior to bidding.
2. Report conflicts and problems to the Architect prior to bidding for resolution. Failure to report these conflicts and problems places the responsibility on the Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.
3. Failure to install the work in strict accordance with provisions of this Section is subject to total rejection of work specified herein.

1.8 DELIVERY, STORAGE AND HANDLING

A. Store and handle products in accordance with the provisions of Division 1.

B. Accept metal fabrications on site in labeled shipments. Inspect for damage.

C. Protect metal fabrications from damage by exposure to weather.

1.9 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on approved shop drawings.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers (fabricators)
1. ACL Industries, Inc – Aluminum Access Ladders
2. Superior Aluminum Products – Aluminum Pipe Railing
3. The Wagner Companies – Aluminum Pipe Railing

B. Substitutions are permitted under the provisions of Division 1

2.2 MATERIALS – GENERAL

A. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

2.3 MATERIALS – ALUMINUM

A. Extrusions: ASTM B221, 6063-T5 alloy and temper.

B. Sheet: ASTM B209, alloy and temper best suited to application.

C. Pipe: ASTM B241, extruded, anodizing quality, Schedule 40, 6063 aluminum pipe, temper T4

D. Base Flanges, anchors and railing accessories: ASTM B 247.
1. Manufacturer's standard 713 aluminum alloy cast bases or solid aluminum 6063 stock.

E. Fasteners: Provide concrete anchorage for fastening and complying with applicable codes and standards. All fasteners used in the system shall be aluminum or stainless steel.

F. Anchoring Grout: Non-shrink Portland cement-based hydraulic grout mixed and applied in accordance with manufacturer's instructions; gypsum based material is not acceptable.
1. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.4 MATERIALS – STEEL

A. Steel Plates, Shapes and Bars: ASTM A 36

B. Galvanized Structural Steel Sheet: ASTM A 446, of grade required for design loading. Coating designation shall be G90.

C. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails.

D. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153

E. Galvanizing Repair Paint: High zinc dust content paint for re-galvanizing welds in galvanized steel, complying with the Military Specifications MIL-P-21035 (Ships) or SSPC-Paint-20

2.5 ACCESSORIES AND FASTENERS (ALL METALS)

A. General: Provide fasteners of the same material as the metal being fastened zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.

B. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.

C. Lag Bolts: Square head type, FS FF-B-561.

D. Machine Screws: Cadmium plated steel, FS FF-S-92.

E. Wood Screws: Flat head carbon steel, FS FF-S-111.

F. Plain Washers: Round, carbon steel, FS FF-W-92.

G. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.

H. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.

I. Anchoring Cement – Non-shrink cementitious, non-metallic; Pre-mixed, factory packaged, non-staining, non-corrosive, non-gaseous grout. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

2.6 FABRICATION

A. General:

1. Workmanship: Use materials of size and thickness indicated or, if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of materials shown or specified for various components of work.
2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise shown. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
3. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
4. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown or, if not shown, Phillips flat-head (countersunk) screws or bolts.
5. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
6. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
7. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

2.7 FINISHES

A. Aluminum:
1. Exterior aluminum surfaces: Exterior anodized clear finish
2. Apply two (2) coats of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.
3. Apply non-slip abrasive coating to aluminum grate platform and rungs (aluminum oxide granules set in epoxy resin adhesive).

B. Steel-
1. Prepare surfaces to be primed in accordance with SSPC SP 2.1
2. Galvanizing for fabrications: Hot Dip - ASTM A 123, after fabrication.
3. Galvanizing for fasteners, connectors and anchors: Hot Dip – ASTM A 153.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that field conditions are acceptable and are ready to receive the work of this Section.

B. Field Measurement: Take field measurements prior to preparation of shop drawings and fabrication where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

C. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.2 INSTALLATION

A. Fastening to In-place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction: including, threaded fasteners for concrete and masonry inserts, toggle bolts, thru-bolts with plate washers, lag bolts, wood screws and other connectors as required. Verify existing conditions for determining proper anchorage.

B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry or similar construction.

C. For hollow masonry anchorage, use toggle bolts having square heads.

3.3 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances

3.4 SCHEDULES

A. The following Schedule is a list of principal items only. Refer to Project Details for items not specifically scheduled.
   1. Life Safety wall mounted Rails
   2. Piping and ductwork support post stands

END OF SECTION

SECTION 06 10 53
ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:
   1. Miscellaneous framing and sheathing;
   2. Nailers and blocking,
   3. Preservative treatment of wood where indicated.

B. The specifications in this section are not project specific. Contractor shall review the actual project conditions to determine the roof system components most appropriate to provide a successful outcome.

1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI A208.1 - Mat-Formed Wood Particleboard.

B. American Wood-Preservers' Association:
   1. AWPA Standard U1, UC 1-4 - All Timber Products - Preservative Treatment by Pressure Process.
   2. AWPA Standard U1, UCF A and B - Structural Lumber - Fire-Retardant Treatment by Pressure Processes.

C. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. National Fire Protection Association:
   1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

E. Southern Pine Inspection Bureau:
   1. SPIB - Standard Grading Rules for Southern Pine Lumber.

F. Underwriters Laboratories Inc.:
   1. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

G. U. S Department of Commerce National Institute of Standards and Technology:
   1. DOC PS 1 - Construction and Industrial Plywood.
   2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
   3. DOC PS 20 - American Softwood Lumber Standard.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures

B. Product Data: Submit technical data on
   1. Wood /Plywood

2. Fasteners and Anchors
3. Wood preservative and fire retardant treatment materials and application instructions.
4. MSDS of treatment materials.

C. Samples:
1. Fastener types : Two (2) of each type
2. Material Samples, if requested by the Architect.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with the following:
1. Lumber Grading Agency: Certified by DOC PS 20.
2. Lumber: DOC PS 20.

B. Surface Burning Characteristics:
1. Fire Retardant Treated Materials: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

C. Apply label from agency approved by authority having jurisdiction to identify each preservative treated and fire retardant treated material.

D. Perform Work in accordance with current Florida Building Code requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver to site, store, protect, and handle products under provisions of Section 01 60 00.

B. Protect materials from physical damage. Store materials on raised platform and protect from weather.

1.6 PROJECT CONDITIONS

A. Existing Conditions

1. Verify existing conditions, such as soundness of perimeter conditions, and varying deck and wall thickness for length of anchoring surfaces required and other visible conditions prior to bidding. Nailers height indicated on the details may vary from actual requirement. Coordinate nailer height with lightweight concrete supplier prior to bidding.

2. Report conflicts or problems to the Architect for resolution prior to Bidding. Failure to report these conflicts and problems places the responsibility on the Contractor to complete the work in accordance with the Documents at no additional cost to the Owner.

3. Replace or restore to original condition any materials or work damaged during construction.

4. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.

5. Failure to install the work in strict accordance with provisions of this Section, is subject to total rejection of work specified herein.

6. The bulk of the carpentry work for this project is the correction of the roof edge condition to provide a uniform 3:12 roof slope as indicated by the details, the contractor must review and be familiar with this condition prior to bidding.

PART 2 PRODUCTS

2.1 MATERIALS

A. Lumber Grading Rules: SPIB.

B. Blocking, Battens, Studding, Nailers, Curb Extensions (within roof system) and Fascia Replacement: Stress Group D, 1x and 2x (as noted in drawings), No. 2 Grade Southern Yellow Pine species, 19 percent maximum moisture content, pressure preservative treated where noted by project details.
   1. Nominal sizes are shown or specified within the project documents, except as shown by actual dimensions.

C. Plywood Sheathing/Decking:
   1. Protected location within roof system or as noted on drawings (under membrane): APA Rated, Structural I, Span Rating – 40/20, 5/8” nominal thickness (unless otherwise noted on plans or details), Grade: CDX; pressure preservative treated (and fire retardant treated) where noted on project details.
   2. Exposed locations within roof system or as noted on drawings: APA Rated Sheathing, Span rating 40/20, Thickness: nominal 5/8", (or as noted otherwise on drawings), CDX Grade; pressure preservative treated at locations in contact with concrete, masonry, or other materials capable of retaining moisture. (and fire retardant treated where noted).

2.2 ACCESSORIES

A. Fasteners and Anchors:
   1. All fasteners: For high humidity and treated wood locations shall be stainless steel and/or hot dip galvanized steel.
      a. Wood (Framing): 1/4" screw x 2" penetration.
      b. Wood (Framing): 12d pneumatically driven nail with heat activated adhesive.
      c. Sheathing: 8d and 12d pneumatically driven, annular “ring” shank nail with heat activated adhesive.
      d. Concrete/Masonry: 1/4" "tapcon" or “Zamac Nail-in” x 1-1/2" minimum penetration into concrete or masonry.
   2. Nails: ASTM F1667; ring-shanked, except as otherwise directed.
   3. Anchors:
      a. Toggle bolt or self-threading type for anchorage to hollow masonry.
      b. Expansion shield and lag bolt/drive pin or self-threading type for anchorage to solid masonry or concrete.

c. Bolt or ballistic fastener for anchorages to steel.

4. Construction adhesive:
   a. Cartridge "gun" dispensed structural construction adhesive, such as "Liquid Nails" or approved equal.
   b. Compliance with ASTM D 3498 (latest edition)
5. Sheathing Joint Tape:
   a. Three (3) inch wide polyethylene coated cloth tape with rubber resin adhesive, Scotch 3M Product #6969 or equal.

2.3 FACTORY WOOD TREATMENT “USE CATEGORY SYSTEM” (AWPA Standard U1)

A. Use Category UC1 – Interior/Dry Conditions: Wood and wood based materials used in interior construction not in contact with the ground or foundations or any sources of moisture including roof and plumbing leaks.
   1. Wood Preservative (Pressure Treatment): AWPA Standard U1, Use Category 2 (UC2) or 3 (UC3); minimum of 0.25 pounds of ACQ-C (Alkaline Copper Quaternary) water borne preservative per cubic foot of wood product.

B. Use Category UC2 – Interior/Damp Conditions: Wood and wood based materials used in interior construction not in contact with the ground protected from direct exposure to the weather but may be subject to dampness (e.g., roof/curb blocking or plywood sheathing.
   1. Wood Preservative (Pressure Treatment): AWPA Standard U1, Use Category 2 (UC2) or 3 (UC3); minimum of 0.25 pounds of ACQ-C (Alkaline Copper Quaternary) water borne preservative per cubic foot of wood product.

C. Use Category UC4A - General Use Conditions: Wood and wood-based materials used in contact with the ground, fresh water or other situations favorable to deterioration.
   1. Wood Preservative (Pressure Treatment): AWPA Standard U1, Use Category 4A (UC4A); minimum of 0.40 pounds of ACQ-C (Alkaline Copper Quaternary) water borne preservative per cubic foot of wood product.

