

**EMERGENCY LIGHTING NOTE:**  
 EXIT SIGNS AND EMERGENCY LIGHT FIXTURES SHALL BE CONNECTED TO A DEDICATED CIRCUIT WITH BATTERY BACKUP AND REMAIN ILLUMINATED FOR A MINIMUM OF 90 MINUTES DURING POWER LOSS.

ALL LIGHT FIXTURES SHALL BE LED, 4000K COLOR TEMPERATURE, 120V UNLESS OTHERWISE NOTED.

**LIGHTING CONTROL:**  
 SWITCH LIGHTING BY AREA AT ENTRY POINTS. ALL SWITCHES TO BE LOCATED WITHIN 48" AFF.  
 PROVIDE COMBINATION SWITCH/EMERGENCY TEST BUTTON FOR EXIT FIXTURES.

**LIGHTING CIRCUITS:** P1-1 THROUGH P1-4 FROM EXISTING PANEL LP-1 (150A, 120/240V, 1Φ). VERIFY LOAD BALANCE IN FIELD.

Schedule								
Symbol	QTY	Manufacturer	Description	Lamp	Number Lamps	Filename	Wattage	Mounting Height
	28	Lithonia Lighting	EPANL 24 40L 40K	LED	1	EPANL_24_40L_40K.ies	39.4	8'-0"
		Lithonia Lighting	EPANL 22 34L 40K	LED	1	EPANL_22_34L_40K.ies	31.4	8'-0"

WALL MOUNTED EXIT LIGHT FIXTURE W/ BACK-UP BATTERY  
 ARROW INDICATES EGRESS DIRECTION

EXHAUST FAN

REFLECTED CEILING & ELECTRICAL LEGEND	
	STANDARD WALL MOUNTED EXIT LIGHT FIXTURE W/ BACK-UP BATTERY
	STANDARD WALL MOUNTED EMERGENCY LIGHT FIXTURE W/ BACK-UP BATTERY
	EXHAUST FAN
	2'X 2' LAY-IN SUPPLY AIR CEILING DIFFUSER W/ DAMPER
	2'X 2' LAY-IN RETURN AIR CEILING DRILL W/ BOX

EXISTING REFLECTED CEILING PLAN  
 SCALE 1/4" = 1'-0"

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PROJECT

DAIRY FAIRIES

OWNER'S NAME

28919 SOUTHFIELD RD

ADDRESS

28919 SOUTHFIELD RD  
 LATHRUP, MI 48076

PROJECT NO.

DATE : 11/12/2025

SCALE

3/16" = 1'-0"

SHEET TITLE

LIGHT PLAN

E-1

SEAL



Electrician Field Notes – Outlet & Power Plan  
1. Mounting Heights

Standard outlets: 18" AFF

Counter outlets: 44" AFF (match equipment schedule)

GFCI: at sinks & wet areas

Floor outlets: per plan

2. GFCI / Protection

GFCI in kitchen, restroom, prep, and wet zones.

Use tamper-proof where accessible to public.

Waterproof/weatherproof where exposed.

3. Panel & Circuits

Label all breakers to match plan schedule (P1-P9).

Dedicated circuits for: cooler, freezer, oven, hood, prep outlets.

Emergency/egress lights on dedicated circuit with battery backup.

4. Installation Clearances

Maintain NEC clearances around panels.

Observe clearance from sinks.

Coordinate with HVAC & plumbing before final outlet box set.

5. Lighting & Controls

Mount per lighting plan.

Switches at entry points & exits.

Emergency lighting tested after install.

6. Final Checks

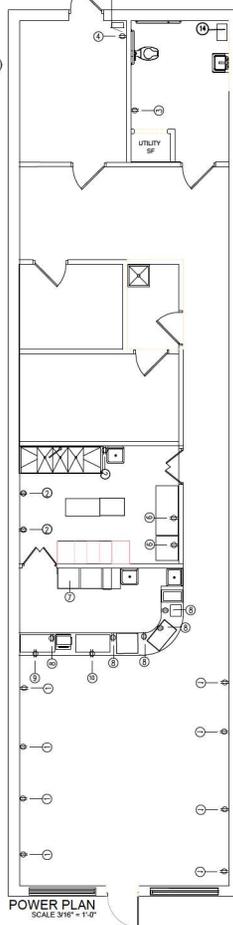
Confirm correct breaker size for each appliance.

Confirm emergency lights auto-on at power loss.

