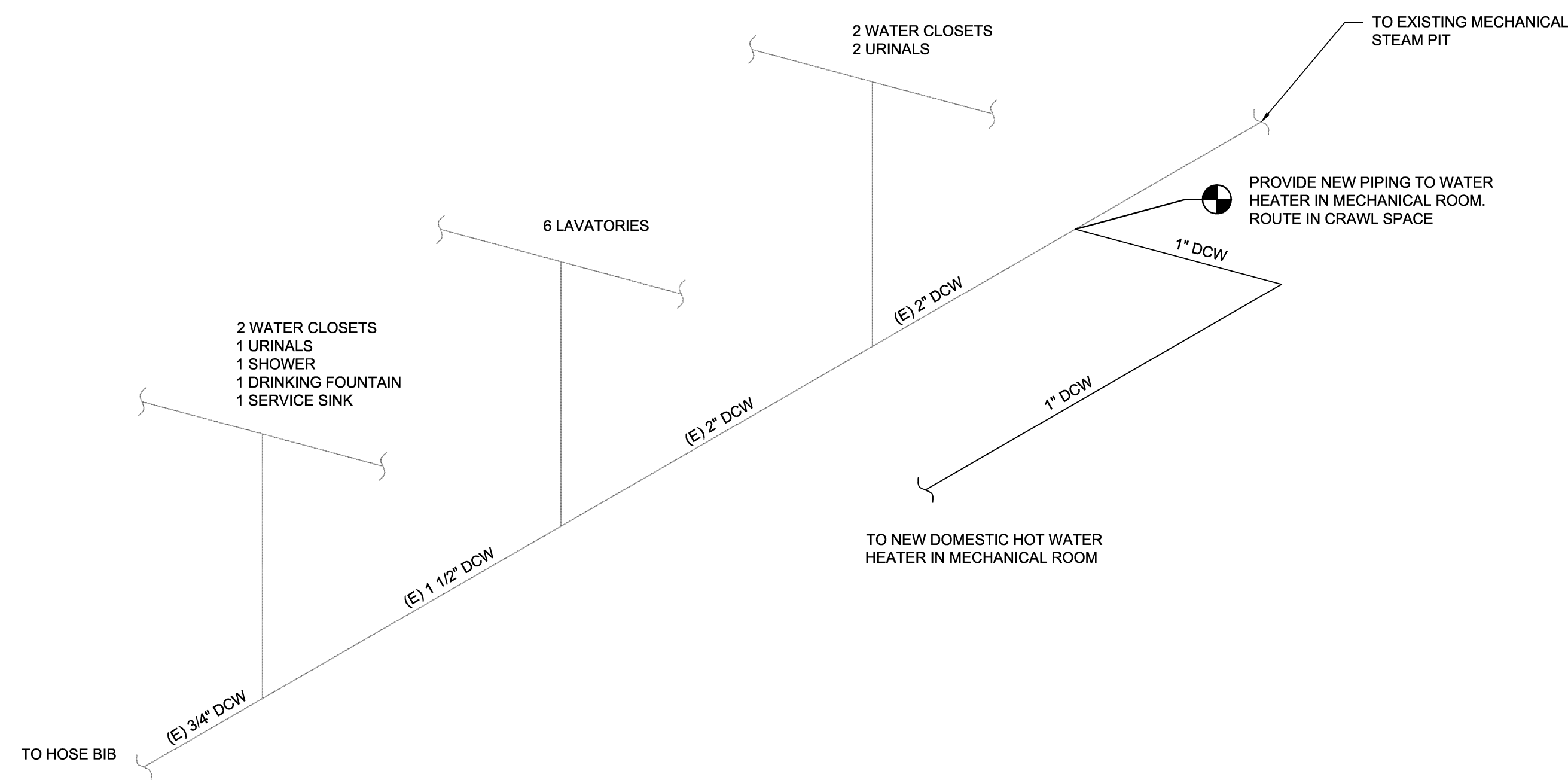
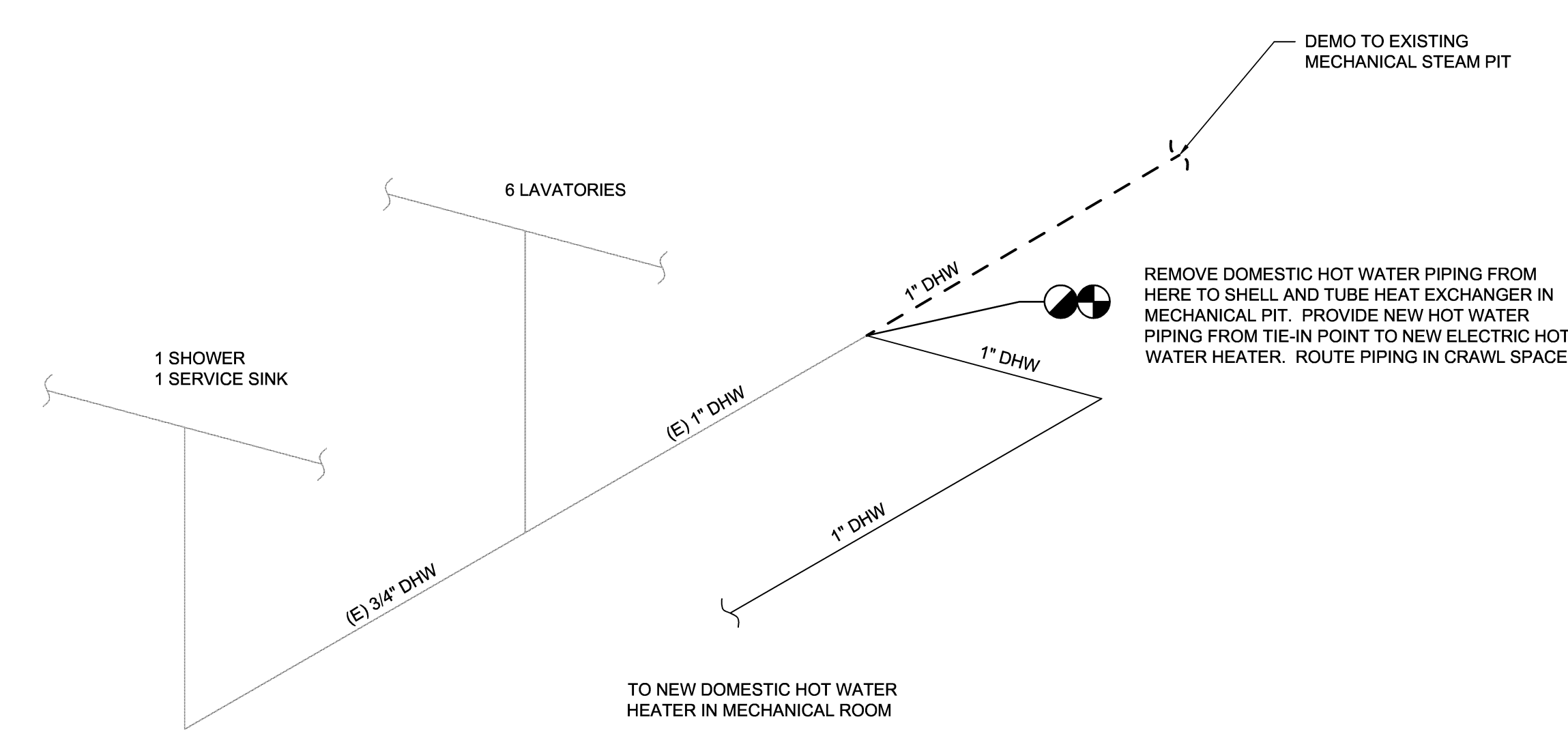


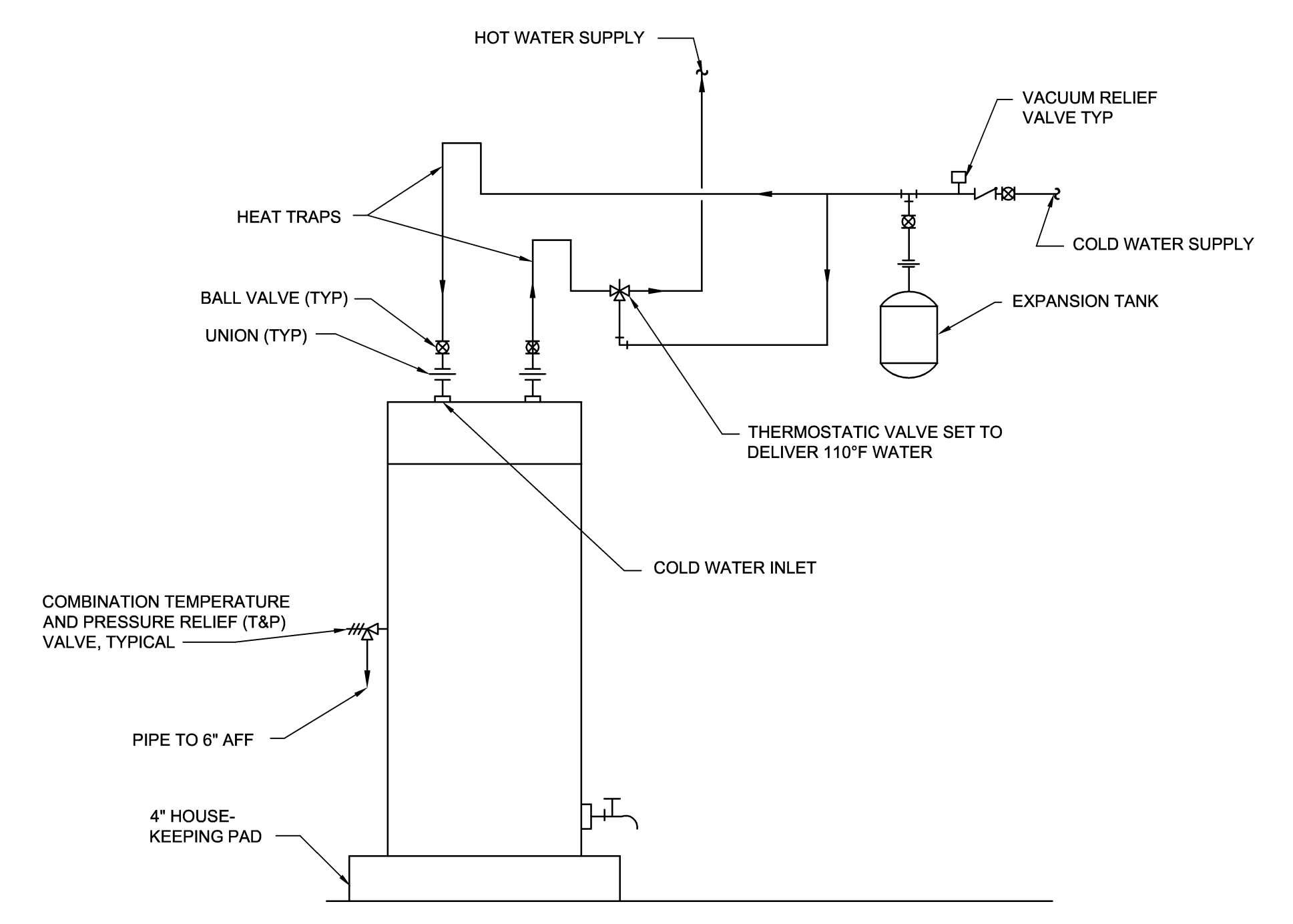
SYM.	PREP'D BY	DATE	APPROVED



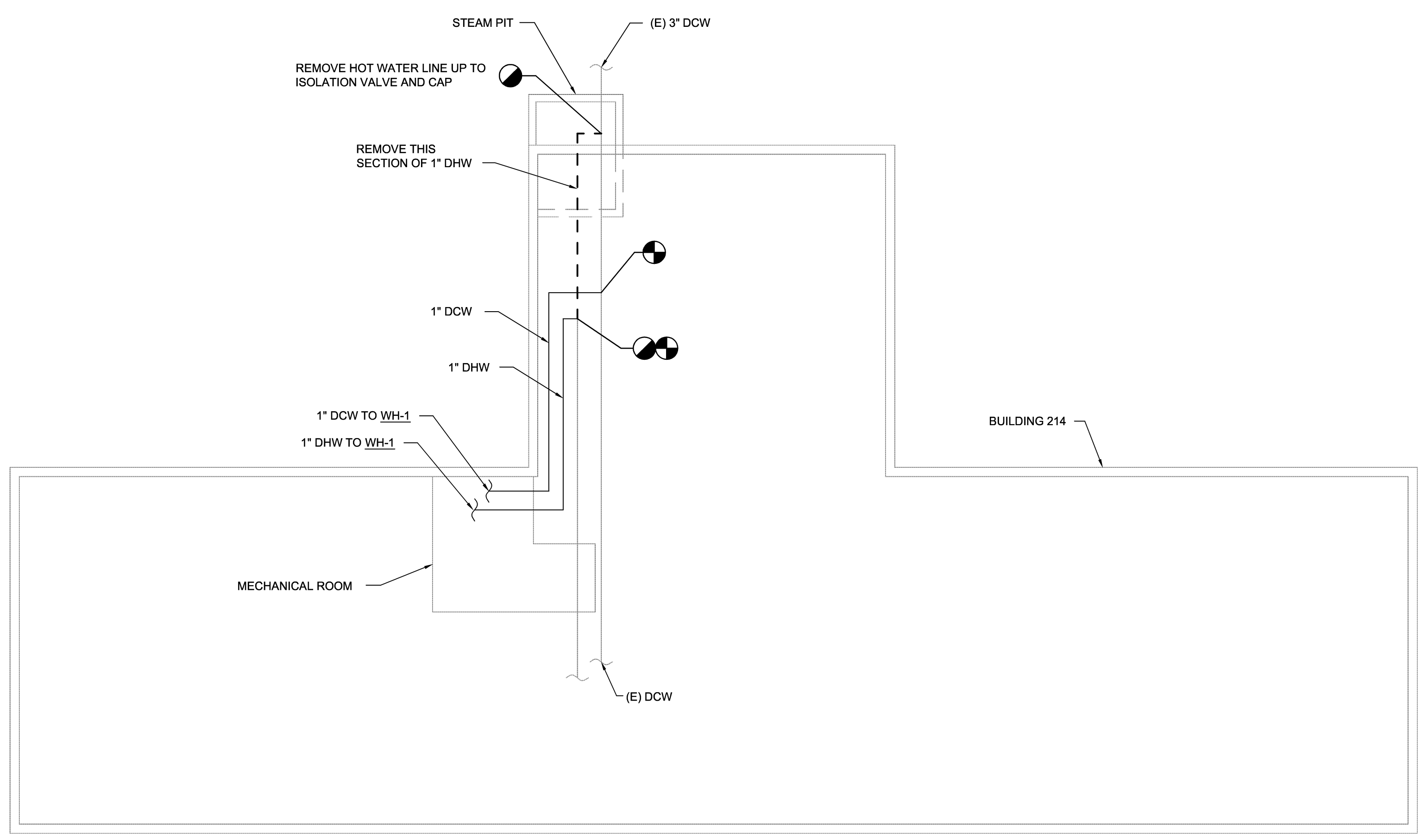
DOMESTIC COLD WATER RISER DIAGRAM
NOT TO SCALE



DOMESTIC HOT WATER RISER DIAGRAM
NOT TO SCALE



ELECTRIC WATER HEATER DETAIL
NOT TO SCALE

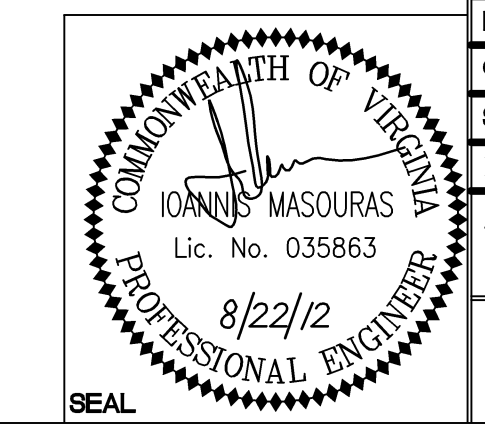


DOMESTIC WATER SITE PLAN
NOT TO SCALE

- PLUMBING NOTES:**
- THE LOCATION OF ALL PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS.
 - STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE MIXING VALVE.