D. Fire Retardant Treatment for Wood/Plywood (FRTW): FRT plywood shall be impregnated with chemicals by a pressure process. Fire retardant chemical shall provide protection against termites and fungal decay, shall be registered for use as a wood preservative by the U.S. Environmental Protection Agency (EPA), shall comply with formulation FR-1 of the current edition of AWPA Standard P49, and shall be free of halogens, sulfates and ammonium phosphate. Treated wood shall have a flamespread of less than 25 when tested in an extended 30 minute tunnel test in accordance with ASTM E 84, NFPA 255 or UL 723.

E. Wood preservatives shall not contain arsenic, chromium other EPA classified hazardous preservatives.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify substrate conditions are ready to receive blocking, curbing, sheathing and framing.

C. Any use of the unit price allowances must be field verified and approved by the Owner and/or Architect prior to work being performed if possible. Any use of unit price allowances must be properly documented in order for payment to be authorized.

3.2 PREPARATION

A. Coordinate placement of blocking, curbing, sheathing and framing items.

3.3 INSTALLATION

A. General:
1. Discard material with defects which might impair quality of work and units which are too small to fabricate work with minimum joints or optimum joint arrangement.
2. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
3. Securely attach carpentry work to substrate by anchoring and fastening as shown or as required by recognized standards. Countersink fastener heads on exposed carpentry work.
4. Use fasteners and anchorages as indicated. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required. Holes drilled oversized or wallered out, shall be re-drilled.
5. Place horizontal members, crown side up.
6. Construct curb members of solid wood sections.
7. Do not install wood nailers or sheathing more than one day in advance from installation of roofing. Install dry-in felt over any wood nailers and sheathing.

B. Nailers, Blocking and Curb Extensions:
1. Coordinate curb extensions and installation of wood nailers with roof construction work.
2. Provide blocking and edging wherever shown and where required for screeding or attachment of other work.
3. Set members level and plumb, in correct position.
4. Construct curb members of single pieces.
5. Curb roof openings [except where prefabricated curbs are provided]. Form corners by alternating lapping side members.
6. Attach to substrates as required to support applied loading. Countersink bolts and nuts with washers flush with surfaces, unless otherwise shown.
7. Where new members are doubled, ends shall be lapped and thoroughly spiked to each other and to bearing members.
8. Where new members bear on concrete, securely fasten to same by bolts or lag screws on centers as called for on drawings, staggered. Provide heads of all bolts or lag screws with large-head washers.
9. Round edges and corners of wood plates where flashing occurs.

C. Plywood Sheathing (wall, curbs, parapets and roof, as applicable):
1. Install sheathing properly framed to required lines, level and rigidly secured in place.
2. Cut sheathing sections to fit. Leave 1/8” clearance between panels at side laps. Cover sheathing with dry-in felt and seal top horizontal edge.

3.4 SCHEDULES

A. Roof Perimeter Nailers, Curbs and Curb Extensions: See project manual details and plans for sizes and locations.

B. General Framing Lumber (as applicable): See project manual details and plans for sizes.

C. Plywood Sheathing (as applicable): See project manual details and plans for locations.

END OF SECTION

SECTION 07 01 50
REPAIR SPECIFICATION FOR MODIFEID BITUMEN ROOFING SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Connection of new flashing to existing modified bitumen roofing system membrane where new construction abuts existing construction as indicated on the drawings.

B. Extension of existing modified bitumen roofing system membrane onto limited areas of new construction as indicated on the drawings.

C. Miscellaneous modified bitumen roofing system membrane repairs.

D. Sacrificial pads for condensate piping supports (adhesive application)

1.2 RELATED SECTIONS

A. Section 06 10 53 - Rough Carpentry: Wood blocking and nailers for roofing substrate profiles.

B. Section 07 62 00 - Sheet Metal Flashing and Trim

C. Section 07 65 00 - Roof Penetration Flashing.

D. Section 07 92 00 - Joint Sealers.

1.3 REFERENCES

A. ASTM C 165: Recommended Practice for Measuring Compressive Properties of Thermal Insulations.

B. ASTM C 518: “Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

C. ASTM E 96: Test Methods for Water Vapor Transmission of Materials.

D. ASTM D 5: Penetration of Bituminous Materials.

E. ASTM D 36: Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus).

F. ASTM D 41: Specification for Asphalt Primer Used in Roofing and Waterproofing.

G. ASTM D 92: Test for Flash and Fire Points by Cleveland Open Cup.

H. ASTM D 312: Specification for Asphalt Used in Roofing.

I. ASTM D 412: Rubber Properties in Tension.

J. ASTM D 1668: Glass Fabrics (Woven and Treated) for Roofing and Waterproofing.

K. ASTM D 573: Standard Test for Rubber - Deterioration in an Air Oven.

L. ASTM D 751: Standard Test Methods for Coated Fabrics.

M. ASTM D 2178: Asphalt Glass Felt Used in Roofing and Waterproofing.

N. ASTM D 2523: Standard Practice for Testing Load-Strain Properties of Roofing Membranes.

O. ASTM D 4586: Specification for Asphalt Roof Cement, Asbestos Free.

P. ASTM D 4601: Base Sheets, Inorganic, Asphalt Coated (for built-up roofs).

Q. ASTM D 4073: Standard Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes.

R. ASTM D 4798: Standard Test Method for Accelerated Weathering Test Conditions and Procedures for Bituminous Materials (Xenon-Arc Method).

S. ASTM D 5147: Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material.

T. ASTM D 6163-98: Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bitumen Sheet Materials using Glass Fiber Reinforcements.

U. ASTM D 6164-98: Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bitumen Sheet Materials using Polyester Reinforcements.

V. ASTM D 6222-98: Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

W. ASTM D 6298-98: Standard Specification for Fiberglass Reinforced Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheets with a Factory Applied Metal Surface.

X. ASTM E 84: Surface Burning Characteristics of Building Materials.

Y. FM 4470 - Base ply fasteners to meet Factory Mutual Research Approval Standard #4470

Z. NRCA/ARMA - Manual of Roof Maintenance and Roof Repairs.

AA. NRCA (National Roofing Contractors Association) - The NRCA Roofing and Waterproofing Manual.

BB. ULI (Underwriters Laboratories, Inc.) - Fire Hazard Classifications.

1.4 SYSTEM DESCRIPTION

A. Repairs to modified bitumen roofing systems utilizing hot and cold process techniques.

B. Removal of all pitch pans from abandoned support posts, piping and conduit penetrations to have modified bitumen repairs at roof system.

C. Modified bitumen flashing applied to new curbs, pipe support and conduit penetrations.

1.5 SUBMITTALS

A. Product Data: Provide membrane materials, base flashing materials, insulation, vapor retarders and protective coating.

B. Samples: Submit two sample 10 lb containers of roofing aggregate.

C. Submit manufacturer’s recommended primers.

D. Manufacturer Notifications: (If Applicable) Submit repair notification to the manufacturer of existing roof system in accordance with that manufacturer’s warranty requirements. Failure to notify manufacturer places remainder of warranty obligations on the Repair Contractor.

1. Manufacturer's Installation Instructions: Indicate special precautions required for seaming the membrane for roofs to maintain a current warranty requirements.

2. Manufacturer's Certificate: Certify that products installed on warranted roofs meet or exceed specified requirements.

3. Manufacturer's Field Reports: Submit a Manufacturer's field report as follows:

a. Reports: Indicate procedures followed, ambient temperatures and wind velocity during application, and special conditions that occurred during the repairs.

E. All products used shall be asbestos free.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Manual of Roof Maintenance and Roof Repairs except where NRCA requirements differ from the project manual requirements.

B. Perform Work in accordance with the existing roof manufacturer’s published or written details and recommendations and the project details, the most stringent shall govern.

C. Maintain one copy of each document on site.

D. Preliminary (Pre-Product Submittal) Roofing Conference: As soon as possible after award of roofing work, meet with roofing installer, roofing membrane manufacturer, flashing and sheet metal contractor, installers of substrate construction (decks), primary mechanical, electrical, and plumbing contractors other installers of rooftop work, Design Professional, Construction Manager, and representatives of other entities directly concerned with performance of roofing system including (as applicable) Owner’s insurers and test agencies.

1. Review and discuss:

    a. Coordination with other trades
    b. Roofing and overall construction schedule
    c. Governing regulations
    d. Insurance requirements
    e. Certification requirements
    f. Submittal requirements
    g. Warranty requirement
    h. Availability of materials, equipment and personnel
    i. Staging
    j. Inspections
    k. Testing
    l. Weather related issues (rainfall will not be considered justification for project delays)
    m. Roofing system protection
    n. General roofing application procedures

2. The Design Professional shall record discussions, including agreement or disagreement on matters of significance; furnish copy of recorded discussions to each participant. If disagreements concerning contract requirements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

E. Pre-Application Roofing Conference: Approximately two weeks prior to scheduled commencement of roofing installation and associated work, meet at project site with roofing membrane installer, roofing membrane manufacturer, flashing and sheet metal contractor, primary mechanical, electrical and plumbing contractors, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing that must precede or follow roofing work, Design Professional, Construction Manager, and other representatives directly concerned with performance of the work, including (where applicable) Owner's insurers, test agencies, and governing authorities.

1. Review and Discuss:

    a. Outstanding submittals and resolution thereof
    b. Roofing methods and procedures
    c. Roofing and overall construction schedule
    d. Availability of materials, equipment and personnel
    e. Staging
    f. Inspections
    g. Testing
    h. Weather related issues:

        1) Review weather and forecasted weather conditions
        2) Procedures for coping with unfavorable conditions.
        3) Night seals, water cutoffs, sealing of all penetrations and terminations.
        4) Liabilities associated with potential water intrusion.

2. Tour representative areas of roofing substrates (decks). Inspect and discuss:

   a. Deck condition
   b. Roof drain installations
   c. Curbs
   d. Penetrations (existing and planned)
   e. Installation of nailers and blocking (coordination with insulation)
   f. Abutting walls (parapets, penthouses, girder beams, other)
   g. Any other preparatory work performed by other trades
   h. Significant deviations from contract drawings.

3. Substrate Acceptance: The roofing membrane manufacturer and installer shall provide written acceptance of substrate conditions prior to start of roofing membrane application. Start of insulation and roofing membrane application will be considered full acceptance of substrate conditions by the roofing membrane manufacturer and installer.

4. The Design Professional shall record discussions of conference, including decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. If disagreements concerning contract requirements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.