Verify receptacle height & location match drawings.

Electrical Service & Panel: Existing 120/240V, 1-Phase, 3-Wire, 150A main panel to remain. Café use only; no cooking or hood equipment. Provide dedicated circuits for café equipment, GFCI near sinks, and labeling per NEC. All work per 2023 NEC and local amendments.

- panel currently serves:
- Lights and outlets
- HVAC (A/C and Furnace)
- Small equipment circuits



ELECTRICAL NOTES:

Existing 120/240V, 1-Phase, 125A main panel to remain.

Existing branch circuits reused where applicable. \*Add new dedicated circuits for espresso machine, refrigerator, oven toaster, display case, and POS as required by equipment load.\*

Verify all receptacles within 6 ft of sinks are GFCI-protected (per NEC 210.8).

All wiring and breakers to comply with 2023 NEC and local code

Panel Data (as-built)

Item	Description
Panel Type:	Square D QO Load Center
Main Breaker:	150A, 120/240V, 1-Phase, 3-Wire
Panel Location:	Rear service room
Existing Circuits:	Lighting, A/C, Furnace, outlets, receptacles
Available Space:	Several spare breaker slots for new café equipment

Load Summary (Estimated Demand for Café – No Cooking Equipment)

Equipment / Load	Estimated Amps	Quantity	Subtotal
Espresso Machine	20A	1	20A
Coffee Grinder	5A	1	5A
Refrigerator / Display Cooler	10A	2	20A
POS & Computers	5A	2	10A
Lighting (4 EPI)	EA	—	EA
HVAC (Boiling)	25A	1	25A
General Outlets	10A	—	10A

Total Estimated Demand = 95A (of 150A available)

Oven Toaster — 20A / 120V / Dedicated Circuit

ELECTRICAL NOTES:

Existing 150A, 120/240V, 1-Phase panel to remain and serve new café loads.

Existing branch circuits reused where applicable; new circuits to be added for espresso machine, refrigeration, and POS equipment.

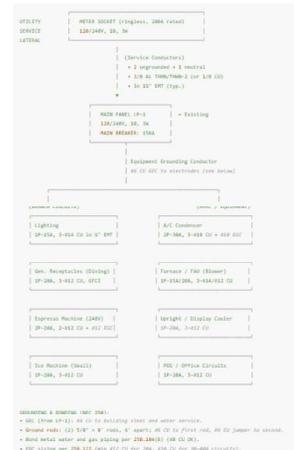
Total connected load estimated <100A; service capacity adequate.

All new receptacles within 6 ft of sink shall be GFCI protected per NEC 210.8.

Work shall conform to 2023 NEC and local amendments.

NO.	ELECTRICAL ROUGH-IN
1	Ø1 1/2" DIA. 1/2" AFF. GENERAL PURPOSE OUTLET-OR TYPE MORE APPLICABLE (VERIFY QUANTITIES)
2	Ø1 1/2" DIA. 20A, 50A, 40" AFF. GENERAL PURPOSE, Ø1 TYPE DUPLY QUANTITIES
3	Ø1 1/2" DIA. 20A, 50A, 40" AFF. RECEPTION FAN & LIGHTS VERIFY QUANTITIES
4	Ø1 1/2" DIA. 3/4" AFF. RECEPTION FAN, WATER HEADS
5	Ø1 1/2" DIA. 20A, 50A, 40" AFF. RECEPTION FAN & LIGHTS VERIFY QUANTITIES
6	Ø1 1/2" DIA. 20A, 50A, 40" AFF. RECEPTION FAN & LIGHTS VERIFY QUANTITIES
7	Ø1 1/2" DIA. 20A, 50A, 40" AFF. RECEPTION FAN & LIGHTS VERIFY QUANTITIES
8	Ø1 1/2" DIA. 20A, 50A, 40" AFF. RECEPTION FAN & LIGHTS VERIFY QUANTITIES
9	Ø1 1/2" DIA. 20A, 50A, 40" AFF. RECEPTION FAN & LIGHTS VERIFY QUANTITIES
10	Ø1 1/2" DIA. 20A, 50A, 40" AFF. RECEPTION FAN & LIGHTS VERIFY QUANTITIES

VERIFY ELECTRICAL REQUIREMENTS WITH MANUFACTURER'S SPECS. PROVIDED 30 A 240 V CIRCUIT MEETS MAXIMUM INPUT 4,700 W (4720 W). USE NEMA 6-30P RECEPTACLE.