DISCLOSURE OF INFORMATION
Contractor shall comply as follows:

- The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
The Contracting Officer has given prior written approval; or
The information is otherwise in the public domain before the date of release.
- Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

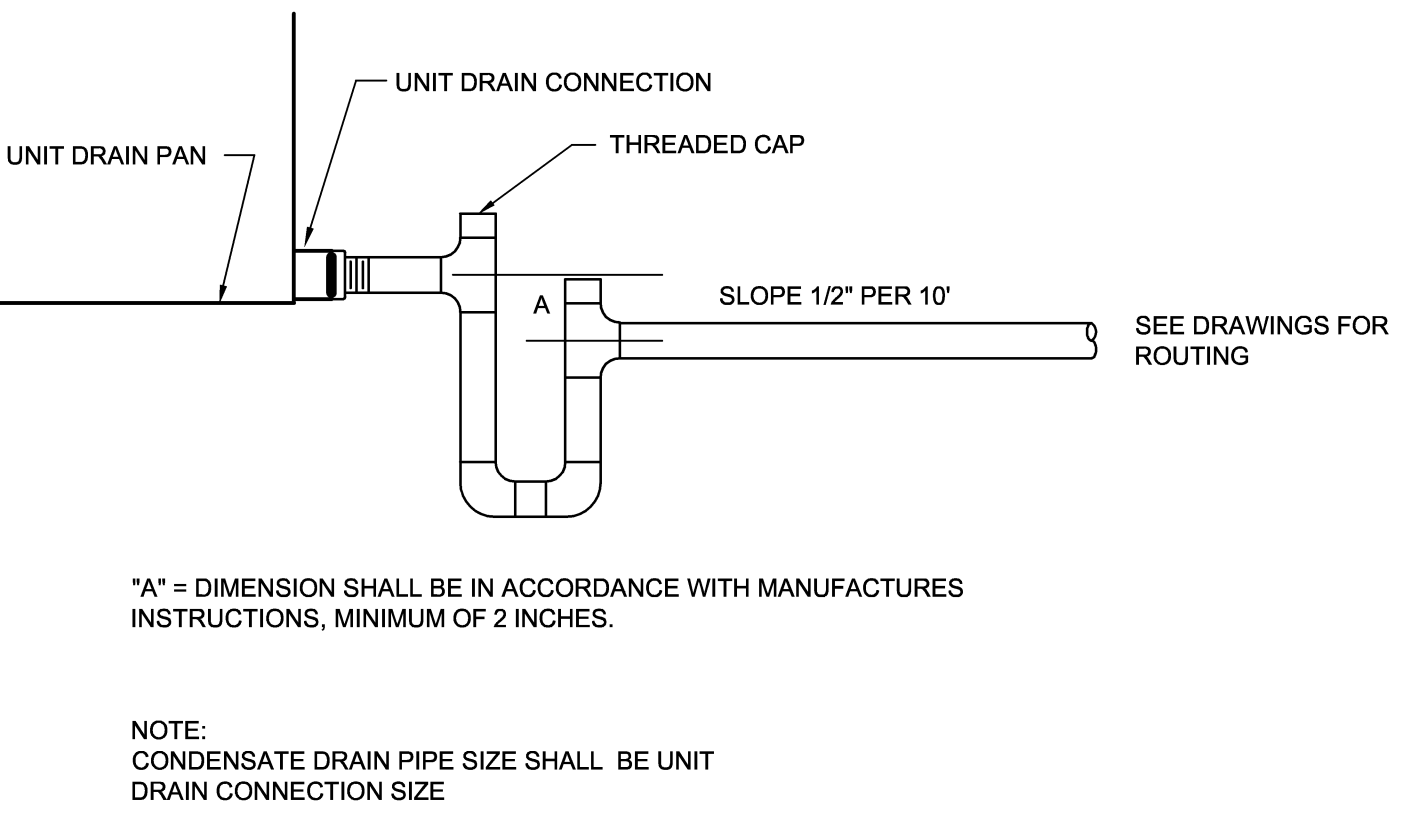


WileyWilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.264.7242 wileywilson.com		M-104C PROJECT NO. CP12-0091	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		NAVAL FACILITIES ENGINEERING COMMAND	
DES. IM	DR. SWL	HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 214 PLUMBING PLAN, DIAGRAMS & DETAILS	
CHK. JHE	SUBMITTED BY:	NAVFAC DRAWING NO. 60011361	CONSTR CONTR NO. N40085-12-B-0091
DESIGN DR.	APPROVED PWO OR OICC	DATE 8/22/12	DATE 05-12-0091
SATISFACTORY TO	DATE	SCALE: AS SHOWN	SPEC No. 05-12-0091
SHEET 17 OF 84		SHEET 17 OF 84	

SYM.	PREP'D BY	DATE	APPROVED

HEAT PUMP SCHEDULE					
INDOOR UNIT DESIGNATION	HP-1A	HP-2A	HP-3A		
OUTDOOR UNIT DESIGNATION	HP-1B	HP-2B	HP-3B		
LOCATION	VARIOUS	VARIOUS	VARIOUS		
MINIMUM COMBINED SEER RATING PER ARI	17.0	17.0	17.0		
MINIMUM COMBINED EER RATING PER ARI	12.2	12.2	12.2		
INDOOR UNIT	EVAPORATOR	TOTAL AIRFLOW (CFM)	1580	1580	1580
		OUTSIDE AIRFLOW (CFM)	155	265	235
		EXTERNAL STATIC PRESSURE (IN-WC)	.6	.6	.6
		TOTAL COOLING CAPACITY (MBH)	47.5	47.5	47.5
		HEAT PUMP HEATING CAPACITY AT 17° F (MBH)	29.2	29.2	29.2
	ELECTRICAL	ELECTRIC HEATING CAPACITY (KW)	5.0	5.0	5.0
		BLOWER MOTOR FLA (A)	9.1	9.1	9.1
		TOTAL MCA (A)	27	27	27
		VOLTAGE	208	208	208
		PHASE	1	1	1
FREQUENCY (Hz)	60	60	60		
BASED ON	LENNOX	LENNOX	LENNOX		
INDOOR UNIT MODEL	CBX32MV-048	CBX32MV-048	CBX32MV-048		
REFRIGERANT	R-410A	R-410A	R-410A		
OUTDOOR UNIT	AMBIENT DESIGN TEMPERATURE (DEG F)	95	95	95	
		MINIMUM CIRCUIT AMPACITY (A)	28.5	28.5	28.5
		MAXIMUM OVERCURRENT PROTECTION (A)	45	45	45
		MINIMUM HEATING COP AT 17° F	2.5	2.5	2.5
	ELECTRICAL	MINIMUM HEATING COP AT 47° F	3.32	3.32	3.32
		MINIMUM HEAT PUMP HSPF	8.7	8.7	8.7
		VOLTAGE (V)	208	208	208
		PHASE	1	1	1
FREQUENCY (Hz)	60	60	60		
BASED ON	LENNOX	LENNOX	LENNOX		
OUTDOOR SYSTEM MODEL	XP21-048-230	XP21-048-230	XP21-048-230		
REMARKS	1, 2 & 3	1, 2 & 3	1, 2 & 3		

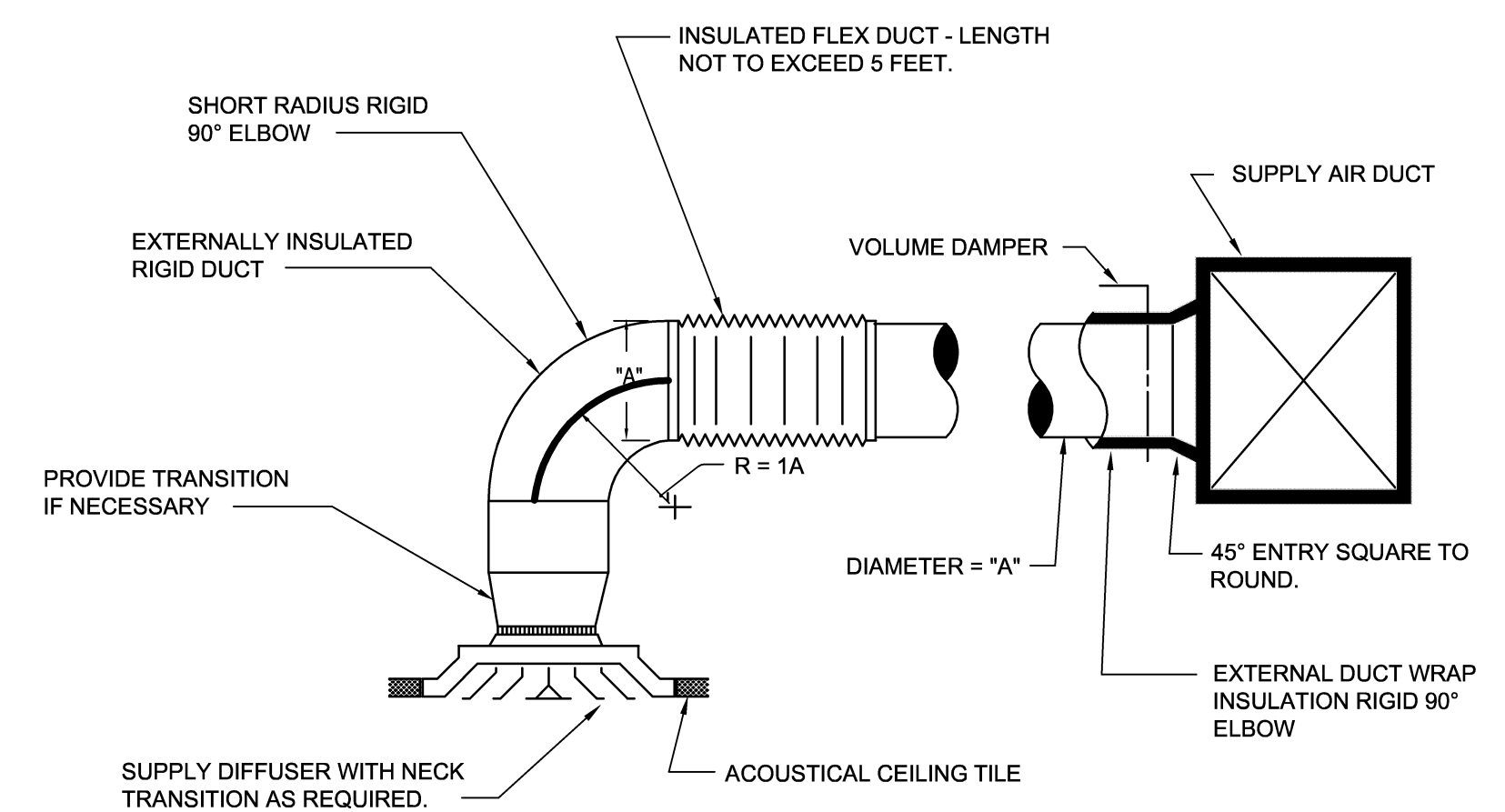
- REMARKS LEGEND:
1. PROVIDE CONDENSING UNIT SHUTOFF MOISTURE SENSOR IN AUXILIARY PORT OF INDOOR UNIT DRAIN PAN.
 2. PROVIDE SIDE RETURN UNIT STAND.
 3. PROVIDE ECM MOTOR ON INDOOR UNIT.



**AC DRAIN FOR HEAT PUMP AIR HANDLER
NEGATIVE PRESSURE DRAIN PAN**
NO SCALE

ENERGY RECOVERY VENTILATOR SCHEDULE		ERV-1
DESIGNATION	TOTAL FAN AIRFLOW (CFM)	655
	EXTERNAL STATIC PRESSURE (IN. WG)	.5
SUPPLY FAN	TOTAL FAN AIRFLOW (CFM)	545
	EXTERNAL STATIC PRESSURE (IN. WG)	.5
ENTHALPY WHEEL	OPERATING OUTSIDE AIRFLOW	655
	OPERATING EXHAUST AIRFLOW	545
	OUTDOOR EAT DB/WB (COOLING)	95/79
	OUTDOOR EAT DB/WB (HEATING)	20/16.6
	EXHAUST EAT DB/WB (COOLING)	75/83
	EXHAUST EAT DB/WB (HEATING)	70/53
	DELIVERED CONDITIONS DB/WB (COOLING)	81.168.5
	DELIVERED CONDITIONS DB/WB (HEATING)	52.143.4
	SUPPLY (MERV)	8
	EXHAUST (MERV)	8
ELECTRICAL	MCA (A)	18.3
	MOCIP (A)	25
	VOLTS (V)	115
	PHASE	1
FREQUENCY (Hz)	60	
BASED ON		GREENHECK
MODEL		MINVENT-750
REMARKS		1

- REMARKS LEGEND:
1. PROVIDE FACTORY MOUNTED CONTROLS FOR UNITS INCLUDING ALL REQUIRED MOTOR STARTERS, PROVIDE FACTORY REMOTE PANEL INCLUDING INDICATION FOR DIRTY FILTER, HAND-OFF-AUTO SWITCH, AND 7 DAY TIME CLOCK.



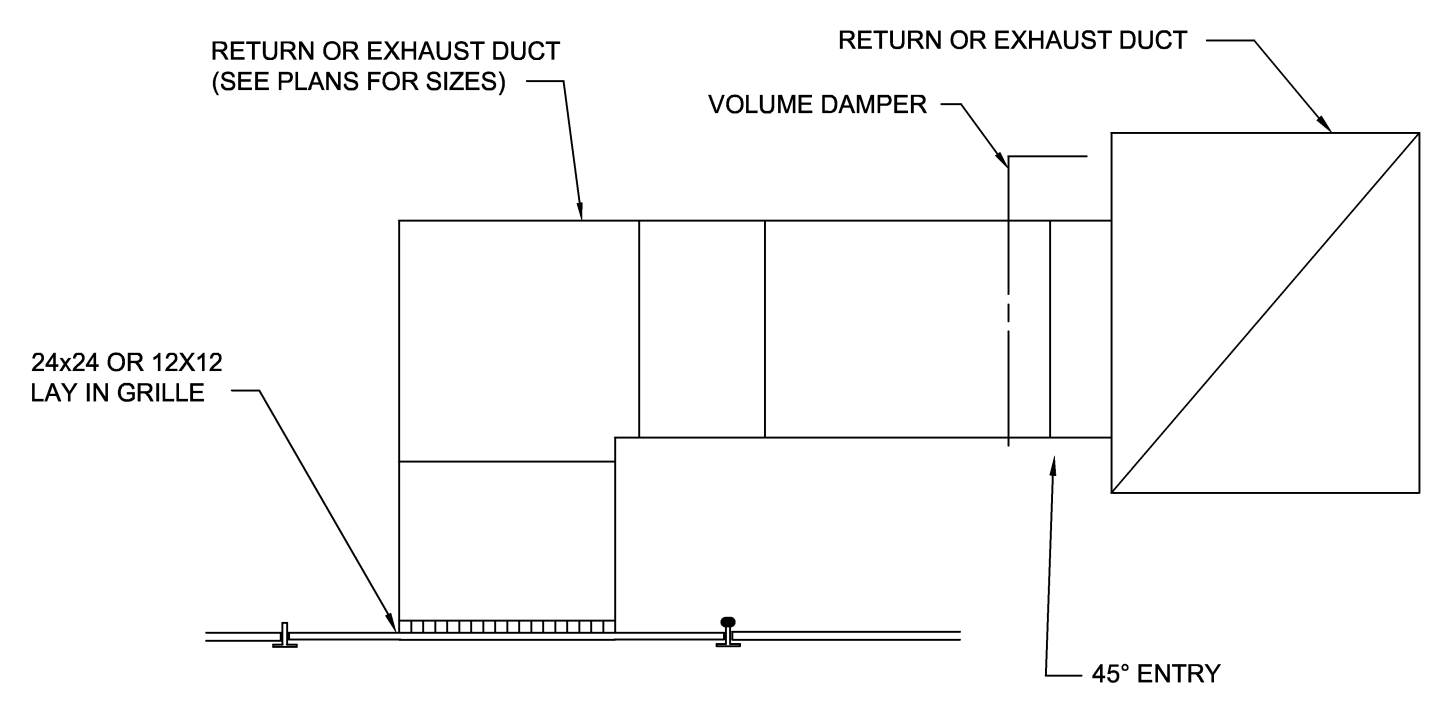
**TYPICAL CEILING SUPPLY
DIFFUSER CONNECTION**
SCALE: NONE

ELECTRIC DOMESTIC WATER HEATER		WH-1
DESIGNATION		WH-1
LOCATION		MECH ROOM
STORAGE (GALLONS)		60
TOTAL CAPACITY (KW)		6
RECOVERY RATE @ 90 DEG F (GPH)		27
ELECTRICAL		--
VOLTS		208
PHASE		1
FREQUENCY (Hz)		60
REMARKS		1

- REMARKS LEGEND:
1. PROVIDE 3.2 GALLON EXPANSION TANK OR LARGER SUCH AS AMTROL ST-7 OR SIMILAR.

HOODED GRAVITY INTAKE SCHEDULE		HGI-1
DESIGNATION		HGI-1
USAGE		INTAKE
AIRFLOW (CFM)		655
STATIC PRESSURE (IN H2O)		.031
THROAT AREA (SF)		1.45
THROAT VELOCITY (FPM)		452
THROAT DIAMETER (IN)		16.25
SELECTION BASED ON		GREENHECK
MODEL		GRSI-16
REMARKS		1

- REMARKS LEGEND:
1. PROVIDE BIRD SCREEN.