F. Non-Asbestos Containing Materials: Provide only roofing materials which are completely free of asbestos.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this section with five years current documented experience. Materials provided for repairs shall be identical to the existing roofing materials in place, or be certified as compatible for use with the existing materials in place by the original manufacturer if the existing roofing system is still within the original warranty period.

B. Older roof systems no longer under warranty: Materials provided for repairs shall be of the same type as the existing roofing materials in place, and be certified as compatible for use with the existing materials in place by the manufacturer/ supplier of the repair materials.

C. Applicator: A single installer specializing in performing the work of this section with three current years documented experience and approved in writing by system manufacturer a minimum of 10 days prior to Bidding.

1. Original Manufacturer’s Warranty Period: If the existing roof system is still within the original manufacturer’s warranty period, all repairs and modifications to the roof system shall be done by an applicator approved in writing by the original manufacturer a minimum of 10 days prior to Bidding.

2. Original Applicator’s Warranty Period: If the existing roof system is still within the original applicator’s warranty period, all repairs and modifications to the roof system shall be done by an applicator approved in writing by the original applicator

a minimum of 10 days prior to Bidding.

D. Manufacturer's Field Inspection and Services (Warranty Work Only)

1. Manufacturer of the roofing materials shall provide qualified personnel to observe field conditions of surfaces and installation, quality of workmanship as applicable, and to make appropriate recommendations.

2. Representative shall submit written reports, within seven days of visit to Contractor and Construction Manager listing observations, recommendations and related comments.

1.8 REGULATORY REQUIREMENTS

A. Provide materials complying with governing regulations and codes installed to comply with the following:

1. UL Listing: Provide roofing system materials and component materials that have been tested for application and slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure.

a. Provide roof covering materials bearing UL Classification Marking on bundle, package, or container containing that materials have been produced under UL's Classification and Follow-up Service.

2. FM Listing: Provide only roofing systems and component materials which have been evaluated and shown to meet the requirements of Factory Mutual for fire spread, wind up-lift and hail damage, and which are listed and approved for FM I-135 classification (FM I-150 for roof elevations in excess of 96 feet) in the current "Factory Mutual Research Corporation (FMRC) Approval Guide".

a. Provide roof-covering materials bearing FM approval marking on bundle, package or container indicating that material has been subjected to FM's examination and follow-up inspection service.

b. Reroofing systems over existing lightweight insulating concrete do not require Factory Mutual Listing, but shall comply with Factory Mutual standards and the requirements of the Florida Building Code.

B. Wind Up-lift Criteria and Related Provisions:

1. ASCE 7 Compliance: Minimum design pressures required by this Section for Miami Dade County Product Control Notice of Acceptance are based on Wind Load Uplift Pressure Calculations performed in accordance with the requirements of ASCE 7.

2. The roofing contractor together with the membrane manufacturer shall be responsible for verifying adequate fastening of the roofing system based on wind uplift pressures calculated for the specific project and/or location. The Roofing Membrane Manufacturer shall submit a certified letter, signed jointly by the Roofing

Contractor, attesting to compliance with up-lift requirements required by this section.

1.9 CERTIFICATION

A. Materials: For each material specified with a standard or reference material designation, certification labels shall appear on each package of bulk-shipments to project with certificate of compliance.

B. Installer: Provide two copies of all certification to Construction Manager prior to beginning roofing work.

C. The Contractor shall have pull tests conducted on the job site with the specified fasteners to determine the pull-out resistance of the existing deck. Submit the data to the Construction Manager.

1.10 NOTIFICATION TO Construction Manager

A. Twenty-four hours prior to the commencement of scheduled repairs, send written notification to Construction Manager regarding time Contractor's crew will be present on site. Indicate duration or time to perform repairs. Notification by Contractor is not required for emergency roof repairs. Notifications may be faxed to the Construction Manager.

1.11 DELIVERY, STORAGE, AND HANDLING

A. If site storage is required, store rolls, cans and drums of cements, primers, and coatings, on end and over clean raised platforms.

B. Store and handle materials to protect them from.

1. Moisture, whether due to precipitation, or condensation.
2. Temperatures over 110 degrees F or below 40 degrees F.
3. Direct sunlight.
4. Mud, dust, sand, oil and grease.

C. Comply with fire, safety, and environmental protection regulations.

D. Do not store materials on roof decks, nor position roofing installation equipment on roof decks, in concentrations exceeding design live loads.

E. Take special precautions against traffic on roofing when ambient temperature is above 80 degree F. Avoid heavy traffic on the work during installation.

1.12 PROJECT CONDITIONS

A. Environmental Requirements:

1. Proceed with roofing work only when existing and forecast weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

2. Comply with manufacturer's recommended minimum and maximum installation temperatures. Do not proceed with roof installation during threatening or unfavorable weather conditions. If roofing work cannot be performed, provide the necessary protection to keep building watertight.

   a. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during the same day.

   b. Do no apply roofing membrane when ambient temperature is below 40 degrees Fahrenheit (F).

B. Existing Conditions:

1. Contractor shall accept the conditions of the job site as they exist and perform his work accordingly. Any adverse condition which might affect the performance of the work described in these specifications must be brought to the attention of the Design Professional in writing immediately upon its discovery and no later than when it could have reasonably been expected to be observed or discovered.

2. Contractor shall be held responsible for protecting all adjacent construction from damage. Existing structures or installations damaged by operations connected with this work shall be replaced or repaired by the Contractor to the satisfaction of the Design Professional and at no additional cost to the Owner.

3. Contractor shall field verify all measurements (dimensions, elevations) and conditions necessary for proper installation of work covered by this Section. Exact measurements are Contractor's responsibility.

1.13 COORDINATION

A. Coordinate work under provisions of Division 1.

1.14 WARRANTIES

A. Applicator's Warranty: Furnish per the attached pages.

PART 2 PRODUCTS

2.1 MATERIALS, GENERAL

A. COOL ROOF RATING COUNCIL (CRRC):

1. The cap sheet shall be granule-surfaced **(SG bright white granule-surfaced cap sheet is basis of design)**. Cap sheet shall be listed by the Cool Roof Rating Council (CRRC) with the following minimum published values, including CRRC 3-year Rapid Ratings:

a.	Solar Reflectance:	Initial: 0.66	3-year: 0.62
b.	Thermal Emittance:	Initial: 0.91	3-year: 0.91
c.	Solar Reflectance Index (SRI):	Initial: 81	3-year: 75

A. Insurance and Code Requirements: Provide materials complying with governing regulations, installed to comply with Underwriters Laboratories Class A and FM I-135 wind up-lift requirements.

1. Comply with Factory Mutual I-135 wind up-lift requirements.

B. Obtain primary built-up and modified bitumen roofing materials from a single manufacturer to match the existing membrane and provide secondary materials only as recommended by the manufacturer of the primary material, as specified.

1. The Drawings are generic and not based on a specific manufacturer. Detail deviations will be accepted so as to permit utilization of the selected manufacturer's standard products and details when, in the Design Professional's judgment, such deviations do not materially detract from design concept or intended performance. Submit proposed deviations to Design Professional for approval in writing prior to ordering materials that are in the category of substitutions.

2.2 SHEET MATERIALS

A. Strip-In Flashing: ASTM D-2178-88, Type IV glass fiber felt

B. Ply Felt Flashing: ASTM D-2178-88, Type IV glass fiber felt

C. Roof Membrane: ASTM D-2178-88, Type IV glass fiber felts.

D. Dry-In Felt: ASTM D226, #15 organic felt.

E. Base Sheet: ASTM D-4601, Type II, non perforated glass fiber base sheet.

F. Modified Bitumen Membrane: Granular surfaced (SBS) membrane; 140 mil minimum thickness; reinforced with fiberglass, polyester or combination of both. Granular surface to match existing granule color. Smooth surface flashing to comply to previous requirements.

2.3 INSULATION

A. Polyisocyanurate Insulation: Closed cell glass fiber reinforced type, conforming to the following (tapered and non-tapered):
1. Board Size: 4 x 4 feet, (4 x 8 feet if mechanically attached).
2. Board Thickness: 2” min. (at duct work)
3. Compressive Strength: 25 psi per ASTM C 165
4. Facing: Factory applied skin of glass fiber facing on both faces.
5. Board Edges: Square.
6. Water Absorption: In accordance with ASTM C209, 1 percent by volume maximum.
1. Foam Core Flame Spread: 25 Max. - ASTM E-84 (Tunnel Test).
2. ULI Fire Rating: Conform to the current ULI, Class A, Roof/Ceiling fire rated assemblies (see current ULI "Fire Resistance Directory").

B. Tapered Perlite Edge Strips For Use at Crickets Within Roof System: 1/2" per foot tapered preformed units, as approved for use within a 20 year warranted roof system by the roofing manufacturer, of material with the following characteristics:
   1. Board Density: 8 lb/cu ft.
   2. Board Size: 2x4 feet.
   3. Board Thickness/slope: ½" per foot slope for all crickets.
   4. Compressive Strength: Minimum 35 psi.
   5. Water Absorption: In accordance with ASTM C 209, 1.5 percent by volume maximum.
   6. Board Edges: Square.
   7. ULI Fire Rating: Conform to the current ULI, Class A, Roof/Ceiling fire rated assemblies (see current ULI "Fire Resistance Directory").

2.4 GYPSUM ROOF BOARD (Options)

A. Gypsum Roof Board (Glass fiber reinforced/faced gypsum): as approved for use within a 20 year warranted roof system by the roofing manufacturer, with the following characteristics:
   1. Board Type: manufacturer standard product for use over polyisocyanurate insulation and over metal decks.
   2. Manufacturer and Product: Georgia-Pacific Corporation, Gypsum Division, Dens-Deck Prime Roof Board or approved equal.
   3. Board Size: 4 feet x 4 feet x 1/4" minimum thickness.
   4. Compressive Strength: Minimum 35 psi.
   5. Water Absorption: In accordance with ASTM C 1177-91
   6. Board Edges: Square.
   7. UL Fire Rating: Conform to the current UL, Class A, Roof/Ceiling fire rated assemblies (see current UL "Fire Resistance Directory").

B. Gypsum Roof Board (Glass fiber reinforced with no face layer) : as approved for use within a 20 year warranted roof system by the roofing manufacturer, with the following characteristics:
   1. Board Type: manufacturer standard product for use over polyisocyanurate insulation and over metal decks.
   2. Manufacturer and Product: United States Gypsum Company, Securock Roof Board or approved equal.
   3. Board Size: 4 feet x 4 feet x 1/4" minimum thickness.
   4. Compressive Strength: Minimum 1,250 psi.
   5. Water Absorption: 10 In accordance with ASTM C 473
   6. Board Edges: Square.
   7. UL Fire Rating: Conform to the current UL, Class A, Roof/Ceiling fire rated assemblies (see current UL "Fire Resistance Directory").