Panel schedule

NO.	Description	Breaker	Comments/Panel Schedule
1	Lighting-Boiling	15-0A	Ø1Ø120V 1" 30P
2	Lighting-Exhaust	15-0A	Ø1Ø120V
3	General Receptacles - Dining	20-0A	Ø1Ø120V
4	Reception/Reception-Prep	15-0A	Ø1Ø120V
5	POS/Case	15-0A	Ø1Ø120V
6	Reception	15-0A	Ø1Ø120V
7	Dining Case	15-0A	Ø1Ø120V
8	1x Machine Small	20-0A	Ø1Ø120V
9	Reception Machine (POS)	20-0A	Ø1Ø120V + Ø1Ø120V
10	Reception	15-0A	Ø1Ø120V
11	Office Receptacles	15-0A	Ø1Ø120V
12	Reception-Cook	15-0A	Ø1Ø120V
13	Reception	15-0A	Ø1Ø120V
14	A/C Condenser	20-0A	Ø1Ø120V + Ø1Ø120V
15-00	Spares	—	—

RTU-1 (Existing): 5-Ton Gas/Electric, ICP Model PGF060K140E, 208/230V, 1Ø, MCA 45A, MOCP 60A, served by 2P-60A breaker.

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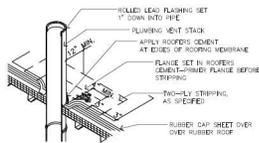
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SHEET TITLE  
POWER PLAN

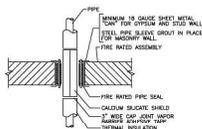
E-2  
SEAL  
STATE OF MICHIGAN  
ARCHITECTURAL ENGINEER  
KASSIR ARCHITECTURE



NOTE:  
1. SHEET LEAD MINIMUM OF 2-1/2 LB PER SQUARE FOOT.

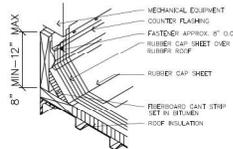
**ROOF VENT DETAIL**

N.T.S.



**PIPE SLEEVE THRU FIRE RATED WALL DETAIL**

NOTE:  
UNINSULATED PIPE WITH SHAR SHROUD OR OTHER GROUT SHIELD



**MECH. EQUIPMENT CURB DETAIL**

N.T.S.

**Ventilation Schedule (Supply OA & Exhaust)**

Space	Area (sf)	People	Rp	Ra	Supply OA (cfm)	Exhaust (cfm)
Living Area	400	21	7.5	11.10	214.5	—
Sales Area	160	5	7.5	0.12	56.7	—
Prep Area (no cooking)	155	1	5.0	0.15	32.5	188.5 (1.7 cfm/10')
Walkway / Corridor	150	1	0.0	0.00	3.5	—
Storage 1	120	1	0.0	0.03	3.8	63 (0.3 cfm/10')
Storage 2	125	1	0.0	0.03	3.8	63.5 (0.3 cfm/10')
Office	72	1	5.0	0.06	9.3	—
Wkg / Janitor Closet	40	0	—	—	—	40 (1.2 cfm/10')
Restroom 1	—	—	—	—	—	50 (25 cfm/2')
Restroom 2	—	—	—	—	—	50 (25 cfm/2')

Supply OA subtotal = 390 cfm.  
Exhaust subtotal = 374 cfm (or 299 cfm if restrooms are continuous @ 25 cfm each).  
Set RTU OA damper to deliver ~ 400 cfm (measured & balanced); balance exhaust to ~ 350-380 cfm.

**Notes**

VENTILATION BASIS (ASHRAE 62.1): Rp/Ra per schedule, Ez = 1.0.  
NO COOKINGHOOD EQUIPMENT: Prep area exhaust at 0.7 cfm/sf, janitor 1.0 cfm/sf, storage 0.5 cfm/sf, restrooms 50 cfm intermittent (25 cfm continuous) each.

RTU OA SETPOINT: Provide/balance > 400 cfm outdoor air, verify at start-up.

BALANCING: Contractor to test & balance; submit report showing zone OA and exhaust per schedule.

Area = 1,516 sf (café w/ dining).

Design Indoor 75°F DB / 50% RH, outdoor 90°F DB (SEE MI summer design).

Occupants = 36 (your CL total).

Lighting = 1.0 Wsf LED.