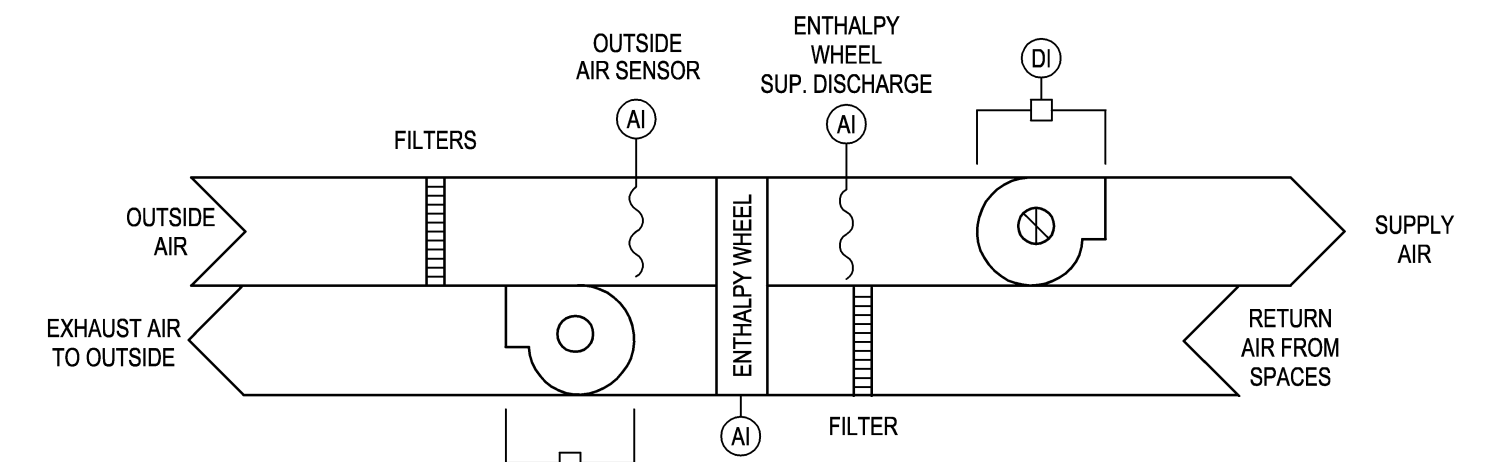
CEILING RETURN/EXHAUST GRILLE
SCALE: NONE

ATTIC FAN SCHEDULE		
DESIGNATION	AF-1	AF-2
LOCATION	ROOF	ROOF
USAGE	ATTIC VENTILATION	ATTIC VENTILATION
FAN DATA	--	--
AIRFLOW (SCFM)	1700	1700
EXTERNAL SP (IN-H2O)	.125	.125
RPM	1725	1725
DRIVE TYPE	DIRECT	DIRECT
MOTOR DATA	--	--
HORSEPOWER	1/2	1/2
RPM	1750	1750
VOLTS	115	115
PHASE	60	60
HERTZ	1	1
SELECTION BASED ON	GREENHECK	GREENHECK
MODEL	LD-120-VG	LD-120-VG
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

- REMARKS LEGEND:
1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER, CONTINUOUS DUTY RATED.
 2. PROVIDE FAN WITH FACTORY MOUNTED DISCONNECT.
 3. PROVIDE FAN WITH ECM MOTOR AND WITH ADJUSTABLE SPEED.
 4. PROVIDE ATTIC MOUNTED THERMOSTATIC CONTROL, SET THERMOSTAT TO OPERATE FAN WHEN ATTIC EXCEEDS 65 DEG F.

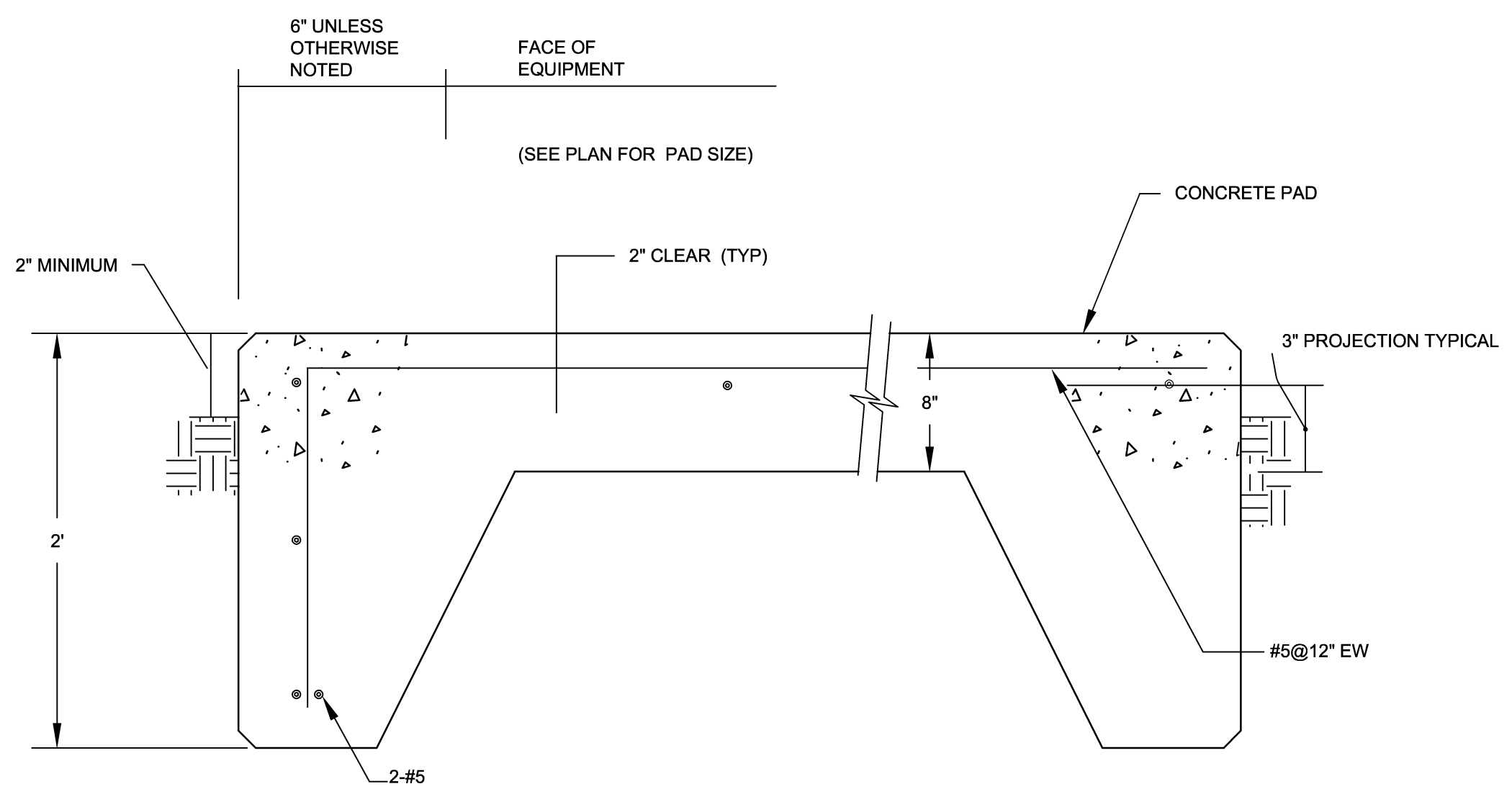
AIR TERMINAL DEVICE SCHEDULE				
DESIGNATION	S1	S2	R1	E1
TYPE	SUPPLY	SUPPLY	RETURN	EXHAUST
NECK SIZE	A=6"	A=6"	24x24	12x12
	B=8"	B=8"		
	C=10"	C=10"		
	D=12"	D=12"		
FRAME STYLE	LAY-IN	LAY-IN	LAY-IN	LAY-IN
AIR PATTERN	4 WAY	4 WAY	--	--
MAX NC RATING	25	25	25	25
MATERIAL	STEEL	STEEL	STEEL	STEEL
FINISH	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL
BASED ON	PRICE	PRICE	PRICE	PRICE
MODEL	SCD	VPD-HC	81 SERIES	81 SERIES
REMARKS	--	1	--	--

- REMARKS LEGEND:
1. PROVIDE A SELF-MODULATING DIFFUSER WITH A COOLING SET POINT OF 75 DEG F (ADJUSTABLE) AND A HEATING SET POINT OF 68 DEG F (ADJUSTABLE).

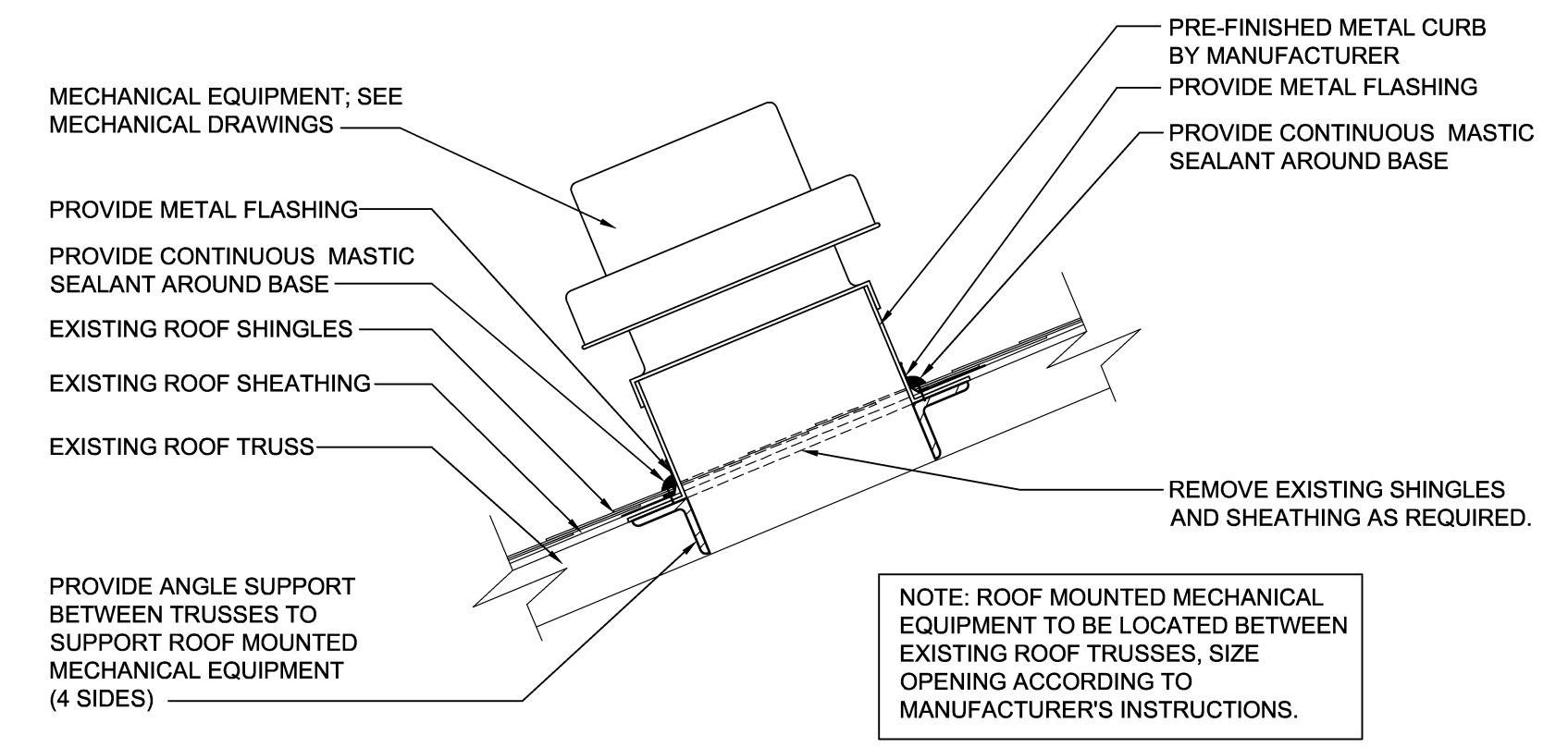


ENERGY RECOVERY VENTILATOR CONTROL DIAGRAM
SCALE: NONE

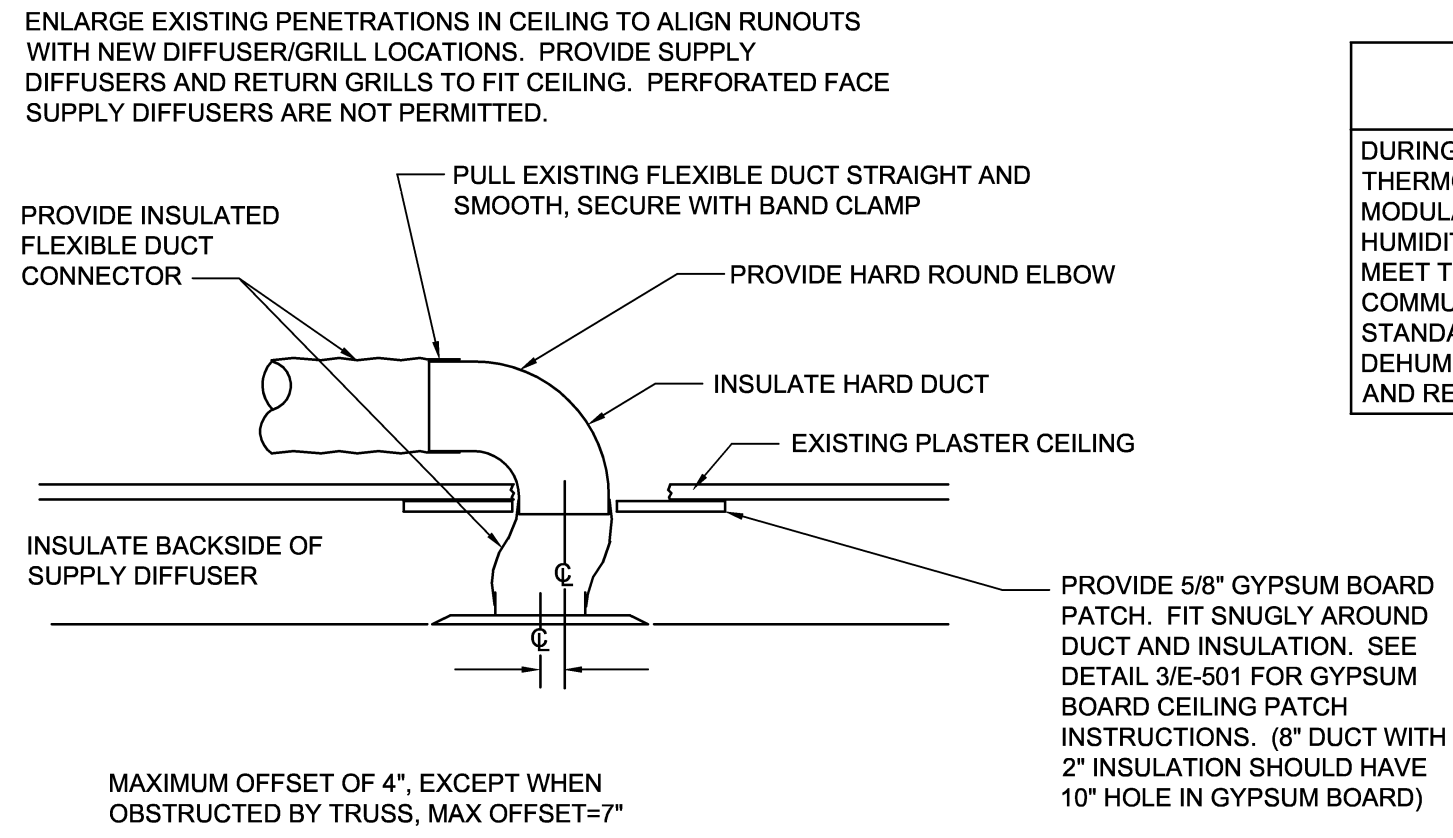
- SEQUENCE OF OPERATION:
- DURING THE OCCUPIED MODE, THE ENERGY RECOVERY VENTILATOR SHALL RUN CONTINUOUSLY. DURING UNOCCUPIED MODE, THE UNIT WILL BE DISABLED WHERE THE SUPPLY AND EXHAUST FANS ARE OFF AND THE WHEEL DOES NOT ROTATE.
- DURING OPERATION, DIFFERENTIAL PRESSURE SENSORS SHALL BE USED TO CONFIRM STATUS OF SUPPLY AND EXHAUST FANS. A TACHOMETER SHALL BE USED TO VERIFY WHEEL OPERATION. IF AT ANY TIME THE UNIT IS COMMANDED ON AND EITHER OF THESE THREE OPERATIONAL PIECES OF THE UNIT ARE NOT FUNCTIONING, THE ENTIRE UNIT SHALL BE SHUT DOWN AND AN ALARM SENT.