2.5 BITUMINOUS MATERIALS

A. Asphalt Bitumen: ASTM D312, Type III.

B. Asphalt Primer: ASTM D41.

C. Coal Tar Pitch: ASTM D 450, Type I

D. Plastic Cement: ASTM D2822 Type II, cutback asphalt type.

E. Modified Bituminous Flashing Adhesive: ASTM D3019-85 Type III.

2.6 MECHANICAL FASTENERS

A. Roofing Nails: Galvanized, hot dipped or non-ferrous type, size as required to suit application.

B. For Fastening Vented Base Sheet to Lightweight Concrete Deck: Lightweight concrete base ply fastener with FM I-90 discs. Base ply fastener shall comply with Factory Mutual Approval Standard #4470.

C. For Fastening Base Sheet to Wood Deck: Rawl deck screw with FM I-90 discs.

D. For Fastening Insulation to Metal Decks: #12 deck screw; FM 4470 coated; 3“ FM I-90 disc; screw length sufficient to penetrate deck 1“. Insulation fasteners shall be supplied by roof membrane manufacturer on warranted roofs.

E. For All Other Locations: Provide size, type, material and finish as required, matching material being fastened. Fasteners used on warranted roof systems shall be an approved fastener used by membrane manufacturer.

2.7 ACCESSORIES

A. Cant Strip: Perlite, preformed to 45 degree angle.

B. Vent Pipe Flashing: Prefabricated pipe flashing of 2.5 lb. per square foot common pig lead having a 4" flange.

C. Conduit/Condensate Line Supports: 3000 psi concrete, smooth exposed finish, 8" wide x 16" long x 2" thick; free of surface defects.

D. Lead Drain Flashing: 36" square flashing of 4 lb. common DE-silvered pig lead sheet.

E. Walk Pads: traffic resistant polymer modified bitumen sheet, polyester reinforced, surfaced with mineral granules.

F. Flashing Tape: double sided, extruded or preformed, cross-linked butyl rubber, self adhesive tape, 1/8" minimum thickness, 3/4" minimum width unless noted otherwise on the drawings.

1. Pecora Corporation — Extru-Seal Glazing Tape
   Tremco Construction Products — 440 II Tape

2. Equivalent products as approved by the Construction Manager and Design Professional.

2.8 PITCH PAN FILLER

A. Pitch Pan Filler (Pitch pans are not approved for use on new roofs. Special and specific written approval from the design professional is required for use on existing roofs.): Firestone S-10 RubberGard two part urethane pourable sealer (no substitutions allowed) installed over Five Star non-shrink grout (by U.S. Grout, Corporation) or approved equal.

2.9 JOINT SEALANTS: Refer to Section 07 90 00 – Joint Protection

2.10 SURFACING

A. Aggregate: ASTM-D-1863, Size and color to match existing roof aggregate.

B. Protective Cover Coating: Fibrated, Aluminum type.

2.11 MISCELLANEOUS MATERIALS:

A. All other material and accessories, not specifically described, but required for a complete and proper installation of roofing, shall be products of, or recommend by the manufacturer of the primary material and subject to the approval of the Construction Manager.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is dry and clean.

3.2 INSTALLATION REQUIREMENTS

A. Protect other work from spillage of bitumen roofing asphalt materials and prevent liquid materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation of modified bitumen sheet roofing system work.

B. Work to be performed by a manufacturer approved applicator.

3.3 BITUMEN HEATING (Large Scale Repairs or Re-Flashing of Equipment Curbs)

A. Heat bitumen in accordance with bitumen manufacturer's requirements.

B. For aggregate surfaced pour coats of asphalt, limit application temperature to minimum required for proper embedment of aggregate and maximum which will permit retention of a coating of weight required.

3.4 BASIC REPAIRS - Basic Small Scale Repair Techniques (Cold Application)

A. Remove gravel surfacing down to the felts. Clean and dry surface 24" around the damaged area.

B. Preparation: Brush prime surface using asphaltic primer.

C. Apply plastic cement into the deficiency.

D. Embed required number of felts over deficiency. For three ply roof system, cover deficiency using 3 plies of felt. Each ply shall overlap the preceding ply by 6".

E. Re-apply new gravel surfacing in a layer of mastic.

3.5 BASIC REPAIRS - Basic Large Scale Repair Techniques (Hot Bitumen Application)

A. Remove gravel surfacing down to the felts. Clean and dry surfaces 24" around the damaged area.

B. Preparation: Brush prime exposed membrane surface using asphaltic or coal tar primer.

C. Replace damaged insulation.

D. Embed required number of felts over repair area in hot bitumen. With an existing three ply roof repair using three plies of felt. Each ply shall overlap the preceding ply by 6".

E. Re-apply new gravel surfacing in a flood coat of hot bitumen.

3.6 SPECIFIC REPAIRS

A. Surface Conditions - Gravel Surfaced Built-Up Roofs:

1. Remove loose aggregate, debris and dirt.

2. Repair any membrane surfaces damaged.

3. Trim and dispose of any loose or curled felt.

4. For small scale repairs (less than 3 feet in area), apply plastic cement and embed new gravel over area.

5. For large scale Repairs (greater than 3 feet in area), apply a 60# per square flood coat of hot bitumen over roof surface. Embed new gravel into the asphalt at a rate of 400# per square.

B. Alligatoring or Cracking

1. Light Checking/Crazing:

a. Clean surface and remove thick pieces of bitumen.
b. Prime surface
c. Apply an asphalt emulsion to surface ensuring that fissures are filled.
d. Reinstall surfacing or coat surface with fibrated aluminum coating.

2. Heavy Checking/Deep Crazing to Felts:

a. Clean surface and remove thick pieces of bitumen.
b. Prime surface
c. Apply an asphalt emulsion to surface ensuring that fissures are filled. While emulsion is fluid, inlay a fiber glass mat over area.

d. Reinstall surfacing or coat surface with fibrated aluminum coating.

C. Surface Slippage - Flow of Bitumen and Aggregate

1. Clean around drains or wall scupper.

2. Remove surfacing aggregate and install gravel stop/pitch dam.

3. Strip-in dam and, re-apply surfacing as listed in Basic Repairs.

3.7 MEMBRANE CONDITION

A. Blisters - Built-Up Asphalt or Coal Tar Roofing:

1. Remove gravel surfacing down to the felts. Clean and dry surfaces 24" from around damaged area.

2. Remove entire blister where until the existing ply felts are found well adhered together.

3. Preparation: Brush prime surface using asphaltic primer.

4. Apply plastic cement into blister void. Allow mastic to be slightly raised above adjacent surface.

5. Embed required number of felts over deficiency. Each ply shall overlap the preceding ply by 6".

6. Re-apply surfacing as listed in Basic Repairs.

B. Blisters - Cap Sheet or Modified Bitumen Roofing:

1. Brush loose granules away from the blister.

2. Prime surface with asphaltic primer.

3. X cut roof surface. Fold membrane back and apply modified bitumen adhesive in void.

4. Press membrane back into adhesive.

5. Install new modified bitumen cap target in adhesive over primed area. Ensure that membrane is firmly seated into modified bitumen adhesive.

6. A torch grade material may be applied in lieu of cold applied SBS. Do not use mastic in void when using a torch. Remove material from void entirely.

C. Ridging, Wrinkling, Buckling, fishmouths and Splits:

1. Remove gravel surfacing down to the felts. Clean and dry surfaces 12" around the damaged area.

2. Repair as indicated in Basic Repair Proceeders.

3. Membrane Splits: Membrane splits are normally associated with building expansion or membrane tension. This type of problem requires the addition of an expansion joint or area divider. Severe or long membrane splits shall be brought to the attention of the Construction Manager, Design Professional and Owner prior to repairing.

D. Punctures or Ruptures:

1. Remove gravel surfacing 24" around puncture.

2. Clean and Prime surface.

3. Embed required number of felts over deficiency. Repair as listed in Basic Repairs.

E. Membrane Slippage

1. Strapping Technique:

a. Remove roof gravel. Gravel shall be removed in 12" width and running entire parallel to the roof slope the entire length of the roof. Strapping runs shall be space 15 feet apart.

b. Nail 6" o.c. through a new strip of 6" wide Type IV felt. Nail parallel to slope.

c. Apply a layer of mastic over length and width of strip. Pull half of sheet over fasteners than fold other side over preceding.

d. An additional 12" roof ply shall be mopped over strapping in hot bitumen.

e. Apply new aggregate surfacing in a flood coat of hot bitumen.

3.8 FLASHING REPAIRS

A. Punctures or Holes:

1. Three course over puncture or hole using reinforcing polyester membrane and flashing adhesive. Coat exposed asphalt with fibrated aluminum coating.

B. Deteriorated Base Flashing:

1. Remove loose and damaged roof material. Prime surface with asphaltic primer.

2. Apply modified bitumen adhesive to vertical surface and, set modified bitumen flashing into place. Tuck flashing under metal counterflashing. Hand rub flashing into adhesive. Back nail along top.

3. Three course side laps and over fasteners using reinforcing polyester membrane and flashing adhesive.

4. Coat exposed asphalt with fibrated aluminum coating.

C. Flashing Blisters:

1. Clean then prime surface over and around blister with asphaltic primer.

2. Check each repair area for moisture damage and replace any damaged or deteriorated cant strips.

3. X cut over blister. fold flashing outward and trowel modified bitumen adhesive into void. Fold back and press membrane into adhesive.

4. Apply modified bitumen adhesive to vertical surface and, set modified bitumen flashing into place. Tuck flashing under metal counterflashing. Hand rub flashing into adhesive. Back nail along top.

5. Three course side laps and over fasteners using reinforcing polyester membrane and flashing adhesive. Coat exposed asphalt with fibrated aluminum coating.

D. Open Flashing Laps:

1. Install adhesive into lap and, firmly press together.

2. Check each repair area for moisture damage and replace any damaged or deteriorated cant strips.

3. Nail lap down vertical lap.

4. Three course over lap and fasteners using reinforcing polyester membrane and flashing adhesive. Coat exposed asphalt with fibrated aluminum coating.

E. Ridging or Wrinkling Flashing:

1. Patch using Basic Repair Techniques.

F. Falling and Buckled Flashing:

1. Apply modified bitumen adhesive to surface behind fallen flashing.

2. Check each repair area for moisture damage and replace any damaged or deteriorated cant strips.

3. Secure top of flashing to wall 4" on center.

4. Three course side laps and over fasteners using reinforcing polyester membrane and flashing adhesive. Coat exposed asphalt with fibrated aluminum coating.