Small equipment to space (espresso, fridge motors, POS, oven toaster, misc.) = 2.0 kW diversified.

Ventilation per ASHRAE 62.1 dining/retail (Ez=1.0): Rp 7.5 cfm/person, Ra 0.18 cfm/sf → OA = 543 cfm. Sensible ΔT = 15°F, latent ΔW = 20 grains.

Cooling load (BTU/h)

Envelope (small retail/café typical) \* 10 BTU/h sf \* 1,516 sf = 15,160

People (sensible) 245 \* 36 = 8,820

Lighting 1.0 Wsf \* 1,516 \* 3.412 = 5,173

Equipment to space (diversified 2.0 kW) 2,000 W \* 3.412 = 6,824

Ventilation (sensible) 1.08 \* 543 cfm \* 15°F = 8,797

Sensibility subtotal = 44,774 BTU/h

People (latent) = 200 \* 36 = 7,200

Moisture (latent) 1.08 \* 543 \* 20 grains = 12,562

Latent subtotal = 14,582 BTU/h

Total Cooling Load = 59,356 BTU/h = 5.0 tons → Matches existing 5-ton RTU.

Heating check (rule-of-thumb)

25-30 BTU/h sf \* 1,516 sf = 38,000-45,000 BTU/h

Existing RTU heating OUTPUT 112,000 BTU/h → ample capacity for winter.

**BLOCKLOAD SUMMARY (CAFÉ - EXISTING RTU TO REMAIN)**

Area 1,516 SF, CL = 36 persons. Summer 50°F/75°F, Winter per local design.  
Cooling loads (BTU/h): Envelope 15,160, People sens 8,820, Lights 5,173, Equip 6,824, Vent sens 8,797 → Sensible 44,774, Latent People 7,200, Vent 7,362 → Latent 14,562, Total = 59,336 BTU/h (5.0 tons). Existing ICF RTU PFG060K14QE (5-ton, MCA 45AMMCP 60A) adequate.  
Heating need 38-45 KBTU/h, existing 112 KBTU/h output adequate. Contractor to field-verify OA = 543 CFM (Rp 7.5 cfm/person, Ra 0.18 cfm/sf, Ez=1.0) and provide air balance.

\*Existing concealed ductwork above ceiling (not visible during survey). Field verify all duct tie-ins prior to diffuser installation.\*

No new HVAC equipment proposed. Existing 5-ton RTU and gas line to remain.



Existing 5-Ton Gas/Electric RTU (ICP Model PFG060K14QE, 208/230V, 1p, 140,000 BTU Input) to remain. Existing concealed ductwork assumed senseable, verify in field.

Existing supply and return ducts are concealed above ceiling and not accessible for field measurement. Duct routing and layout are assumed existing to remain. All new diffusers and grilles to connect to available supply and return drops in field.

Contractor shall verify supply airflow at diffusers and adjust dampers as needed to maintain comfort and balanced air distribution. Provide balancing report if required by AHJ.

**EXISTING HVAC PLAN**

SCALE 3/16" = 1'-0"

HVAC UNIT - EXISTING: ICF 5-Ton Gas/Electric Packaged Rooftop Unit Model PFG060K14QE, 208/230V-1p, 60Hz, MCA 45A, MDCP 60A, Heating Input 140,000 BTU/h, Output 112,000 BTU/h. Unit to remain, verify service disconnect and wiring in compliance with 2021 Michigan Mechanical Code & 2023 NEC.

**HVAC GENERAL NOTES - COFFEE SHOP**

Existing rooftop unit (RTU) supported by existing building structure.

Capacity: 5 tons cooling.

Equipped with factory economizer to meet ventilation requirements per 2015 Michigan Mechanical Code (MIMC) §508.1.

Supply air temperature: 55°F-60°F (cooling), 90°F (heating).

Ductwork

All supply ducts to be insulated to a minimum of R-8 per MIMC §603.8.

All branch/take-off fittings to be labeled as shown on plan.

All joints, seams, and connections sealed per SMACNA standards; all duct joints to be leak-tested at specified pressures.

All exterior ductwork to be double-wrapped.

Low-pressure duct and lay-in diffuser connections per SMACNA standards.

Maintain minimum 1/8" tolerance at duct-mounted equipment per manufacturer and code.

Use mitered elbows with turning vanes where centerline radius is less than 1.5.

All air/hawk to have a minimum 1 ft external static rating.

Air Distribution & Balancing

Supply diffusers sized and CFM per plan.