EXTERIOR EQUIPMENT PAD DETAIL
SCALE: NONE



ROOF PENETRATION DETAIL
SCALE: NONE



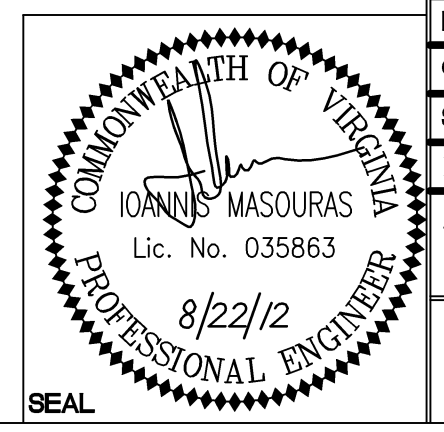
TYP. DUCT TAKE OFF DETAIL
SCALE: NONE

SPLIT SYSTEM HEAT PUMP SEQUENCE OF OPERATIONS

DURING THE OCCUPIED MODE, THE SPLIT SYSTEM AIR HANDLER FAN SHALL RUN CONTINUOUSLY TO SATISFY ROOM COMBINED THERMOSTAT AND HUMIDISTAT. THE SUPPLY AIR FAN ECM MOTOR SHALL REMAIN ON DURING OCCUPIED MODE AND THE SPEED SHALL MODULATE ACCORDING TO THE MANUFACTURER'S STANDARD SEQUENCE OF OPERATION TO CONTROL ROOM TEMPERATURE AND LIMIT HUMIDITY. IN THE HEATING MODE, THE THERMOSTAT SHALL NOT ENERGIZE THE AUXILIARY ELECTRIC HEAT IF THE HEAT PUMP MODE CAN MEET THE DEMAND, SUCH AS DURING WARM-UP FROM NIGHT SET BACK USING A SMART RECOVERY CAPABLE THERMOSTAT. FACTORY COMMUNICATING THERMOSTAT SHALL BE PROVIDED WITH 7 DAY PROGRAMMING TO ALLOW NIGHT/WEEKEND SET-BACK, COMMUNICATE ALL STANDARD MANUFACTURER'S ALARMS FROM THE UNITS TO THE THERMOSTAT, AND INDICATE DIRTY FILTER. THERMOSTAT SHALL INCLUDE DEHUMIDIFICATION CONTROL TO INTEGRATE WITH HEAT PUMP CONTROLLER TO REDUCE FAN SPEED TO INCREASE LATENT PERFORMANCE AND REDUCE INDOOR AIR HUMIDITY.

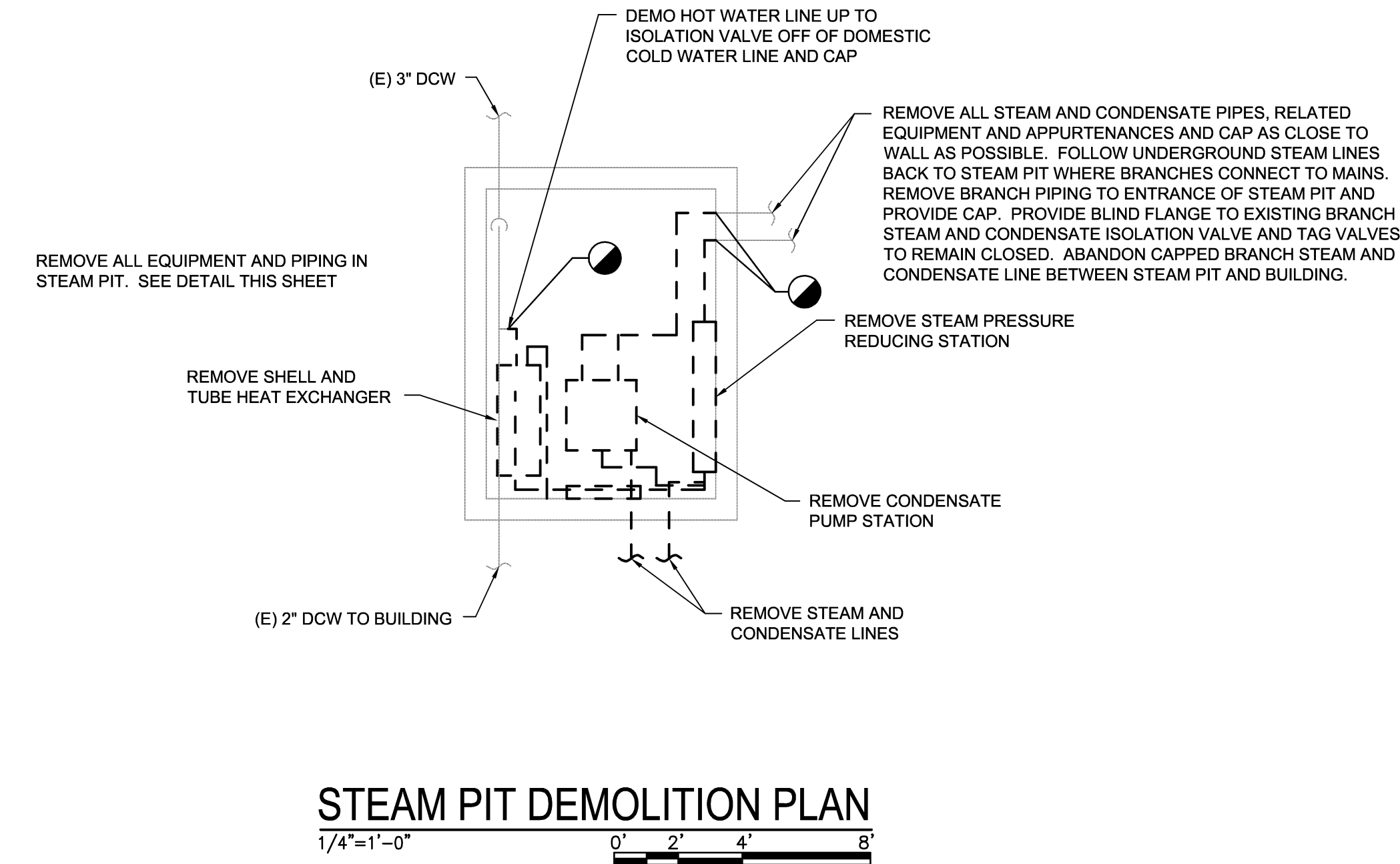
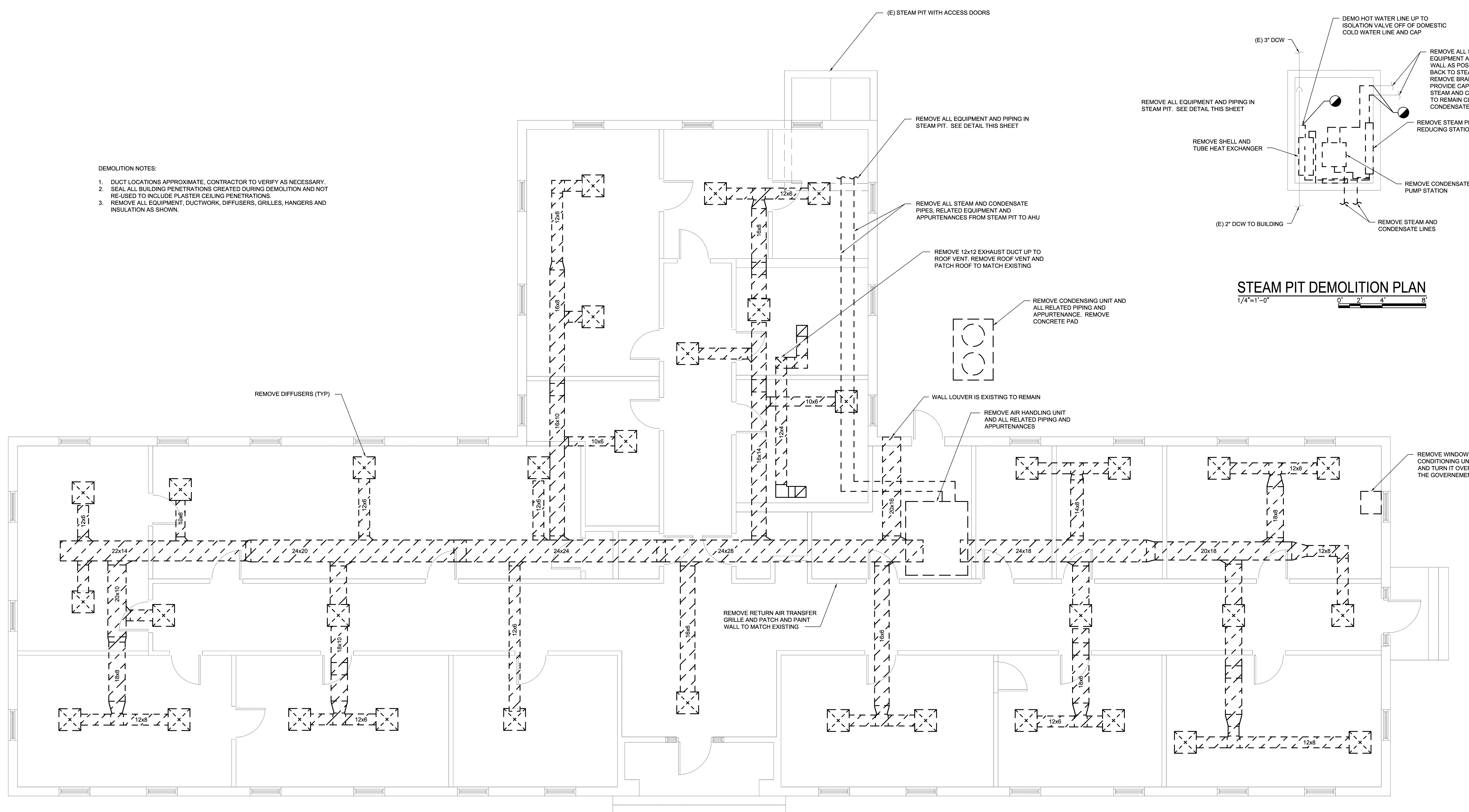
DISCLOSURE OF INFORMATION
Contractor shall comply as follows:

- The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless the Contracting Officer has given prior written approval; or
- The information is otherwise in the public domain before the date of release.
- Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.



WileyWilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.264.7242 wileywilson.com		M-104D PROJECT NO. CP12-0091 NAVAL FACILITIES ENGINEERING COMMAND	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 214 SCHEDULES, DETAILS & CONTROLS		NAVFAC DRAWING NO. 60011362	
DES. IM	DR. SWL	SIZE E	CODE IDENT NO. 80091
CHK. JHE	SUBMITTED BY:	DATE	DATE
DESIGN DR.	APPROVED PWO OR OIOC	DATE	DATE
SATISFACTORY TO	DATE	SPEC No. 05-12-0091	SHEET 18 OF 84

SYM.	PREP'D BY	DATE	APPROVED



DEMOLITION NOTES:

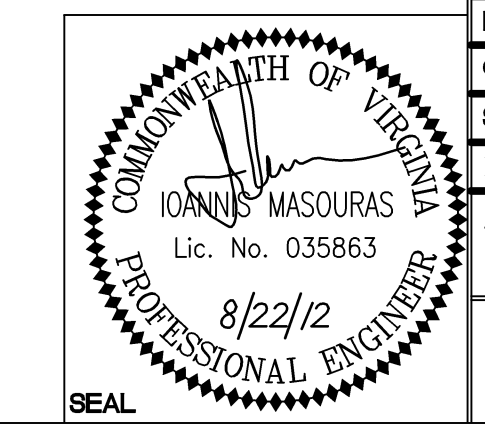
1. DUCT LOCATIONS APPROXIMATE. CONTRACTOR TO VERIFY AS NECESSARY.
2. SEAL ALL BUILDING PENETRATIONS CREATED DURING DEMOLITION AND NOT RE-USED TO INCLUDE PLASTER CEILING PENETRATIONS.
3. REMOVE ALL EQUIPMENT, DUCTWORK, DIFFUSERS, GRILLES, HANGERS AND INSULATION AS SHOWN.

BUILDING 216 MECHANICAL DEMOLITION PLAN
1/4"=1'-0"

DISCLOSURE OF INFORMATION
Contractor shall comply as follows:

- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless the Contracting Officer has given prior written approval; or
- (b) The information is otherwise in the public domain before the date of release.
- (c) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

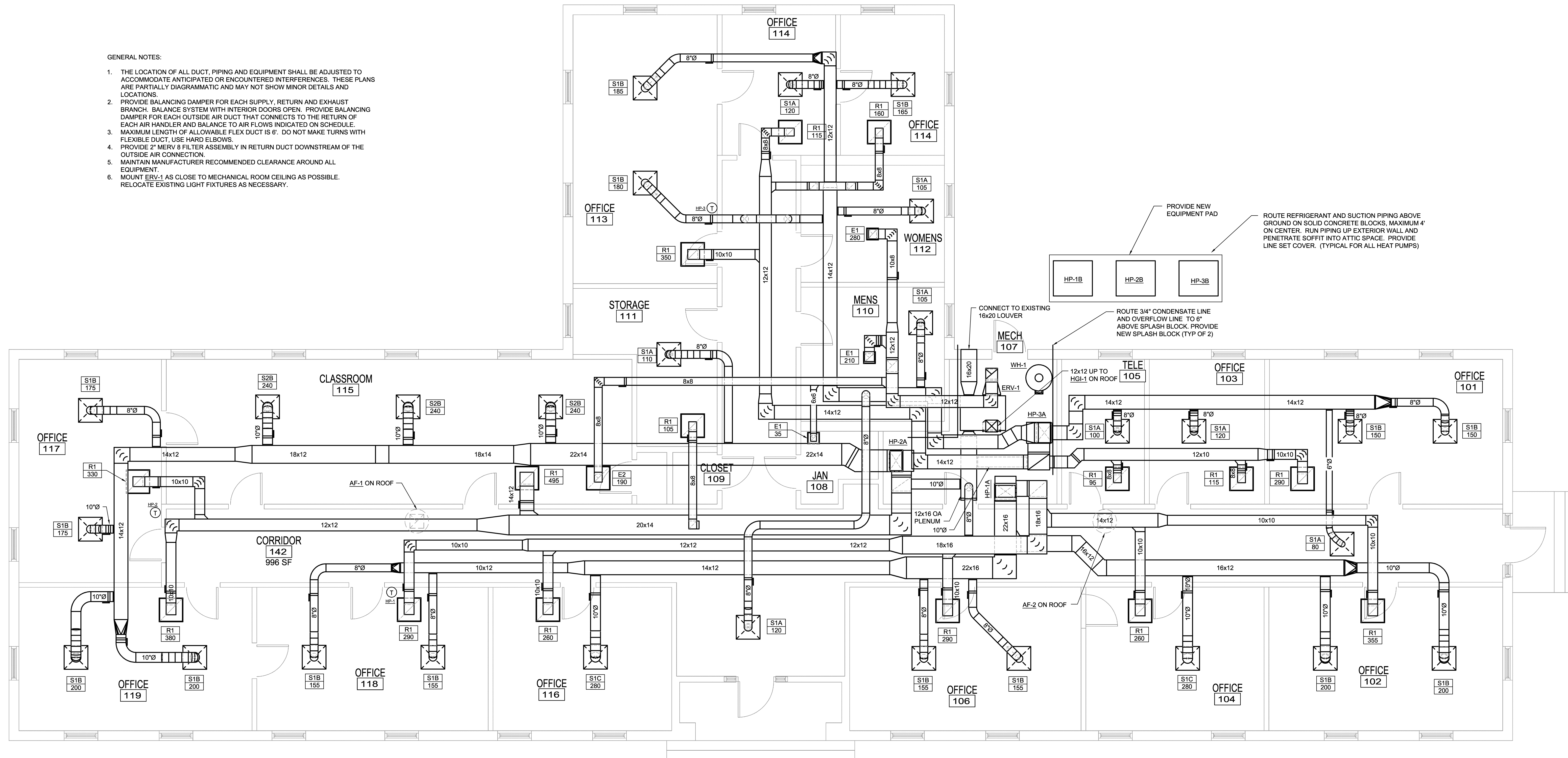


 WileyWilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com		M-105A PROJECT NO. CP12-0091	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		NAVAL FACILITIES ENGINEERING COMMAND	
DES. IM	DR. SWL	HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 216 MECHANICAL DEMOLITION PLAN	
CHK. JHE	DESIGN DR.	APPROVED PWO OR OIC	DATE
SUBMITTED BY:		SIZE E	CODE IDENT NO. 80091
SATISFACTORY TO		DATE	NAVFAC DRAWING NO. 60011363
SCALE: AS SHOWN		SPEC No. 05-12-0091	SHEET 19 OF 84

SYM.	PREP'D BY	DATE	APPROVED

GENERAL NOTES:

1. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS.
2. PROVIDE BALANCING DAMPER FOR EACH SUPPLY, RETURN AND EXHAUST BRANCH. BALANCE SYSTEM WITH INTERIOR DOORS OPEN. PROVIDE BALANCING DAMPER FOR EACH OUTSIDE AIR DUCT THAT CONNECTS TO THE RETURN OF EACH AIR HANDLER AND BALANCE TO AIR FLOWS INDICATED ON SCHEDULE.
3. MAXIMUM LENGTH OF ALLOWABLE FLEX DUCT IS 6'. DO NOT MAKE TURNS WITH FLEXIBLE DUCT. USE HARD ELBOWS.
4. PROVIDE 2" MERV 8 FILTER ASSEMBLY IN RETURN DUCT DOWNSTREAM OF THE OUTSIDE AIR CONNECTION.
5. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT.
6. MOUNT ERV-1 AS CLOSE TO MECHANICAL ROOM CEILING AS POSSIBLE. RELOCATE EXISTING LIGHT FIXTURES AS NECESSARY.