3.9 COUNTERFLASHING

A. Reglet Flashing:

1. Clean wall reglet. Remove caulking from wall and counterflashing surfaces.

2. Reset counterflashing into reglet joint, and secure with lead wedges at 4" o.c. Apply sealant at metal overlap.

3. Apply urethane sealant over reglet joint and tool.

B. Surface Mounted Counter Flashing:

1. Remove sealant from counterflashing metal and wall.

2. Apply sealant to over lap joints and reset counterflashing.

3. Prime surface of existing wall as required to insure optimum adhesion. Secure counterflashing to wall using drive pins or tapcons with metal backed neoprene washers.

4. Apply urethane sealant to receiver joint and tool.

3.10 METAL COPING AND CURB CAPS

A. Ensure coping is properly attached to wall. Do not mechanically attach coping thru the top. Verify coping receiver is hand tong at clips or at continuous cleat. Re-secure mechanically fastened coping thru the vertical surface at 8" o.c.

B. Remove sealant from metal surface at end lap. Reseal using urethane sealant and tool.

C. Holes in coping:

1. Thoroughly clean scale around deteriorated area.

2. Prime surface with asphaltic primer. Apply 3 beads of sealant on each side of deteriorated area.

3. Install a cover plate. Use pressure turn downs at each side of plate, and tong plate at bottom edges over coping to secure. Cover plate material shall be same as coping metal.

3.11 ROOF EDGING/FASCIA

A. Remove gravel surfacing down to the felts. Clean and dry surfaces 18" from the damaged area. Remove cover plate at laps and, clean and reinstall in beads of sealant.

B. Brush prime surfaces using asphaltic primer.

C. Apply plastic cement over primed area. Embed 2 ply of Type IV felts over flange. Each ply shall overlap the preceding ply by 6". Re-apply surfacing as listed indicated in Basic Repairs.

3.12 PITCH PANS/FLANGE MOUNTED ROOF PENETRATIONS.

A. Remove gravel surfacing 16" around flange. Ensure metal and roof surfaces are clean and dry.

B. Brush prime surfaces using asphaltic primer.

C. Apply plastic cement over primed area. Strip-in flanges using 2 plies of felt. Each strip-in ply shall overlap the preceding ply by 6". Re-apply surfacing using method listed in Basic Repairs.

D. Use modified bitumen flashing cement when repairs are performed to modified bitumen roof system. A torch may be used if compatible with material.

3.1 CLEANING

A. In areas where finished surfaces are soiled by work of this section, clean those surfaces.

1. Remove trash, scraps and spudded roof gravel from roof.

3.2 PROTECTION

A. Protect building surfaces against damage from roofing work.

B. Repair or replace any roofing and associated materials damaged during the work to a condition free of damage and deterioration.

END OF SECTION

APPLICATOR WARRANTY FOR ROOFING REPAIRS

Whereas_____

of (Address)_____

herein called the "Roofing Contractor", has performed roofing, flashing and sheet metal and associated ("work") on following project:

Owner:_____

Address:_____

Name and Type of Building:_____

Address:_____

Area of Work:_____

Date of Acceptance:_____

Warranty Period: Two Years Date of Expiration: _____

AND WHEREAS Roofing Contractor has contracted (either directly with Construction Manager or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period.

NOW THEREFORE Roofing Contractor hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work, and as are necessary to maintain said work in watertight condition.

This Warranty is made subject to the following terms and conditions.

1. Specifically excluded from this Warranty are damages to roofing work and other parts of the building, and to building contents, caused by: a) lightning, windstorm; b) fire; c) failure of roofing system substrate or structure (including cracking, settlement, excessive deflection, deterioration, and decomposition). When work has been damaged by any of the foregoing causes, Warranty shall be null and void until such damage has been repaired and until cost or repairs has been paid by the Owner or by another responsible party as so designated.

2. The Roofing Contractor is responsible for damage to work covered by this Warranty, and is not liable for consequential damages to building or building contents, resulting from leaks or faults or defects of work.

3. The Owner shall promptly notify Roofing Contractor of observed, known or suspected leaks, defect or deterioration. The Contractor shall guarantee to respond to all notifications within twenty-four (24) hours and to make all such repairs as deemed necessary to correct said leaks or defects to a

satisfactory condition to the Construction Manager. Repairs shall be made by workman in the current employment of the Contractor. Subcontracting of repair work is not permitted.

4. This Warranty is recognized to be the only warranty of Roofing Contractor on said work, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of roofing failures. Specifically, this Warranty shall not operate to relieve Roofing Contractor of responsibility for performance of original work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

IN WITNESS THEREOF, this instrument has been duly executed this

_____day of_____, 20_____.

_____
Roofing Contractor Firm

(SEAL)

_____
Signature of Authorized Person

_____
Title

_____
Witness

SECTION 07 62 00
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

B. Two-piece Counterflashing fabrications for curbs at roof mounted equipment.

C. Weatherheads, goosenecks and other metal fabrications at various roof membrane penetrations for mechanical, plumbing and electrical devices and services.

D. Materials specified in this section are for use in conjunction with roof repairs, and may be an extension of an existing detail. The intent of these specifications is to match the existing materials, configurations and finish being used. This section is intended to define the quality of materials and workmanship provided.

1.2 RELATED SECTIONS:

A. Section 06 10 53 - Rough Carpentry: Wood blocking and nailers.

B. Section 07 92 00 - Joint Sealers.

1.3 REFERENCES:

1. ASTM International:
   a. ASTM A 167 – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip
   b. ASTM A 480/A480M – Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip
   c. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   d. ASTM A 755/A 755M - Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products
   e. ASTM A 792/A 792M – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
   f. ASTM A 924/A 924M – Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
   g. ASTM B 29 – Standard Specification for Refined Lead.
   h. ASTM B 32 - Standard Specification for Solder Metal.
   i. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
   j. ASTM B 306 – Standard Specification for Copper Drainage Tube (DWV).
   k. ASTM B 370 – Standard Specification for Copper Sheet and Strip for Building Construction.
   l. ASTM B 749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products.

m. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
n. ASTM D 1187 – Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal.
o. ASTM D 4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
p. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.

2. National Roofing Contractors' Association:
   a. NRCA – National Roofing Contractors' Association Manual.
3. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
   a. SMACNA - Architectural Sheet Metal Manual.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Submit shop drawings for any condition not shown on plans and details.

C. Product Data: Submit data on manufactured components metal types, finishes, and characteristics.

D. Samples:
1. Submit two samples 12 x 12 inch in size illustrating a typical external corner, internal corner, material and finish.
2. Submit two samples 12 x 12 inch in size illustrating metal finish color.

1.5 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA and standard details and requirements.

B. Failure to install work in strict accordance with provisions of this Section is subject to total rejection of the work specified herein.

C. Maintain copy of documents on site.

1.6 MOCK-UPS

A. Construct "in-place" sheet metal mock-ups demonstrating the following conditions as applicable and detailed in the project documents:
1. Perimeter edge metal, splice and termination conditions.
2. Edge metal exterior and interior corner conditions
3. Gutter conditions: Attachment; expansion joint; splice; termination; downspout connections, etc.
4. Typical interior wall counterflashing conditions.
5. Parapet coping conditions and splice, etc.
6. Roof expansion joint coping conditions:
7. Additional conditions as may be determined by the Architect.

B. Mock-ups are to be constructed and located where designated. Upon approval mock-ups may remain as part of the work.

1.7 QUALIFICATIONS

A. Fabricator and Installer: Company specializing in sheet metal work with minimum three years documented experience.

1.8 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials causing discoloration or staining.

1.10 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Coordinate application of flashings with application of roofing, protruding material, and roof accessories to provide a complete weathertight installation according to the specified warranty requirements.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

A. Stainless Steel: ASTM A 240, ASTM A 480 and ASTM A 666; Type 304, soft temper (annealed), 22 ga. or 24 ga. thickness unless otherwise specified; smooth 2B finish.

B. Coated Aluminum Sheet Metal for Thermoplastic Roofs: Twenty (20) mil UV resistant PVC (polyvinyl chloride with Elvaloy®* KEE (ketone ethylene ester) membrane laminated 0.040 thick 3003-H14 aluminum,

2.2 ACCESSORIES

A. Termination Bar: Aluminum ASTM B-209, Alloy 6061, Temper T-6, mill finish; sizes 1/8" thick by 1-1/2" with rounded edges.

B. Sheet Metal Fasteners:
1. Exposed fasteners are prohibited, and may only be used where specifically permitted by the project details or the Architect.
2. Fasteners bearing on weather side of panels are to be a minimum #10 size “Scots” type screw with metal-backed neoprene washer integral with the head of the screw, or 3/16" diameter minimum stainless steel rivet.

3. Use stainless steel fasteners for exterior application and galvanized or cadmium plated fasteners for interior applications. Use painted fasteners where fastening into painted panel or trim.
4. Locate and space fastenings for true vertical and horizontal alignment. Use proper type fastening tools to obtain controlled uniform compression for positive seal without rupture of neoprene washer.

C. Fasteners: Stainless steel: Fastener size and penetrations into various substrates should be as follows:
1. Wood: ¼ inch screw x 2 inch penetration or 1 ½ inch annular ring stainless steel roofing nail.
2. Concrete: ¼ inch “zamac” nail-in x 1 ½ inch penetration.
3. Concrete Block: ¼ inch “zamac” nail-in x 1 ½ inch penetration.

D. Fastener Schedule: Anchorage for below assumed to be into wood blocking, See details for other specifics.
1. Continuous Cleats: 1 ½ inch annular ring stainless steel roofing nails at 6 inches on center maximum.
2. See Fastener Schedule sheets included as part of the project documents.
3. For all conditions not covered, refer to fastener specifications above or consult with Architect.

E. Dry-in Membrane: Forty (40) mils thick, polyester reinforced, SBS modified asphalt waterproofing and underlayment membrane sheet.
1. Protecto-Wrap “Rainproof 40”
2. Soprema “Sopralene Stick”
3. Tamko “TW Metal and Tile” underlayment
4. Architect approved (prior to bidding) equivalent product.

F. Primer: Asphaltic based primer for flanges set in adhesive.

G. Protective Backing Paint (bituminous coating): ASTM D1187, 'Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal.'; SSPC-Paint 12, FS-TT-C-494 Cold-Applied Asphalt Mastic (Extra Thick Film – 15 mil dft) [Society for Protective Coatings].

H. Sealant: Sealant specified in Section 07 90 00.

I. Plastic Cement: ASTM D 4586, Type I.

J. Flashing Tape (concealed application): Double sided, gray extruded or preformed, 99% solids, cross linked polyisobutylene compound, non-sag, non-toxic, non-staining, permanently elastic self adhesive tape. One eighth (1/8) inch minimum thickness, 3/4” minimum width unless otherwise noted on the drawings.
1. Pecora Corporation Extru-Seal Glazing Tape
2. Tremco Construction Products 440 II Tape
3. Equivalent products as approved by the Owner or Architect.