Diffusers and grilles to be balanced by a certified TAB contractor prior to occupancy.

Air balance report to be provided prior to final inspection.

Ventilation

Outdoor air quantity per MIMC Table 403.3.1.1 "Food and Beverage Service" category.

Minimum ventilation rates as shown in ventilation schedule on plan.

Provide separation of fresh air intakes from exhaust discharges per code (10' horizontal or 3' vertical).

Exhaust fans per plan; vent to roof after approval from structural engineer.

Condensate drains from RTU to nearest code-approved receptor per MIMC §307.

Erection

Install all dampers, duct supports, and hangers per SMACNA requirements.

Verify all duct final layout, diffuser locations, and RTU connections in field prior to fabrication.

Perform functional performance testing for RTU operation and controls before final inspection.

Unit Notes

Mechanical system construction and materials to comply with State of Michigan and local mechanical codes.

All items to be pulled in advance.

Perform air balancing with report; fresh air requirement: 25 persons x 7.5 CFM/person = 187.5 CFM.

Ventilation Notes

ventilation controlled by gravity static roof structure prior to peacing equipment.

Provide min. 1/4" per foot slope for horizontal exhaust ducts, sloped toward hoods.

Install all dampers in accordance with codes.

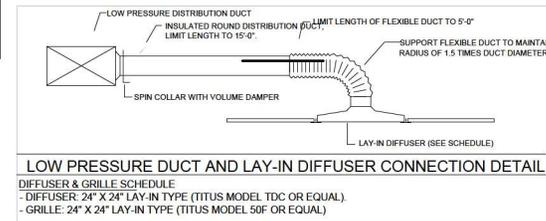
Provide air balance testing and report (include make-up air test if applicable).

Detail Reference

See "Low Pressure Duct and Lay-In Diffuser Connection Detail" on this sheet.

Code Reference

Per 2015 Michigan Mechanical Code, Table 403.3.1.1, "Café / Coffee Shop" occupancy load used for ventilation rates.



**LOW PRESSURE DUCT AND LAY-IN DIFFUSER CONNECTION DETAIL**  
DIFFUSER & GRILLE SCHEDULE  
- DIFFUSER: 24" X 24" LAY-IN TYPE (TITUS MODEL TDC OR EQUAL).  
- GRILLE: 24" X 24" LAY-IN TYPE (TITUS MODEL 50F OR EQUAL)

- 24"x24" lay-in supply diffusers (Titus TDC or equal) in dropped ceiling areas;  
- OR round cones in open-ceiling areas — match your pain symbology.  
- Neckboot and branch to be 8"Ø with opposed blade volume damper at take-off.  
- Balance to 100 CFM at each diffuser.

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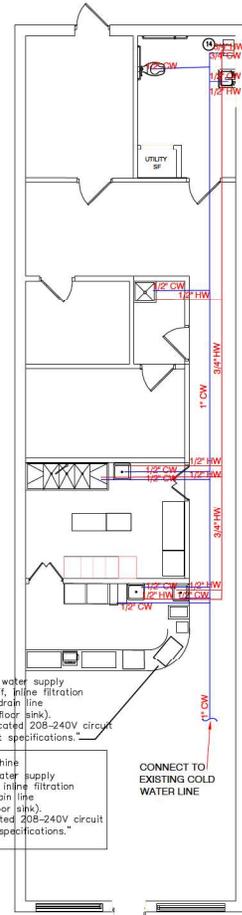
SCALE  
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SHEET TITLE  
HVAC / ROOF PLAN  
M-1

SEAL  
AMIRI BAE-SALT  
ENGINEER  
No. 259248  
STATE OF MICHIGAN  
11/12/2025



## 2021 MICHIGAN PLUMBING CODE



"Provide cold water supply with shut-off, inline filtration system, and drain line (air gap to floor sink). Provide dedicated 208-240V circuit per equipment specifications."

espresso machine  
"Provide cold water supply with shut-off, inline filtration system, and drain line (air gap to floor sink). Provide dedicated 208-240V circuit per equipment specifications."