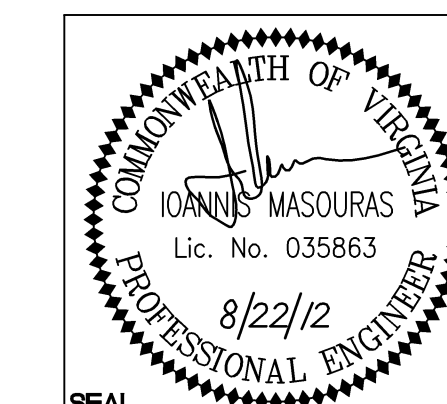
BUILDING 216 MECHANICAL NEW WORK PLAN
 1/4"=1'-0"
 0 2 4 8

DISCLOSURE OF INFORMATION

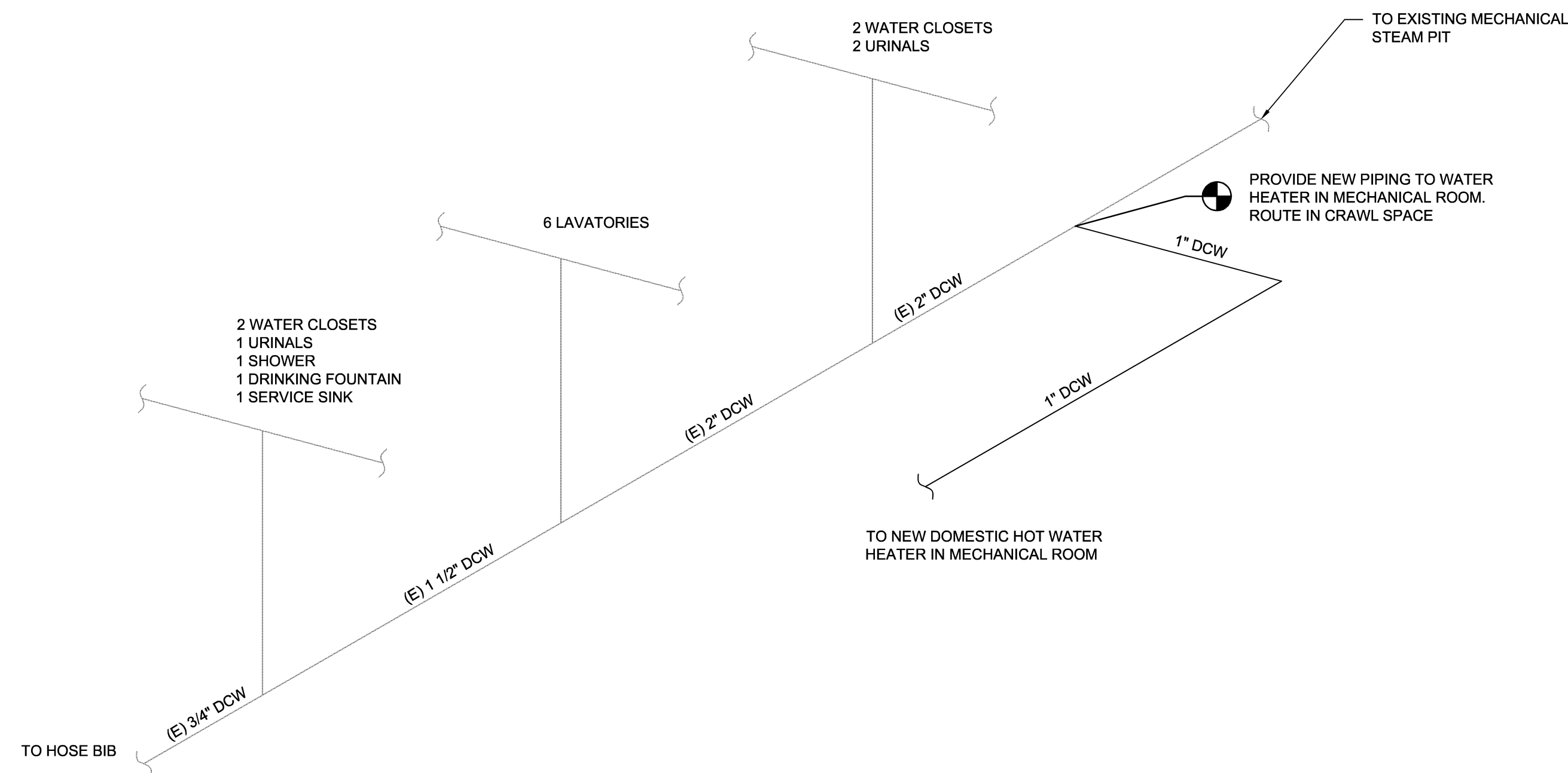
Contractor shall comply as follows:

- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
 The Contracting Officer has given prior written approval; or
 The information is otherwise in the public domain before the date of release.
- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- (c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

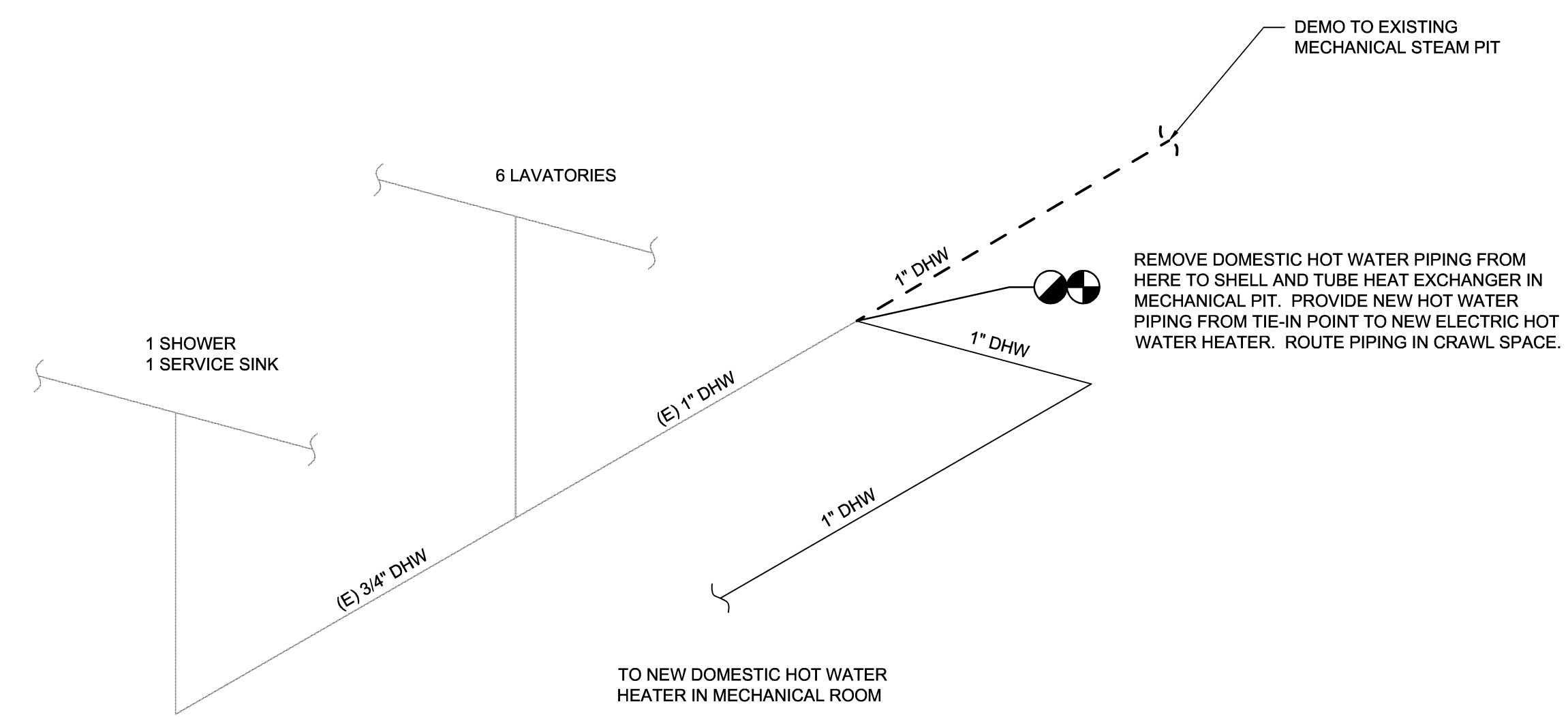
WileyWilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.264.7242 wileywilson.com		M-105B PROJECT NO. CP12-0091 NAVAL FACILITIES ENGINEERING COMMAND	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 216 MECHANICAL NEW WORK PLAN		NAVFAC DRAWING NO. 60011364	
DES. IM	DR. SWL	DATE	SIZE
CHK. JHE		DATE	CODE IDENT NO.
SUBMITTED BY:		DATE	80091
DESIGN DR.		DATE	CONSTR CONTR NO.
APPROVED PWO OR OIC	DATE	DATE	N40085-12-B-0091
SATISFACTORY TO	DATE	SCALE: AS SHOWN	SPEC No. 05-12-0091
			SHEET 20 OF 84



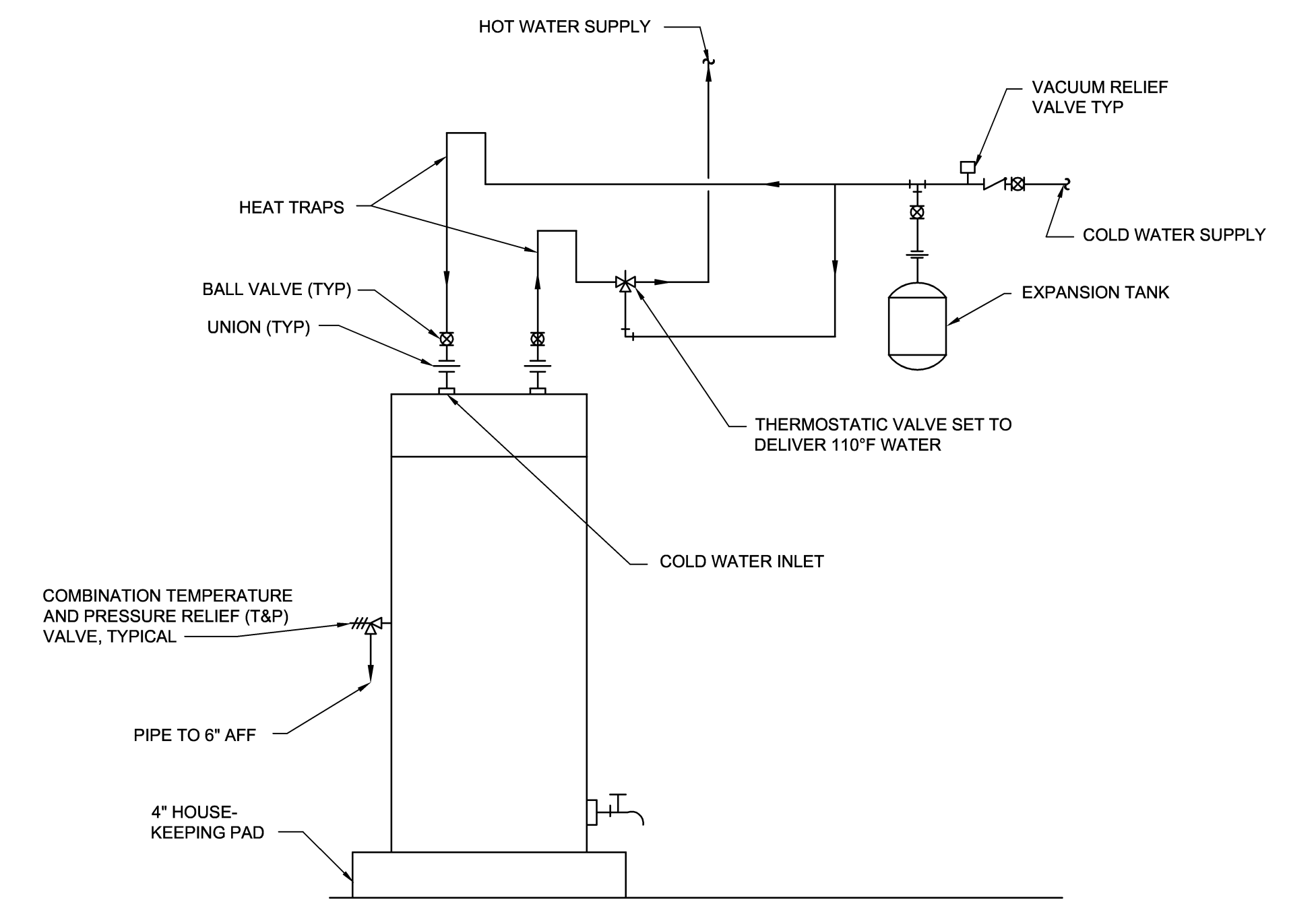
SYM.	PREP'D BY	DATE	APPROVED



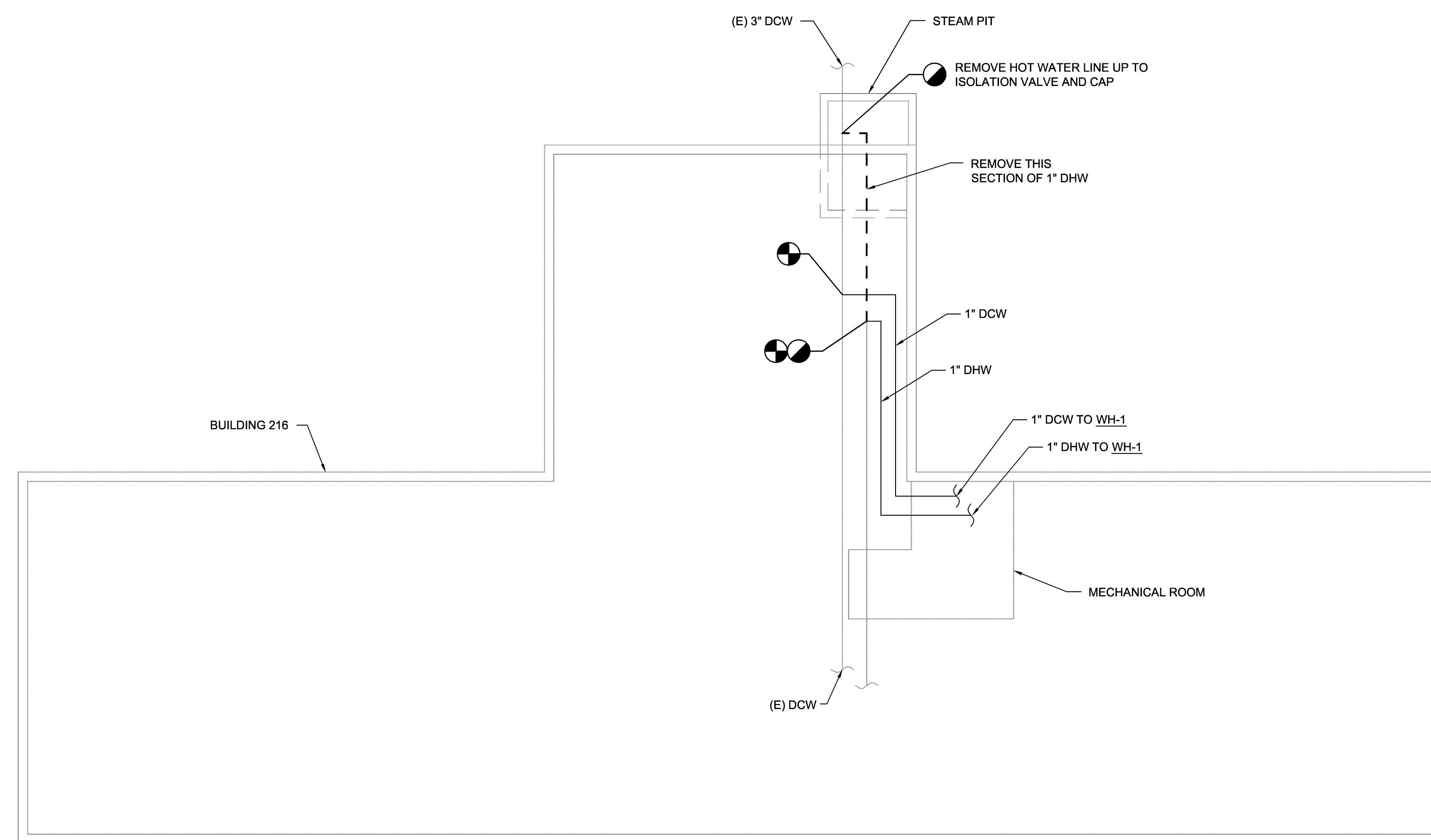
DOMESTIC COLD WATER RISER DIAGRAM
NOT TO SCALE



DOMESTIC HOT WATER RISER DIAGRAM
NOT TO SCALE



ELECTRIC WATER HEATER DETAIL
NOT TO SCALE

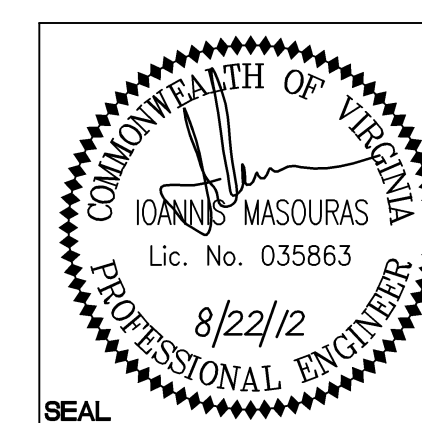


DOMESTIC WATER SITE PLAN
NOT TO SCALE

- PLUMBING NOTES:**
- THE LOCATION OF ALL PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS.
 - STORE DOMESTIC HOT WATER AT 140 DEG F AND TEMPER TO 110 DEG F BEFORE BEING SUPPLIED TO BUILDING. PROVIDE MIXING VALVE.