K. Solder/Flux/Cleaner: ASTM B 32;
1. Solder: type suitable for application and material being soldered. ASTM B-32; 50/50 lead/tin type or ASTM B-32: 90/10 tin/silver type
2. Flux: Acid - Chloride type

3. Flux Cleaner: Washing Soda Solution - 5% to 10%

L. Metal Flashing Adhesive: Epoxy Adhesive may be used to assemble flashing fabrications using aluminum or pre-finished metals as noted by the project details Utilize a 2 component methacrylate adhesive system, approved products are:
1. SciGrip SG300 series adhesive as manufactured by SCIGRIP Americas, 600 Ellis Road, Durham, NC 27703. Contact: (887) 477-4583, (www.scigrip.com).
2. Weld-on SS300 series adhesive as manufactured by IPS Structural Adhesives, Inc., 600 Ellis Road, Durham, NC 27703. Contact: (887) 477-4583, (www.ipscorp.com).
3. Partite 7300 or 7400 series adhesive as manufactured by Parson Adhesives, Inc., 3345 Auburn Road, Suite 107, Rochester Hills, MI 48309. Contact: (248) 299-5585, (www.parsonadhesives.com).
4. The above products have been represented locally by North American Composites, 3715 North Frontage Road, Lakeland, FL 33810. Contact: (800) 241-5817. (www.nacomposites.com).
5. Architect approved equal.

2.3 FABRICATION

A. Form sections shape indicated on Drawings, accurate in size, square, and free from distortion or defects.

B. Fabricate cleats of same material as sheet metal, interlocking with sheet.

C. Form pieces in longest possible lengths.

D. Hem exposed edges on underside 1/2 inch; miter and seam corners.

E. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

F. Fabricate corners from one piece with minimum 18 inch long legs; solder for rigidity, seal with sealant.

G. Pretin edges of stainless steel sheet. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints. (Heliarc shop formed aluminum joints).

H. Perform soldering work slowly, with properly heated irons to thoroughly heat seam material and sweat solder through full width of seam that shall show not less than 1 inch of evenly flowed solder.
1. Start soldering immediately after application of flux.
2. Solder flat locked seams.

I. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

J. Fabricate flashings to allow toe to extend 1 1/2” over wood nailers. Return and brake edges.

K. Fabricate accessories in profile and size to suit gutters and downspouts.

1. Anchorage Devices: In accordance with SMACNA requirements.
2. Gutter Supports: Brackets. Straps.
3. Downspout Supports: Brackets.

L. Seal metal joints.

2.4 FINISH (when painting is required)

A. Dissimilar Metal Isolation: Where applicable, back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mils when dissimilar metals are in contact.

B. Prepare stainless steel surfaces in accordance with Section 09 90 00 – Painting and Coating.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

C. Verify roofing termination and base flashings are in place, sealed, and secure.

D. Do not proceed with work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

3.2 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Install surface mounted counterflashing (reglets) to lines and levels indicated on Drawings. Seal top of counterflashing (reglets) with sealant.

C. Paint concealed metal surfaces with protective backing paint to minimum dry film thickness of 15 mils where applicable.

3.3 INSTALLATION

A. Where applicable, insert flashings into reglets to form tight fit. Secure in place with lead wedges. Seal flashings into reglets with sealant.

B. Secure flashing in place using concealed fasteners. Use exposed fasteners only where permitted.

C. Apply plastic cement compound between metal flashings and felt flashings.

D. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

E. Solder / weld per metal type metal joints for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.

F. Apply modified bitumen cement compound between metal flashing and bituminous underlayment and/or flashing membrane. At other locations utilize self-adhesive butyl flashing tape as specified above.

G. Secure gutters and downspouts in place using specified fasteners.

H. Connect downspouts to downspout boot system. Seal connection watertight.

I. Set splash blocks under downspouts.

J. Seal metal joints watertight.

3.4 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspection will involve surveillance of Work during installation to ascertain compliance with specified requirements.

3.5 SCHEDULE

Location

1.	Cleat/Blocking and Cants	Galvanized Steel	16 gage	Mill
2.	C.F. Receiver (At Mech)	Stainless Steel	24 gage	Mill
3.	C.F. Receiver (At Ductwork)	Aluminum	0.040"	PVC
4.	Counterflashing	Stainless Steel	24 gage	Mill
5.	Wind Cleats	Stainless Steel	26 gage	Mill
6.	Weatherhead Fabrications	Stainless Steel	24 gage	Mill
7.	Abandoned Curb Covers	Stainless Steel	24 gage	Mill

Miscellaneous metal flashing and transitions: Stainless steel, mill finish, 24 gage; or 0.040 Aluminum (mill finish or prefinished); or 16 ounce copper as required by Architect.

END OF SECTION

SECTION 07 65 00
ROOF PENETRATING FLASHING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Prefabricated Metal Flashing Assembly at Vent Pipes.

B. Section includes fabrication and installation of flashings for: pipes, conduits and other round items, and similar penetrations and similar items penetrating, resting on, or anchored to the roof.

C. The specifications in this section are not project specific. Contractor shall review the actual project conditions to determine the roof system components most appropriate to provide a successful outcome.

1.2 SUMMARY

A. The specifications in this section are not project specific. Contractor shall review the actual project conditions to determine the roof system components most appropriate to provide a successful outcome

B. Metal roof penetration flashing assemblies are considered an integral part of the roofing system(s) and shall be covered under the roofing membrane manufacturer’s and roofing installers guarantees and warranties.

C. All roof penetrations shall be flashed using materials, methods and details appropriate for each condition encountered, as described in this section, or if not described in this section, as recommended by S.B.C. Industries and accepted by the Design Professional.

1.3 RELATED SECTIONS

A. Section 06 10 53 - Rough Carpentry: Wood blocking

B. Section 07 01 50 - Modified Bitumen Roofing Repairs.

C. Section 07 62 00 - Sheet Metal Flashing and Trim.

D. Section 07 92 00 - Joint Sealers.

1.4 REFERENCES

A. AISI American Iron and Steel Institute - Stainless Steel - Uses in Architecture.

B. ASTM A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

C. ASTM A 653 - Steel Sheet, Zinc Coated (Galvanized), and Zinc-Iron (Galvanealed), by the Hot-Dip Process

D. ASTM B 209 - Aluminum and Alloy Sheet and Plate.

E. ASTM B 32 - Solder Metal.

F. ASTM B 486 - Paste Solder.

G. ASTM D 226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

H. ASTM D 4586 - Asphalt Roof Cement, Asbestos-Free.

I. FS O-F-506 - Flux, Soldering, Paste and Liquid.

J. NRCA National Roofing Contractors Association - Roofing Manual.

K. SMACNA - Architectural Sheet Metal Manual.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Provide membrane repair materials Product Data, have the Contractor submit material samples only when the Construction Manager requires such.

C. Manufacturer's Installation Instructions: Indicate special precautions required for seaming the membrane.

D. Manufacturer's Field Reports: Submit under provisions of Section 01 40 00.

1.6 QUALITY ASSURANCE

A. General: All flashings shall be designed to comply with or exceed the following:

1. National Roofing Contractors Association (NCRA) - “Roofing and Waterproofing Manual” (latest edition) except where other editions are specifically referenced.

2. Sheet Metal and Air Conditioning Contractors Association (SMACNA), Architectural Sheet Metal Manual (latest edition).

3. Manufacturer’s standard details as accepted by the Design Professional.

4. Project details as issued for bidding and construction.

B. Manufacturer Qualifications: All set-on penetration flashings shall be shop fabricated by a single manufacturer whose specialty is the fabrication of roof penetration flashings of the type specified in this section and who has been in business for a minimum of 5 years. More than 80% of the business shall be devoted to the fabrication of roof penetration flashing.

C. Installer Qualifications: Installers shall be qualified and approved by the roof penetration flashing manufacturer prior to commencement of the work.

1.7 REGULATORY REQUIREMENTS

A. Provide materials complying with governing regulations and codes installed to comply with the following:

1. UL Listing: Provide roofing system materials and component materials that have been tested for application and slopes indicated and are listed by Underwriters Laboratories, Inc. (UL) for Class A external fire exposure.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver to site, store, protect, and handle products under provisions of Section 01 60 00.

B. Deliver material in manufacturer's original, unopened containers with manufacturer's labels intact and legible.

C. Deliver material requiring fire resistance classification to the job with labels attached and packaged as required by labeling service.

D. Store and handle materials to protect them from.

1. Moisture, whether due to precipitation, or condensation.
2. Damage by construction traffic.
3. Temperatures over 110 degrees F or below 40 degrees F.
4. Direct sunlight.
5. Mud, dust, sand, oil and grease.

E. Comply with fire, safety, and environmental protection regulations.

F. Take special precautions against traffic on roofing when ambient temperature is above 80 degree F. Avoid heavy traffic on the work during installation.

1.9 PROJECT CONDITIONS

A. Existing Conditions

1. The roofing repair applicator shall verify existing conditions prior to Bidding.
2. Report conflicts and problems to the Design Professional for resolution prior to Bidding. Failure to report these conflicts and problems places the responsibility on the Prime Contractor to complete the work in accordance with the Documents at no additional cost to the Construction Manager.
3. Replace or restore to original condition any materials or work damaged during construction.
4. Surfaces not designated to receive the system shall be properly masked or otherwise protected against accidental spillage or application of the material to those areas.
5. Failure to install the work in strict accordance with provisions of this Section, is subject to total rejection of work specified herein.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Do not apply roofing membrane during inclement weather ambient temperatures below 40 degrees F.

B. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

C. Proceed with roofing work when existing and forecasted weather conditions permit work to be performed in accordance with requirements of this section and warranty compliance requirements.

1.11 COORDINATION

A. Coordinate work under provisions of this Section.

B. Coordinate application of flashings with application of roofing, protruding material, and roof accessories to provide a complete weathertight installation according to the specified warranty requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with requirements specified in this section, provide metal roof penetration flashing systems from one of the following manufacturers:

1. S.B.C. Industries
1765 Opa Locka Blvd.
Miami, FL 33054
Phone: 1-800-228-2580 or (305) 685-6350
FAX: (305) 685-6360

2. Thaler Roofing Specialties Products, Inc.
Ontario, Canada
Phone: (905) 677-1520

2.2 MATERIALS

A. Metal: Stainless steel, type 304, 2B, ASTM A-240

B. Solder: ASTM B32, 50% tin - 50% lead; if lead-free solder is required, tin-silver, ASTM 96.5TS.

C. Foam Tape: Closed cell foam, PSA on one side, 1/4" or 3/8" x 1" wide, ASTM D-1056.

D. Backer Rod: Open cell polyurethane.

E. Sealant: Single part urethane, ASTM C920-79.

F. Asphalt Primer: As recommended and approved by the roofing membrane manufacturer and conforming to ASTM D-41 requirements.