CONNECT TO EXISTING COLD WATER LINE

PLUMBING:  
WATER LINE PLAN  
SCALE: 3/16" = 1'-0"

### PLUMBING NOTES:

1. PLUMBING CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS REQUIRED TO PERFORM THE WORK.
2. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT NATIONAL, STATE AND LOCAL PLUMBING CODES AND SHALL CONFORM WITH ACCEPTED TRADE PRACTICES AND INDUSTRY STANDARDS.
3. PLUMBING CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES PRIOR TO PREPARATION AND INSTALLATION.
4. PLUMBING CONTRACTOR SHALL INCLUDE ALL WORK INCIDENTAL TO THE INSTALLATION SUCH AS, BUT NOT LIMITED TO, CUTTING, PATCHING, TRENCHING, BACK FILLING, ETC.
5. PLUMBING CONTRACTOR SHALL ARRANGE FOR ALL REQUIRED CITY INSPECTIONS AND SHALL BE PRESENT AT THE JOB SITE DURING SUCH SCHEDULED INSPECTIONS.
6. PLUMBING CONTRACTOR SHALL COMPILE AND PRESENT TO THE OWNER APPLICABLE WARRANTIES, PRODUCT MANUALS, ETC. FOR ALL SPECIFIED FIXTURES AND EQUIPMENT.
7. SANITARY WASTE PIPING SHALL BE SCHEDULE 40 PVC.
8. ABOVE GROUND WATER DISTRIBUTION PIPING SHALL BE TYPE 'L' OR TYPE 'M' COPPER. BELOW GROUND SHALL BE TYPE 'K' COPPER.
9. ALL ABOVE-GRADE HOT & COLD WATER SUPPLY PIPING SHALL BE FULLY-WRAPPED WITH PIPE INSULATION. ALL EXPOSED WATER PIPING AND VALVES SHALL BE CHROME-PLATED WITH NECESSARY ESCUTCHEON PLATES, TRIM RINGS, CLEAN-OUT COVERS, ETC.
10. PLUMBING CONTRACTOR SHALL SUPPLY AND INSTALL ALL REQUIRED GAS PIPING, INCLUDING ALL HANGERS, FASTENERS, ROOF BLOCKS, VALVES, ETC.
11. STORM WATER CONDUCTOR PIPING SHALL BE SCHEDULE 40 PVC - U.N.O.
12. EXTERIOR WALL HYDRANTS SHALL BE NON-FREEZE TYPE, 'ZURN' MODEL Z - 1315 OR APPROVED EQUAL.
13. FLOOR DRAINS SHALL BE 'ZURN' MODEL Z - 415 WITH 'TYPE B' STRAINER OR APPROVED EQUAL.
14. INSTALL SURE SEAL TRAP GUARDS AT ALL FLOOR DRAINS.

Equipment Requiring Cold Water Connection  
Gloss/Pitcher Rinser -Needs CW supply for rinse spray (often with backflow preventer).  
Ice Maker -Needs CW supply (filtered water recommended).  
Beverage Dispenser (Soda/Tea/Coffee Brewer) -Needs CW supply; soda also needs backflow prevention (ASSE 1022).  
Espresso Machine -Needs CW supply (filtered water recommended).  
3-Compartment Sink -Needs both CW and hot water.  
Hand Sinks -Needs CW and hot water.  
Mop/Service Sink -Needs CW (and often hot).  
Hot Water Dispenser (Tankless) -Needs CW supply to heat.

PLUMBING ABBREVIATIONS & SYMBOLS	
HW	• HOT WATER
CW	• COLD WATER
W	○ WASTE - DIRECT CONNECTION
WD	• INDIRECT WASTE DRAIN
OPW	• INDIRECT PRESSURE WASTE
OW	○ OPEN WASTE (HUB)
FD	• FLOOR DRAIN
FTD	○ FUNNEL TYPE FLOOR DRAIN
SWS	⊗ SAFE WASTE SINK 1" A.F.F.
FS	⊠ OPEN FLOOR SINK FLUSH WITH FLOOR
GT	⊠ GREASE TRAP
SS	○ STEAM SUPPLY
SR	○ STEAM RETURN
G	○ GAS
RS	○ REFRIGERATION SLEEVE
SDSS	○ SOFT DRINK SYSTEM SLEEVE
BSS	○ BEER SYSTEM SLEEVE
MT	○ MAKE FRIEND FLOOR - ON CENTER
DFA	○ DROP FROM ABOVE
BTU	○ BRITISH THERMAL UNIT
CFM	○ CUBIC FEET PER MIN.
POC	○ POINT OF CONNECTION
BT	○ BRANCH & CONNECT TO
SU	○ STUB-UP

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### SCALE

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### SHEET TITLE

WATER LINE PLAN

P-2

### SEAL