DISCLOSURE OF INFORMATION
Contractor shall comply as follows:

- The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
 - The Contracting Officer has given prior written approval; or
 - The information is otherwise in the public domain before the date of release.
- Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

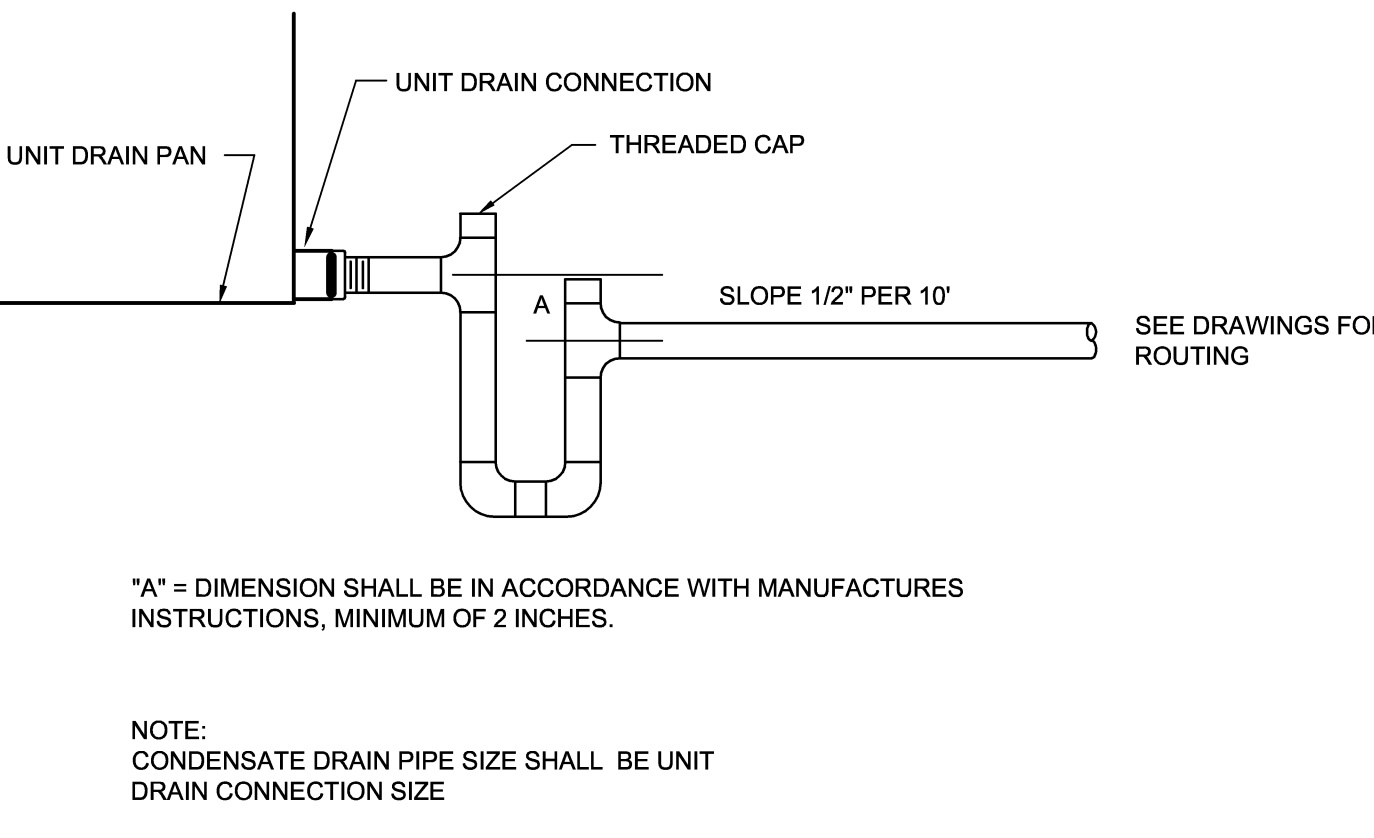


WileyWilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.264.7242 wileywilson.com		M-105C PROJECT NO. CP12-0091	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		NAVAL FACILITIES ENGINEERING COMMAND	
DES. IM	DR. SWL	HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 216 PLUMBING PLAN, DIAGRAMS & DETAILS	
CHK. JHE	SUBMITTED BY:	NAVFAC DRAWING NO. 60011365	CONSTR CONTR NO. N40085-12-B-0091
DESIGN DR.	APPROVED PWO OR OICC	DATE	DATE 8/22/12
SATISFACTORY TO	DATE	SIZE E	CODE IDENT NO. 80091
		SCALE: AS SHOWN	SPEC No. 05-12-0091
			SHEET 21 OF 84

SYM	PREP'D BY	DATE	APPROVED

HEAT PUMP SCHEDULE						
INDOOR UNIT DESIGNATION	HP-1A	HP-2A	HP-3A			
OUTDOOR UNIT DESIGNATION	HP-1B	HP-2B	HP-3B			
LOCATION	VARIOUS	VARIOUS	VARIOUS			
MINIMUM COMBINED SEER RATING PER ARI	17.0	17.0	17.0			
MINIMUM COMBINED EER RATING PER ARI	12.2	12.2	12.2			
INDOOR UNIT	EVAPORATOR	TOTAL AIRFLOW (CFM)	1580	1580	1580	
		OUTSIDE AIRFLOW (CFM)	110	270	455	
		EXTERNAL STATIC PRESSURE (IN-WC)	.6	.6	.6	
		TOTAL COOLING CAPACITY (MBH)	47.5	47.5	47.5	
		HEAT PUMP HEATING CAPACITY AT 17° F (MBH)	29.2	29.2	29.2	
	ELECTRICAL	ELECTRIC HEATING CAPACITY (KW)	5.0	5.0	5.0	
		BLOWER MOTOR FLA (A)	9.1	9.1	9.1	
		TOTAL MCA (A)	27	27	27	
		VOLTAGE	208	208	208	
		PHASE	1	1	1	
BASED ON	LENNOX	LENNOX	LENNOX			
INDOOR UNIT MODEL	CBX32MV-048	CBX32MV-048	CBX32MV-048			
REFRIGERANT	R-410A	R-410A	R-410A			
OUTDOOR UNIT	AMBIENT DESIGN TEMPERATURE (DEG F)	95	95	95		
		MINIMUM CIRCUIT AMPACITY (A)	28.5	28.5	28.5	
			MAXIMUM OVERCURRENT PROTECTION (A)	45	45	45
			MINIMUM HEATING COP AT 17° F	2.5	2.5	2.5
			MINIMUM HEATING COP AT 47° F	3.32	3.32	3.32
	ELECTRICAL	MINIMUM HEAT PUMP HSPF	8.7	8.7	8.7	
		VOLTAGE (V)	208	208	208	
		PHASE	1	1	1	
		FREQUENCY (Hz)	60	60	60	
		BASED ON	LENNOX	LENNOX	LENNOX	
OUTDOOR SYSTEM MODEL	XP21-048-230	XP21-048-230	XP21-048-230			
REMARKS	1, 2 & 3	1, 2 & 3	1, 2 & 3			

- REMARKS LEGEND:
1. PROVIDE CONDENSING UNIT SHUTOFF MOISTURE SENSOR IN AUXILIARY PORT OF INDOOR UNIT DRAIN PAN.
 2. PROVIDE SIDE RETURN UNIT STAND.
 3. PROVIDE ECM MOTOR ON INDOOR UNIT.



AC DRAIN FOR HEAT PUMP AIR HANDLER NEGATIVE PRESSURE DRAIN PAN
NO SCALE

ENERGY RECOVERY VENTILATOR SCHEDULE		ERV-1
SUPPLY FAN	TOTAL FAN AIRFLOW (CFM)	835
	EXTERNAL STATIC PRESSURE (IN. WG)	.5
EXHAUST FAN	TOTAL FAN AIRFLOW (CFM)	715
	EXTERNAL STATIC PRESSURE (IN. WG)	.5
ENTHALPY WHEEL	OPERATING OUTSIDE AIRFLOW	835
	OPERATING EXHAUST AIRFLOW	715
	OUTDOOR EAT DB/WB (COOLING)	95/79
	OUTDOOR EAT DB/WB (HEATING)	20/16.6
	EXHAUST EAT DB/WB (COOLING)	75/63
	EXHAUST EAT DB/WB (HEATING)	70/53
	DELIVERED CONDITIONS DB/WB (COOLING)	81.4/68.8
	DELIVERED CONDITIONS DB/WB (HEATING)	51.1/42.8
	SUPPLY (MERV)	8
FILTERS	EXHAUST(MERV)	8
	MCA (A)	18.3
ELECTRICAL	MOCAP (A)	25
	VOLTS (V)	115
	PHASE	1
	FREQUENCY (Hz)	60
BASED ON	GREENHECK	
MODEL	MINVENT-750	1
REMARKS		

- REMARKS LEGEND:
1. PROVIDE FACTORY MOUNTED CONTROLS FOR UNITS INCLUDING ALL REQUIRED MOTOR STARTERS, PROVIDE FACTORY REMOTE PANEL INCLUDING INDICATION FOR DIRTY FILTER, HAND-OFF-AUTO SWITCH, AND 7 DAY TIME CLOCK.

ELECTRIC DOMESTIC WATER HEATER		WH-1
DESIGNATION		WH-1
LOCATION		MECH ROOM
STORAGE (GALLONS)		60
TOTAL CAPACITY (KW)		6
RECOVERY RATE @ 90 DEG F (GPH)		27
ELECTRICAL		--
VOLTS		208
PHASE		1
FREQUENCY (Hz)		60
REMARKS		1

- REMARKS LEGEND:
1. PROVIDE 3.2 GALLON EXPANSION TANK OR LARGER SUCH AS AMTROL ST-8 OR SIMILAR.

HOODED GRAVITY INTAKE SCHEDULE		HGI-1
DESIGNATION		HGI-1
LOCATION		INTAKE
USAGE		835
AIRFLOW (CFM)		835
STATIC PRESSURE (IN H2O)		.051
THROAT AREA (SF)		1.45
THROAT VELOCITY (FPM)		576
THROAT DIAMETER (IN)		16.25
SELECTION BASED ON		GREENHECK
MODEL		GRSI-16
REMARKS		1

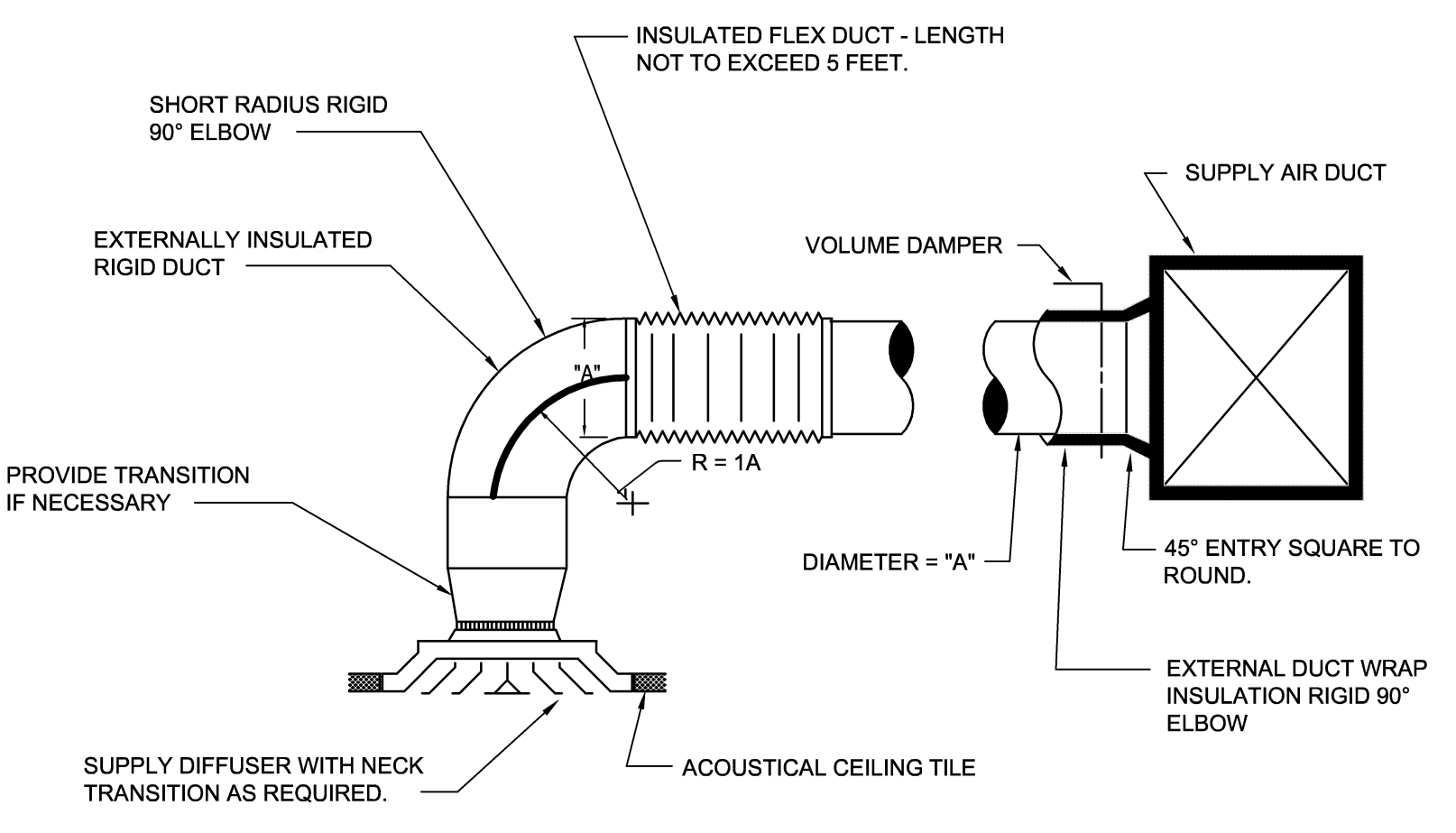
- REMARKS LEGEND:
1. PROVIDE BIRD SCREEN.