G. Modified Asphalt Roof Cement: As recommended and approved by the roofing membrane manufacturer.

2.3 FABRICATION

A. General

1. All deck flanges shall have full rounded corners.

2. Collar or stack portions of flashing assemblies and sealant covers for square or round pipes larger than 3" in diameter shall be fabricated from 24 gauge stainless steel. Unless noted otherwise, all other metal flashing assemblies shall be fabricated from 26 gauge stainless steel.

3. Gauges for custom fabrications not specifically described herein shall be as recommended by the roof penetration flashing manufacturer and accepted by the Design Professional.

4. Pitch pans are not to be used in lieu of any other penetration flashing in these specifications. Exceptions require special written approval by the Design Professional and will only be granted where, in the judgment of the Design Professional, no other means of positive flashing is feasible. In such cases where pitch pans are specifically approved by the Design Professional, said pitch pans shall conform to the following:

a. Fabricate from 24 gauge stainless steel, using 7-3/4" stock x girth required, forming a hemmed 3" high side with a 1/4" - 3/8" inside return at the top and a 4" deck flashing flange. Provide 2" clearance from protrusion. If pitch pan can be slipped over penetration, shop solder four corners 4-1/2" with radial corners in place. If pitch pan cannot be slipped over penetration, wrap pitch pan around penetration, and solder corners and vertical seam.

B. Fabrication of flashings for pipes, conduits and other round items penetrating, resting on or anchored to roof which allows a tubular flashing to be slipped over.

1. Form tubular flashing sleeve no less than 9" high and of proper diameter to provide 1/8" minimum - 1/4" maximum clearance from pipe or conduit.

2. Fabricate square flashing deck plate to a size 7-1/2" larger than protrusion. Punch hole of appropriate size in center and extrude surrounding material upward 1/4" providing a continuous vertical soldering flange and solder 9" high tubular flashing sleeve. Cut 1" minimum radius on flashing plate corners.

3. Fabricate counterflashing 5" high with a diameter ½" greater than pipe or conduit.

4. Provide a conical sealant cover, sloped outward and downward at 30 degrees to 45 degrees from the horizontal plane with an inside diameter equal to pipe or conduit size and an outside diameter 1" to 2" larger.

5. Shop solder all seams watertight.

6. Provide Model P/S or C/S with standard accessory sealant cover as manufactured by S.B.C. Industries or Design Professional accepted equal product from one of the listed manufacturers.

C. Fabrication of flashings for connected pipes, conduits and other round items not allowing a tubular flashing to be slipped over.

1. Form semi-cylindrical tubular flashing sleeves (180 degrees) not less than 9" high, tightly seam intersecting halves to mate snugly. Provide a split flashing deck plate with radial corners and being formed upward to provide a continuous soldering flange for semi-cylindrical sleeve engagement. Size each unit to allow for vibration and thermal movement of pipe or conduit with 1/8" minimum x 1/4" maximum.

2. Form cylindrical counterflashing 5" high with seamed edge to a diameter 1/4" larger than 9" high sleeve.

3. Provide conical sealant cover, sloped outward and downward at 30 degrees to 45 degrees from a horizontal plane, with an inside diameter equal to pipe or conduit size and an outside diameter 2" larger.

4. Provide Model P/D or C/D with standard sealant cover as manufactured by S.B.C. Industries or Design Professional accepted equal product from one of the listed manufacturers.

D. Fabrication of flashings for angle irons, “H” beams, channels and square tubing.

1. Form a 6" high two piece angular configuration similar to penetration, but allowing 3/16" minimum to 3/8" maximum clearance in any direction. Fabricate flashing deck flanges in two pieces and shop solder to 6" angular stacks. Provide an umbrella type counterflashing conforming to protrusion which extends 3/4" at 45 degrees outward from angular stack flashing.

2. Provide Model A/D, H/D, CH/D or SQT/D, with standard sealant cover as manufactured by S.B.C. Industries or Design Professional accepted equal product from one of the listed manufacturers.

E. Fabrication of flashings for ribbon or coaxial cable for lightning protection, T.V. antennas, satellite dishes, telephone wire and similar penetrations:

1. Consult S.B.C Industries for fabrication of gooseneck type cable flashing or provide Design Professional accepted equal product from one of the listed manufacturers.

F. Fabrication of flashings for "Uni-strut" members and other irregular shaped roof membrane penetrations:

1. Consult S.B.C. Industries for fabrication of "Uni-strut" and custom or irregular shaped metal flashing assemblies. Design Professional accepted equal products from one of the listed manufacturers will be acceptable.

G. Fabrication of flashings for Sanitary vent-thru-roof (VTR) penetrations:

1. Provide stainless steel plumbing vent flashing with vandal proof cap. Provide stainless steel pipe extension where required to extend pipes to 9" above adjacent finished roof. Provide S.B.C. Industries VTR Kit or Design Professional accepted equal from listed manufacturer.

PART 3 EXECUTION

3.1 INSTALLATION

A. General:

1. All deck flanges shall be primed, set in a full fresh bed of flashing cement and stripped-in in accordance with membrane manufacturer's recommendations and related specifications and drawings.

2. All flashings shall be shop fabricated from field measurements.

3. Clearances between penetrations (including flashing sleeves) and between penetrations and the leading edge of cants at wall or equipment base flashings shall be a minimum of 18" in compliance with NRCA Table 4 - Guide for Clearance Between Pipes/Walls/Curbs, as found in the NRCA Roofing and Waterproofing Manual (Fourth Edition).

B. Installation of flashing for pipes, conduits and other round items penetrating, resting on, or anchored to roofing.

1. Slide flashing unit over penetration and firmly embed flashing plate in full bed of mastic.

2. Counterflashing and sealant cover: Using a solvent with a rapid evaporation rate and leaving no residue, clean area of pipe directly above flashing. Wrap a single layer of 1/4" to 3/8" x 1" wide closed cell tape around pipe, 1/4" above top of base sleeve. Wrap cap flashing around allowing top to extend 1/4" above top of tape. Apply sealant into channel at top and tool for positive runoff. Apply conical sealant cover directly above sealant.

C. Installation of flashing for connected pipes, conduits and other round items penetrating roofing or resting on roof not allowing a tubular flashing to be slipped over.

1. Base sleeves: Mate shop fabricated half sections together around pipe and solder vertical and horizontal seams watertight. Embed flashing flange in full bed of mastic.

2. Counterflashing and conical sealant cover: Using a solvent with a rapid evaporation rate and leaving no residue, clean area of pipe directly above flashing. Wrap a single layer of 1/4" to 3/8" x 1" wide closed cell foam tape around pipe 1/4" above top of base sleeve. Install cap flashing. Solder vertical seam. Apply sealant into channel and tool for positive runoff. Apply conical sealant cover directly above sealant.

D. Installation of flashing for angle, "H" beams, channels and square tubing.

1. Around the protrusion, snap or slide nesting flashing sections together, and embed flashing flange in full bed of mastic. Solder all seams and neutralize flux. At area of clearance between protrusion and top of stack flashing, insert backer rod 3/8" below top of stack flashing. Apply a liberal amount of sealant and tool for positive drainage. Install sealant cover directly above stack flashing in wet sealant.

E. Installation of flashings for ribbon or coaxial cable for lightning protection, T.V. antennas, satellite dishes, telephone and similar penetrations:

1. Follow manufacturer’s instructions for installation of cable flashing.

3.2 FIELD QUALITY CONTROL

A. Field inspection will be performed under provisions of Section 01 40 00.

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION

City of Fort Lauderdale • Procurement Services Division
100 N. Andrews Avenue, 619 • Fort Lauderdale, Florida 33301
954-828-5933 Fax 954-828-5576
purchase@fortlauderdale.gov

ITB NO. 12467-113

Public Works Administration Building Air Conditioning

ADDENDUM NO. 3

ISSUED: April 28, 2021

This Addendum is being issued to provide the following information. It is hereby made a part of the Plans and Specifications and shall be included with all contract documents.

Acknowledge receipt of this Addendum by inserting its number and date on the CITB Construction Bid Certification Page.

A) Opening Bid and Q&A will be extended:

New Opening Date May 6,2021

New Q&A Date May 3, 2021

All other terms, conditions, and specifications remain unchanged.

Fausto Vargas
Procurement Specialist

Company Name: _____
(please print)

Bidder's Signature: _____

Date: _____

City of Fort Lauderdale • Procurement Services Division
100 N. Andrews Avenue, 619 • Fort Lauderdale, Florida 33301
954-828-5933 Fax 954-828-5576
purchase@fortlauderdale.gov

ITB NO. 12467-113

Public Works Administration Building Air Conditioning

ADDENDUM NO. 4

ISSUED: April 29, 2021

This Addendum is being issued to provide the following information. It is hereby made a part of the Plans and Specifications and shall be included with all contract documents.

Acknowledge receipt of this Addendum by inserting its number and date on the CITB Construction Bid Certification Page.

A) Site Visits will be allowed:

Site visits are to be scheduled / arranged by appointment only. Contact Danica Grujicic at (954) 828-5055 email dgrujicic@fortlauderdale.gov any time during normal business hours, before the cut-off date and time, to schedule a specific date and time for your visit.
Site visits will be conduct on: Monday, May 3rd, 9:00am-10:00am
Tuesday, May 4th, 9:00am-10:00am

NOTE: You are encouraged to set up your appointment asap to assure availability before the site visit cut-off date and time.

B) Bid Propolsal Certication Page is not required for this project, it will be removed.

C) Opening Bid and Q&A will be extended:

New Opening Date May 13,2021

New Q&A Date May 7, 2021

All other terms, conditions, and specifications remain unchanged.