ATTIC FAN SCHEDULE		
DESIGNATION	AF-1	AF-2
LOCATION	ROOF	ROOF
USAGE	ATTIC VENTILATION	ATTIC VENTILATION
FAN DATA	--	--
AIRFLOW (SCFM)	1700	1700
EXTERNAL SP (IN-H2O)	.125	.125
RPM	1725	1725
DRIVE TYPE	DIRECT	DIRECT
MOTOR DATA	--	--
HORSEPOWER	1/2	1/2
RPM	1750	1750
VOLTS	115	115
PHASE	60	60
HERTZ	1	1
SELECTION BASED ON	GREENHECK	GREENHECK
MODEL	LD-120-VG	LD-120-VG
REMARKS	1, 2, 3 & 4	1, 2, 3 & 4

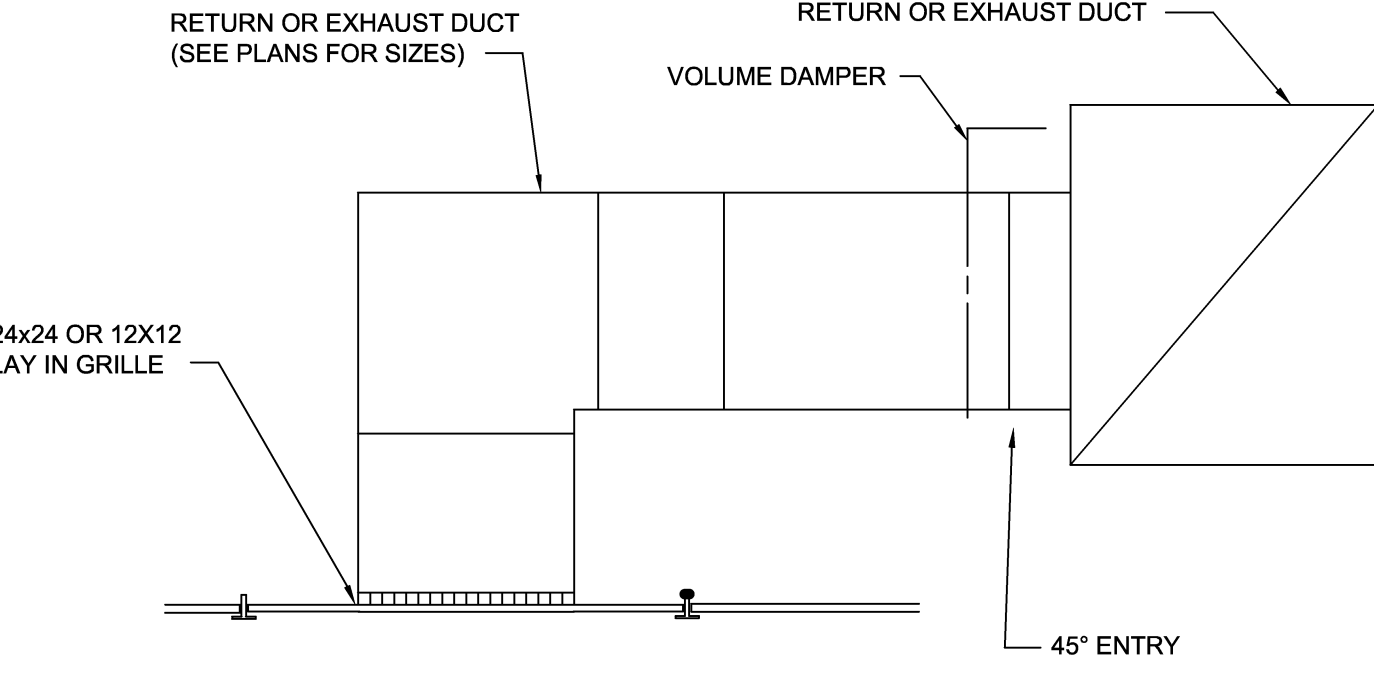
- REMARKS LEGEND:
1. PROVIDE FAN WITH INTEGRAL BACK-DRAFT DAMPER, CONTINUOUS DUTY RATED.
 2. PROVIDE FAN WITH FACTORY MOUNTED DISCONNECT.
 3. PROVIDE FAN WITH ECM MOTOR AND WITH ADJUSTABLE SPEED.
 4. PROVIDE ATTIC MOUNTED THERMOSTATIC CONTROL. SET THERMOSTAT TO OPERATE FAN WHEN ATTIC EXCEEDS 65 DEG F.

AIR TERMINAL DEVICE SCHEDULE					
DESIGNATION	S1	S2	R1	E1	E2
TYPE	SUPPLY	SUPPLY	RETURN	EXHAUST	RETURN
NECK SIZE	A=6"	A=6"	24x24	12x12	24x24
	B=8"	B=8"			
	C=10"	C=10"			
	D=12"	D=12"			
FRAME STYLE	LAY-IN	LAY-IN	LAY-IN	LAY-IN	LAY-IN
AIR PATTERN	4 WAY	4 WAY	--	--	--
MAX NC RATING	25	25	25	25	25
MATERIAL	STEEL	STEEL	STEEL	STEEL	STEEL
FINISH	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL	BAKED ENAMEL
BASED ON	PRICE	PRICE	PRICE	PRICE	PRICE
MODEL	SCD	VPD-HC	81 SERIES	81 SERIES	81 SERIES
REMARKS	--	1	--	--	--

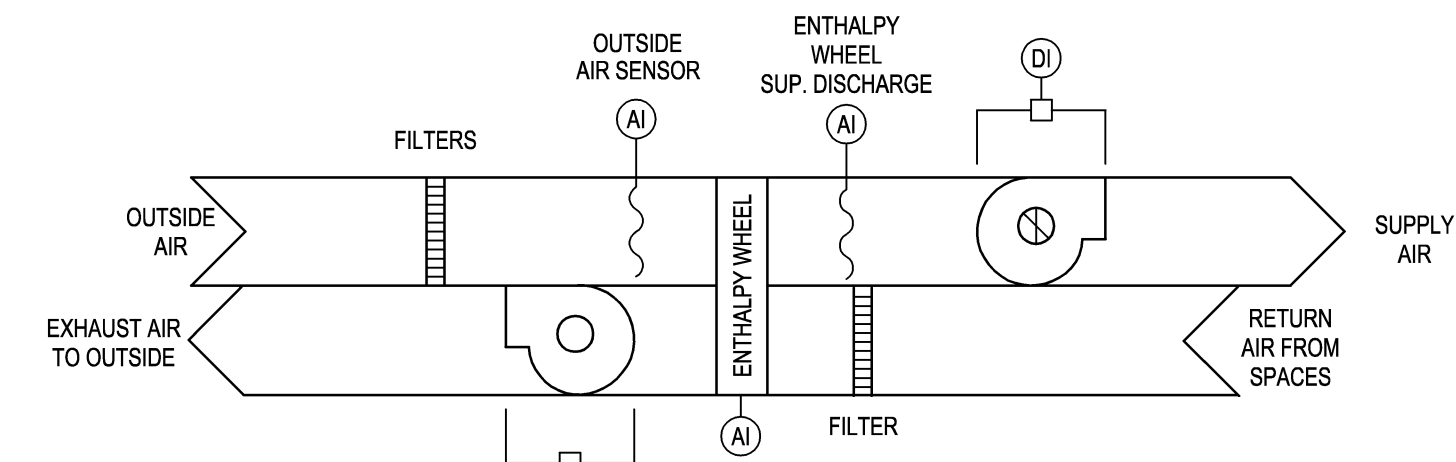
- REMARKS LEGEND:
1. PROVIDE A SELF-MODULATING DIFFUSER WITH A COOLING SET POINT OF 75 DEG F (ADJUSTABLE) AND A HEATING SET POINT OF 68 DEG F (ADJUSTABLE).



TYPICAL CEILING SUPPLY DIFFUSER CONNECTION
SCALE: NONE

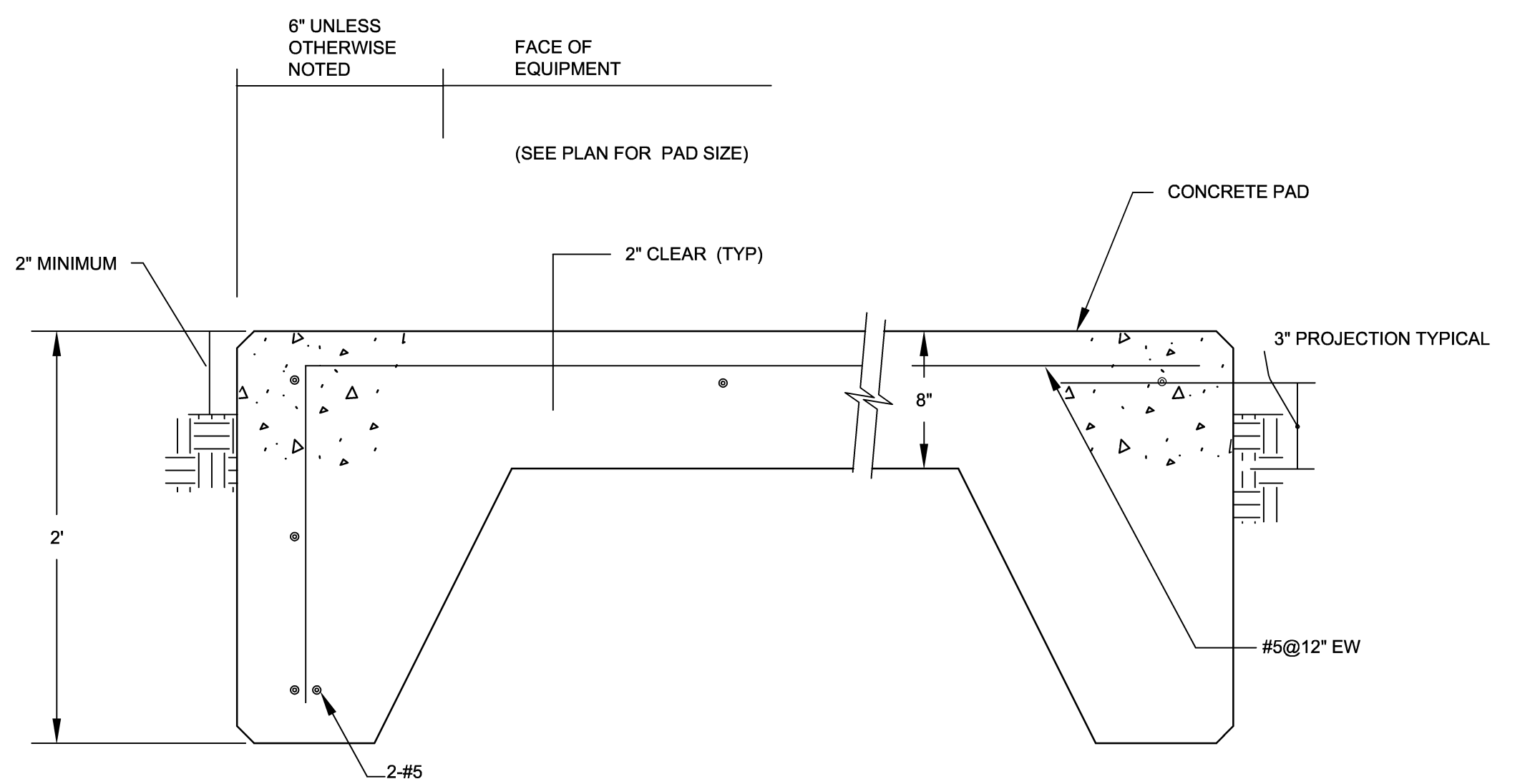


CEILING RETURN/EXHAUST GRILLE
SCALE: NONE

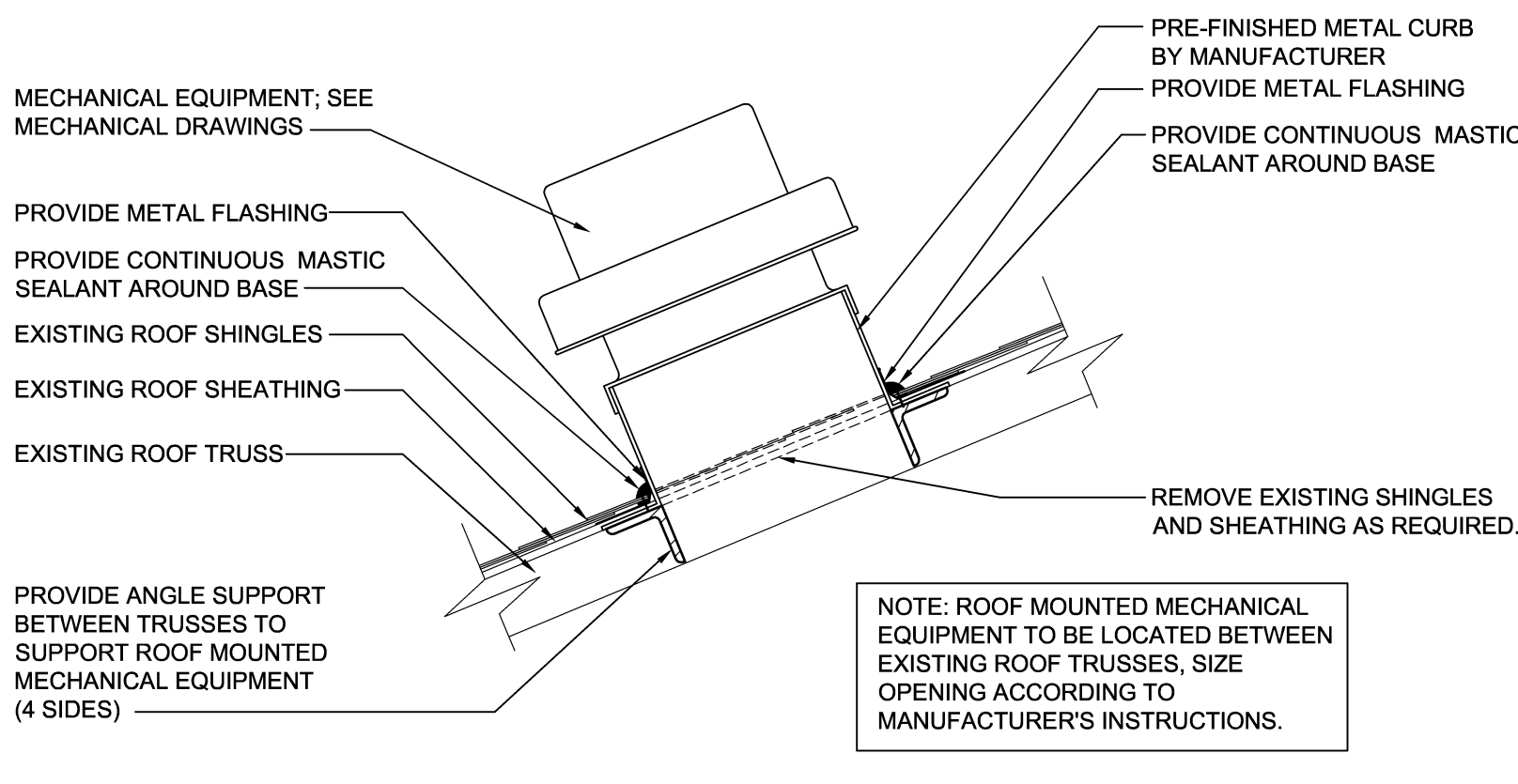


ENERGY RECOVERY VENTILATOR CONTROL DIAGRAM
SCALE: NONE

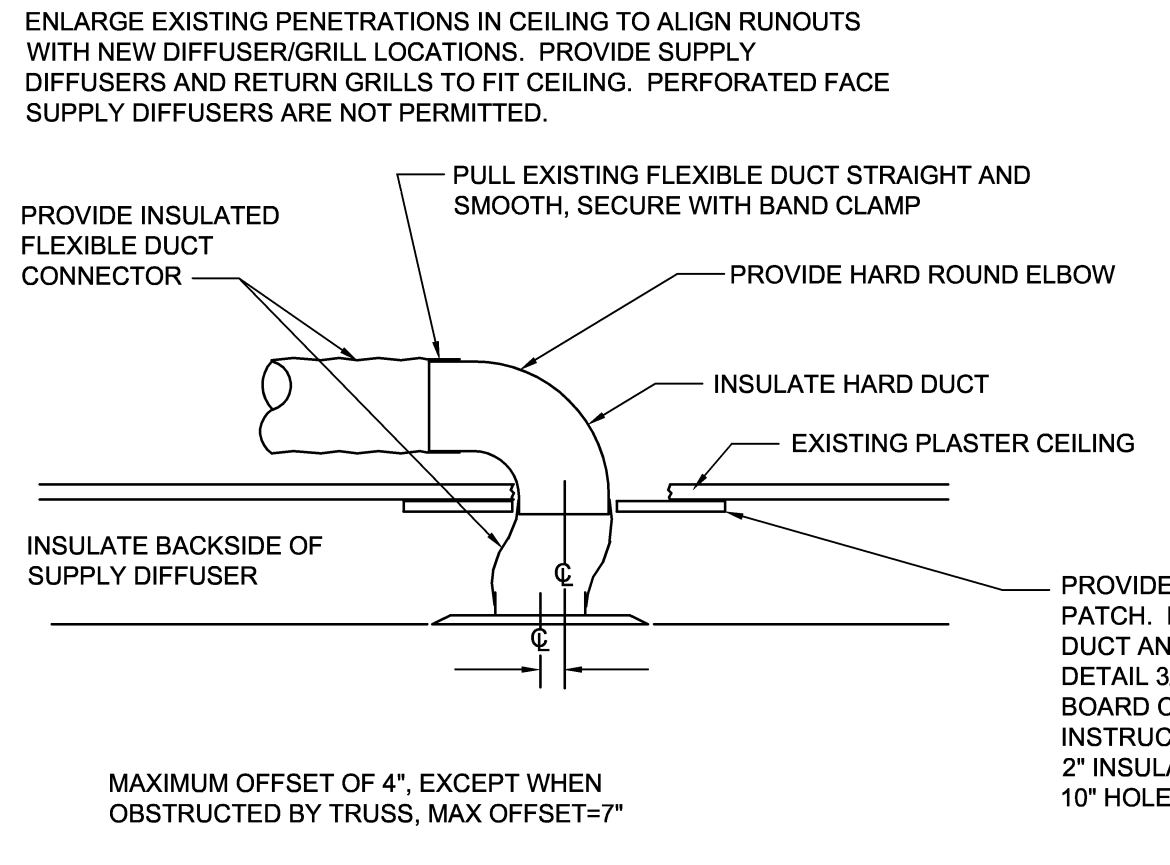
- SEQUENCE OF OPERATION:
- DURING THE OCCUPIED MODE, THE ENERGY RECOVERY VENTILATOR SHALL RUN CONTINUOUSLY. DURING UNOCCUPIED MODE, THE UNIT WILL BE DISABLED WHERE THE SUPPLY AND EXHAUST FANS ARE OFF AND THE WHEEL DOES NOT ROTATE.
- DURING OPERATION, DIFFERENTIAL PRESSURE SENSORS SHALL BE USED TO CONFIRM STATUS OF SUPPLY AND EXHAUST FANS. A TACHOMETER SHALL BE USED TO VERIFY WHEEL OPERATION. IF AT ANY TIME THE UNIT IS COMMANDED ON AND EITHER OF THESE THREE OPERATIONAL PIECES OF THE UNIT ARE NOT FUNCTIONING, THE ENTIRE UNIT SHALL BE SHUT DOWN AND AN ALARM SENT.