Fausto Vargas
Procurement Specialist

Company Name: _____
(please print)

Bidder's Signature: _____

Date: _____

Vendors Viewed

ORG NAME	PHONE
Apogee Mechanics LLC	
GreMark Consultancy Inc	555-4418
DH and Company	888-447-2348
ConstructConnect	800-864-2059
n/a	904-388-0836
Northrich Florida LLC	
TRANE	954-218-8368
Garrison Mechanics	954-441-7000
Morales and son	
B&I Contractors Inc [5/9]	239-332-4646
Weathertrol Maintenance Corp	305-9081000
Southern Comfort Solutions Inc	239-8192
Integ Miami LLC [4/9]	
Carrier	
Advanced Control Corporation	
Airmatic Controls Inc	954-870-7282
Advanced Control Corporation [1/9]	954-491-6660
ThermoAir Inc	954-927-9223
Trane US Inc	954-499-6900
Advanced Roofing Inc	954-522-6368
HOLDAIRE INC	9547473690
Dodge Data & Analytics	877-903-1909
Blizzard Air Conditioning LLC	305-699-8368
CJS Group	
Suba Air and Heat	954-929 0619
Big Air Mechanics LLC	
BESPOKE CONSTRUCTION MANAGEMENT	954-903-1738
Anchor Mechanical Inc	
Real Power Electric Inc	
The Blue Book	800-431-2584
Stiff Construction & Development Inc	9545242575
M/R Associates	
Dodge Data & Analytics	
Temotro A C Inc	305-662-7777
Strut Mechanical	407-818-8951
International Ozone Technologies Group	
Northern Equipment Supply Int	
North America Procurement Council Inc FBC	
Premier Air Conditioning	
Construction Bid Source	828-773-6848
Florida Property Supply LLC	
Premier air conditioning	305-833-8826
ConstructConnect	800-864-2059

T Knowles & Associates LLC	754-205-6538
Arbor Electrical Service Inc dba Mr Wireman Electric	954-782-4990
WR Construction Corporation	954-899-5499
Bidnet	
Air Mechanical & Service Corp.	
BlackDog Mechanical	
Dodge Data & Analytics	800-393-6343
CoCoMoConstruction	727-442-2147
RJS Construction	786-443-6346
Florida Bid Reporting	850-7832
DATA DETAIL SERVICES	
Summa Mechanical Contractors LLC	
LaPorta Contracting LLC	954-604-4602
ITSol, LLC	786-7224
IntegMiami LLC (3/9)	
Aggreko	305-789-8000
Wuma SA LLC	
Engineered Comfort Solutions (1/9)	
Wholesale of Port St. Lucie	
Green Alliance Inc	
H G Refrigeration Supply	
Hyvac Inc	954-427-9311
Florida Farm Construction Inc	
Simple Life Medical	
YRV Homes	7546663212
Cumana Builders Corp	786-269-8719
City of Fort Lauderdale	954-828-8058
Energy Control Consultants	9547998400
All-Ways Mechanical Services	954-880-7244
Calvine Construction LLC	305-288-7824

Question and Answers for Bid #12467-113 - Public Works Administration Building Air Conditioning

Overall Bid Questions

Question 1
What is the budget for this project? **(Submitted: Mar 24, 2021 11:07:28 AM EDT)**

Answer

- The estimated budget for this project is $1,100,000.00 **(Answered: Apr 8, 2021 9:53:14 AM EDT)**

Question 2
Who can we contact to schedule a site visit? **(Submitted: Mar 25, 2021 1:49:04 PM EDT)**

Answer

- Please review Addendum 1 **(Answered: Mar 29, 2021 5:25:14 PM EDT)**

Question 3
Who is the fire alarm provider for the building? **(Submitted: Apr 6, 2021 9:10:47 AM EDT)**

Answer

- The fire alarm and monitoring vendor is City Fire Incorporated. **(Answered: Apr 7, 2021 11:50:13 AM EDT)**

Question 4
Spec section 011200-1 subsection 1.2F and spec section 012900-2 subsection 1.4.b.7 reference allowances in the SOV. There is no allowance listed in bidsync. Please advise if the temporary cooling requirement shall be included as part of base bid or if an allowance will be provided. **(Submitted: Apr 7, 2021 11:25:01 AM EDT)**

Answer

- The temporary cooling is required and allowance is provided for this scope, in the amount of $60,000. Payments will be made to the Contractor based on the actual cost of temporary cooling upon submission of paid receipts. **(Answered: Apr 14, 2021 10:24:33 AM EDT)**

Question 5
Is all electrical conduit back to breaker being replaced with new? **(Submitted: Apr 7, 2021 11:37:17 AM EDT)**

Answer

- All conduit shall be new. See specification section 26 05 33 â“ RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS. **(Answered: Apr 14, 2021 10:24:33 AM EDT)**

Question 6
Is panel 1EHM mislabeled? Should it be 1HEM? **(Submitted: Apr 7, 2021 11:37:51 AM EDT)**

Answer

- Panel schedules 1EHM on sheet E16 are mislabeled and should be 1HEM **(Answered: Apr 14, 2021 10:24:33 AM EDT)**

Question 7

Do you have a planholder's list available? **(Submitted: Apr 7, 2021 3:53:44 PM EDT)**

Answer

- You can find the list in the Bid Documents. **(Answered: Apr 14, 2021 11:16:40 AM EDT)**

Question 8

What is the budget for the base bid? **(Submitted: Apr 8, 2021 9:20:50 AM EDT)**

Answer

- The estimated budget for this project is $1,100,000.00 **(Answered: Apr 8, 2021 9:53:14 AM EDT)**

Question 9

Is there a required Bid Bond Form? I do not see one in the Bid Package. **(Submitted: Apr 15, 2021 2:06:28 PM EDT)**

Answer

- We do not have specific form , you can find bid bond info on ITB-2 **(Answered: Apr 16, 2021 8:52:53 AM EDT)**

Question 10

Alternate 4 requests Relocation of FDC Connection.
Please provide the Fire Alarm/Fire Sprinkler Contractor who holds the Contract for the Bldg. **(Submitted: Apr 15, 2021 2:58:29 PM EDT)**

Answer

- Please review question # 3. **(Answered: Apr 19, 2021 8:52:31 AM EDT)**

Question 11

Please elaborate further on RFI response regarding total replacement of existing conduit. This requirement will greatly impact project cost, time to complete, and ability to maintain building cooling throughout project. What is rationale for replacing all conduit instead of replacing only damaged/unusable. **(Submitted: Apr 16, 2021 4:16:14 PM EDT)**

Answer

- Only existing conduit that is in the bad condition and not sized properly are to be replaced with new in accordance with code requirements. **(Answered: Apr 22, 2021 2:59:49 PM EDT)**

Question 12

On the Supplier Response Form:
Can you clarify what information you are looking for here:

Delivery: Calendar:
days after receipt of Purchase Order (section 1.02 of General Conditions):

Total Bid Discount (section 1.05 of General Conditions):

I can not locate these sections in the Bid Document. **(Submitted: Apr 28, 2021 2:01:15 PM EDT)**

Answer

- Bid Propolsal Certication Page is not required for this project. **(Answered: Apr 28, 2021 4:17:04 PM EDT)**

Question 13

Post award will there be access to the site for a 12-16 hour work day with advanced notice to owner? **(Submitted: Apr 30, 2021 1:29:35 PM EDT)**

Answer

- The regular working hours are preferred. However, if longer shifts are required, will be approved with advanced notice to the owner. Refer to the Bid Documents for additional requirements. **(Answered: Apr 30, 2021 4:10:59 PM EDT)**

Question 14

Please verify the intent of the 5" chilled water lines running from the chillers to the building? It seems to show these lines being demoed on drawing M04 and new lines being installed below ground per drawing M08. But on drawings S102 and S-103 it shows what seems to be pipe supports/piers installed above grade. See detail #8 for the pipe support detail. Please clarify as changing this piping out is a substantial amount of work either way? **(Submitted: May 3, 2021 4:48:59 PM EDT)**

Answer

- The point of connection for new chiller water (CHW) piping begins above ground at the chiller yard. All underground piping shall remain and be used as part of the CHW system.
Please see key note 7 on sheet M12. For reference, typically dashed ductwork and piping are used to show existing systems, and hatched ductwork and piping are used to show to-be-demolished systems. **(Answered: May 5, 2021 10:55:12 AM EDT)**

Question 15

Is there a phasing plan for this project? **(Submitted: May 3, 2021 4:49:27 PM EDT)**

Answer

- Construction phasing to be proposed by the Contractor and with close coordination with the Cityâ™s project manager. The facility is an occupied facility and temporary cooling shall be provided to ensure utilities are maintained with no interruptions **(Answered: May 5, 2021 10:55:12 AM EDT)**

Question 16

1. Housekeeping pads:
a. Details on S-103 seem to indicate chill water pumps, expansion tank, and air separators to go mounted directly to existing concrete. Please confirm if the intent is to mount on existing pad or to provide 4â-6â housekeeping pads.
b. Confirm that housekeeping pads are existing to remain and to enlarge if required by new chiller footprint.

2. Bid specifies allowances to be included in contractor bid price for temporary HVAC during replacement. As far as individual AHUâ™s, what will be the time windows given to the contractor for replacement and re-starting? Will these individual unit changeovers have to be done over compressed times like a weekend or will City relocate employees from affected spaces temporarily? Please provide as much detail on Cityâ™s requirements so that we can propose suitable phasing plan.

3. E-03 indicates relocation of lights for new piping run. Confirm that any light relocation & replacement or ceiling

removal is only as needed if required for new piping runs. In this specific area, mechanical drawings indicate the main CHWR piping is to remain. We will use this reply as typical for any other areas shown the same on the drawings.

4. M08, note 2 calls for new housekeeping pads for AHU. Existing AHU do not have any pads; please confirm we should include all costs for new pads.

5. Confirm that any asbestos survey or removal are outside the scope of contract.

6. Roof mounted equipment mostly non-compliant with present codes in that they are located less than 10â™ from building edge. Confirm that any safety railings that may be required by building officials is not part of the scope. **(Submitted: May 6, 2021 12:03:30 PM EDT)**

Answer

- 1a. There are currently no existing pads. The intent is to provide housekeeping pad for expansion tank, and for the chilled water pumps provide inertia pad.
1b. Chiller pads are existing to remain and new chiller footprint must fit the existing pad dimensions. A portion of the existing concrete pads will need to be demolished to allow room for chilled water pumps and inertia pad. See key note 9 on M12.
2. It is the responsibility of the contractor to coordinate with the City PM to ensure no occupied spaces will be impacted during the renovation. It is required that all spaces be maintained with temporary cooling to ensure no disruption to the occupied facility.
3. Any light relocation & replacement or ceiling removal is only as needed if required for new piping runs. The specific area shown on E03 will not have new CHW piping.
4. There is no existing pad, please include all cost for new pads.
5. To our knowledge there is no asbestos-containing material within the building. However, the asbestos removal is not part of this contract.
6. Architectural drawings R01 specific note 10 calls out for aluminum wall mounted guard rails along roof perimeter nearby large HVAC units. See detail B04.2 on sheet R04. This safety railing system is to be included in scope of work. **(Answered: May 11, 2021 1:57:40 PM EDT)**