EXTERIOR EQUIPMENT PAD DETAIL
SCALE: NONE



ROOF PENETRATION DETAIL
SCALE: NONE



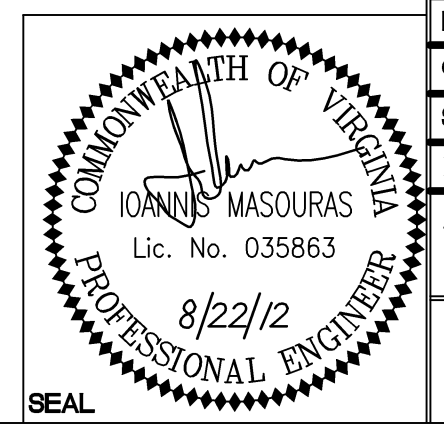
TYP. DUCT TAKE OFF DETAIL
SCALE: NONE

SPLIT SYSTEM HEAT PUMP SEQUENCE OF OPERATIONS

DURING THE OCCUPIED MODE, THE SPLIT SYSTEM AIR HANDLER FAN SHALL RUN CONTINUOUSLY TO SATISFY ROOM COMBINED THERMOSTAT AND HUMIDISTAT. THE SUPPLY AIR FAN ECM MOTOR SHALL REMAIN ON DURING OCCUPIED MODE AND THE SPEED SHALL MODULATE ACCORDING TO THE MANUFACTURER'S STANDARD SEQUENCE OF OPERATION TO CONTROL ROOM TEMPERATURE AND LIMIT HUMIDITY. IN THE HEATING MODE, THE THERMOSTAT SHALL NOT ENERGIZE THE AUXILIARY ELECTRIC HEAT IF THE HEAT PUMP MODE CAN MEET THE DEMAND, SUCH AS DURING WARM-UP FROM NIGHT SET BACK USING A SMART RECOVERY CAPABLE THERMOSTAT. FACTORY COMMUNICATING THERMOSTAT SHALL BE PROVIDED WITH 7 DAY PROGRAMMING TO ALLOW NIGHT/WEEKEND SET-BACK, COMMUNICATE ALL STANDARD MANUFACTURER'S ALARMS FROM THE UNITS TO THE THERMOSTAT, AND INDICATE DIRTY FILTER. THERMOSTAT SHALL INCLUDE DEHUMIDIFICATION CONTROL TO INTEGRATE WITH HEAT PUMP CONTROLLER TO REDUCE FAN SPEED TO INCREASE LATENT PERFORMANCE AND REDUCE INDOOR AIR HUMIDITY.

DISCLOSURE OF INFORMATION
Contractor shall comply as follows:

- The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless the Contracting Officer has given prior written approval; or
- The information is otherwise in the public domain before the date of release.
- Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

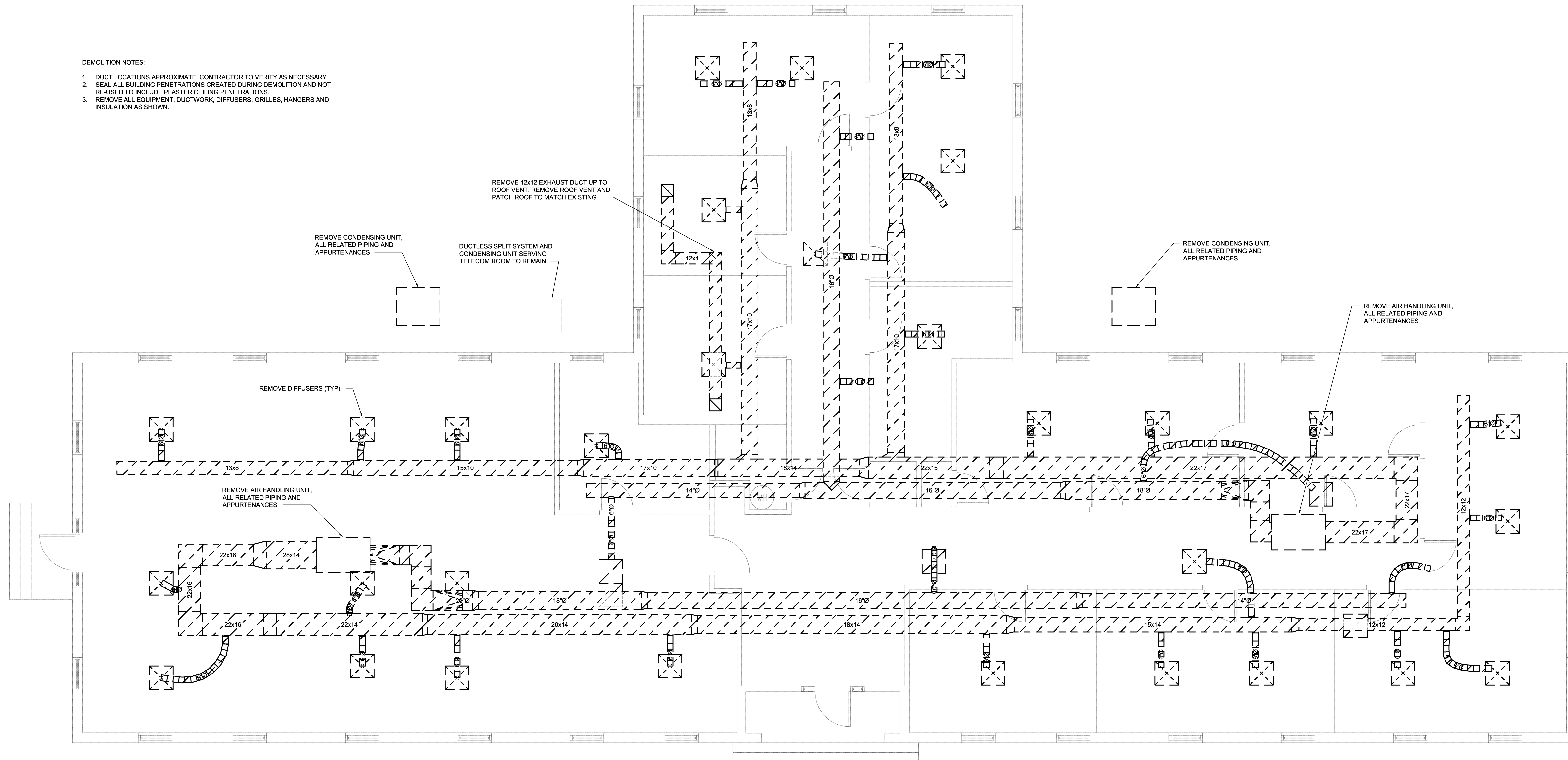


WileyWilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.254.7242 wileywilson.com		M-105D PROJECT NO. CP12-0091	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 216 SCHEDULES, DETAILS & CONTROLS		NAVAL FACILITIES ENGINEERING COMMAND	
DES. IM	DR. SWL	SIZE E	CODE IDENT NO. 80091
CHK. JHE	SUBMITTED BY:	DATE	DATE
DESIGN DR.	APPROVED PWO OR OIOC	DATE	DATE
SATISFACTORY TO		SCALE: AS SHOWN	SPEC No. 05-12-0091
		SHEET 22	OF 84

SYM.	PREP'D BY	DATE	APPROVED

DEMOLITION NOTES:

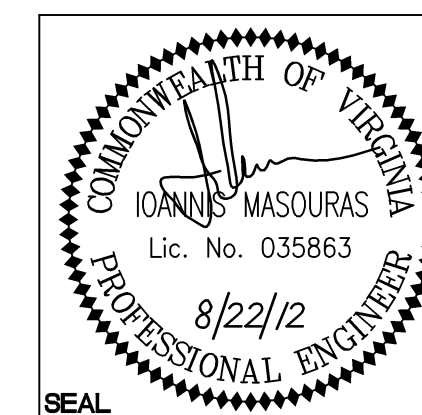
1. DUCT LOCATIONS APPROXIMATE. CONTRACTOR TO VERIFY AS NECESSARY.
2. SEAL ALL BUILDING PENETRATIONS CREATED DURING DEMOLITION AND NOT RE-USED TO INCLUDE PLASTER CEILING PENETRATIONS.
3. REMOVE ALL EQUIPMENT, DUCTWORK, DIFFUSERS, GRILLES, HANGERS AND INSULATION AS SHOWN.



BUILDING 219 MECHANICAL DEMOLITION PLAN
 1/4"=1'-0" 0' 2' 4' 8'

DISCLOSURE OF INFORMATION
 Contractor shall comply as follows:

- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless-
 The Contracting Officer has given prior written approval; or
 The information is otherwise in the public domain before the date of release.
- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- (c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

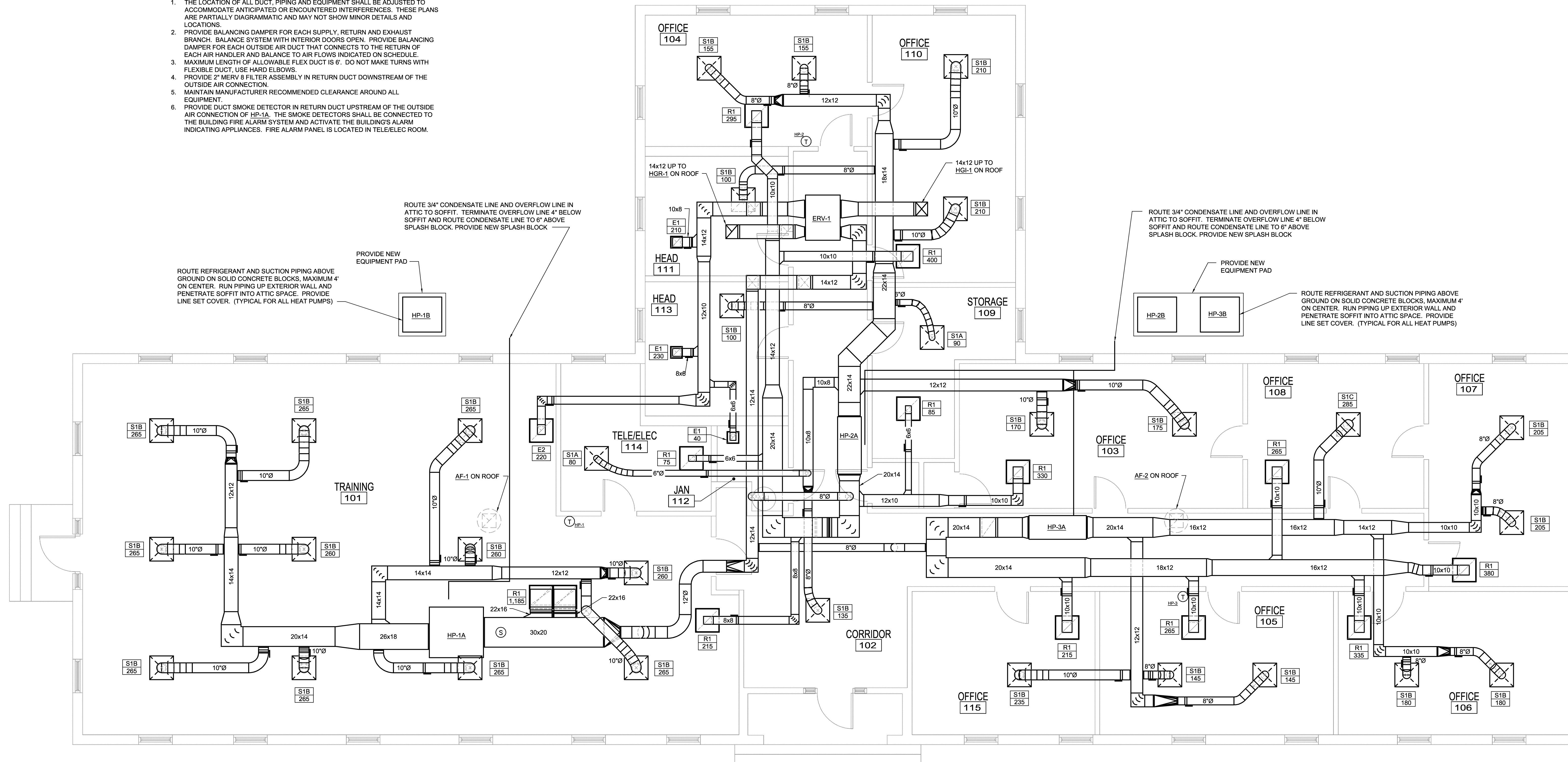


6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.364.7342 wileywilson.com		M-106A PROJECT NO. CP12-0091	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		NAVAL FACILITIES ENGINEERING COMMAND	
DES.	IM	HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 219 MECHANICAL DEMOLITION PLAN	
DR.	SWL	NAVFAC DRAWING NO. 60011367	
CHK.	JHE	CONSTR CONTR NO. N40085-12-B-0091	
SUBMITTED BY:		SIZE	CODE IDENT NO.
DESIGN DR.		E	80091
APPROVED PWO OR OICC	DATE	SCALE	SPEC No.
		AS SHOWN	05-12-0091
SATISFACTORY TO	DATE	SHEET 23 OF 84	

SYM.	PREP'D BY	DATE	APPROVED

GENERAL NOTES:

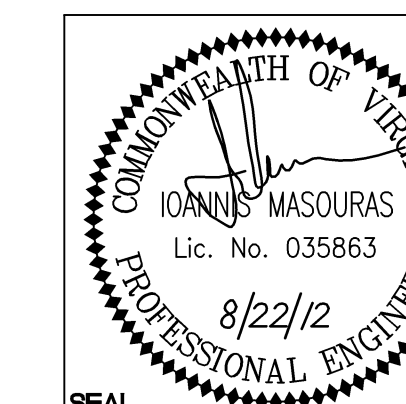
1. THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES. THESE PLANS ARE PARTIALLY DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS.
2. PROVIDE BALANCING DAMPER FOR EACH SUPPLY, RETURN AND EXHAUST BRANCH. BALANCE SYSTEM WITH INTERIOR DOORS OPEN. PROVIDE BALANCING DAMPER FOR EACH OUTSIDE AIR DUCT THAT CONNECTS TO THE RETURN OF EACH AIR HANDLER AND BALANCE TO AIR FLOWS INDICATED ON SCHEDULE.
3. MAXIMUM LENGTH OF ALLOWABLE FLEX DUCT IS 6'. DO NOT MAKE TURNS WITH FLEXIBLE DUCT, USE HARD ELBOWS.
4. PROVIDE 2" MERV 8 FILTER ASSEMBLY IN RETURN DUCT DOWNSTREAM OF THE OUTSIDE AIR CONNECTION.
5. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCE AROUND ALL EQUIPMENT.
6. PROVIDE DUCT SMOKE DETECTOR IN RETURN DUCT UPSTREAM OF THE OUTSIDE AIR CONNECTION OF HP-1A. THE SMOKE DETECTORS SHALL BE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM AND ACTIVATE THE BUILDING'S ALARM INDICATING APPLIANCES. FIRE ALARM PANEL IS LOCATED IN TELE/ELEC ROOM.



BUILDING 219 MECHANICAL NEW WORK PLAN
 1/4"=1'-0" 0' 2' 4' 8'

DISCLOSURE OF INFORMATION
 Contractor shall comply as follows:

- (a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless:
 - (1) The Contracting Officer has given prior written approval; or
 - (2) The information is otherwise in the public domain before the date of release.
- (b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.
- (c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.



WileyWilson 6606 West Broad St., Suite 500 Richmond, Virginia 23230-1717 804.264.7242 wileywilson.com		M-106B PROJECT NO. CP12-0091	
DEPT OF NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA HVAC/DHW IMPROVEMENTS, VARIOUS FACILITIES, HADNOT POINT BUILDING 219 MECHANICAL NEW WORK PLAN		NAVFAC DRAWING NO. 60011368	
DES. IM	DR. SWL	SIZE E	CODE IDENT NO. 80091
CHK. JHE	SUBMITTED BY: DESIGN DR.	DATE	DATE
APPROVED PWO OR OIC	DATE	DATE	DATE
SATISFACTORY TO	DATE	SPEC No. 05-12-0091	SHEET 24 OF 84