

# Oregon State Penetentiary (OSP)

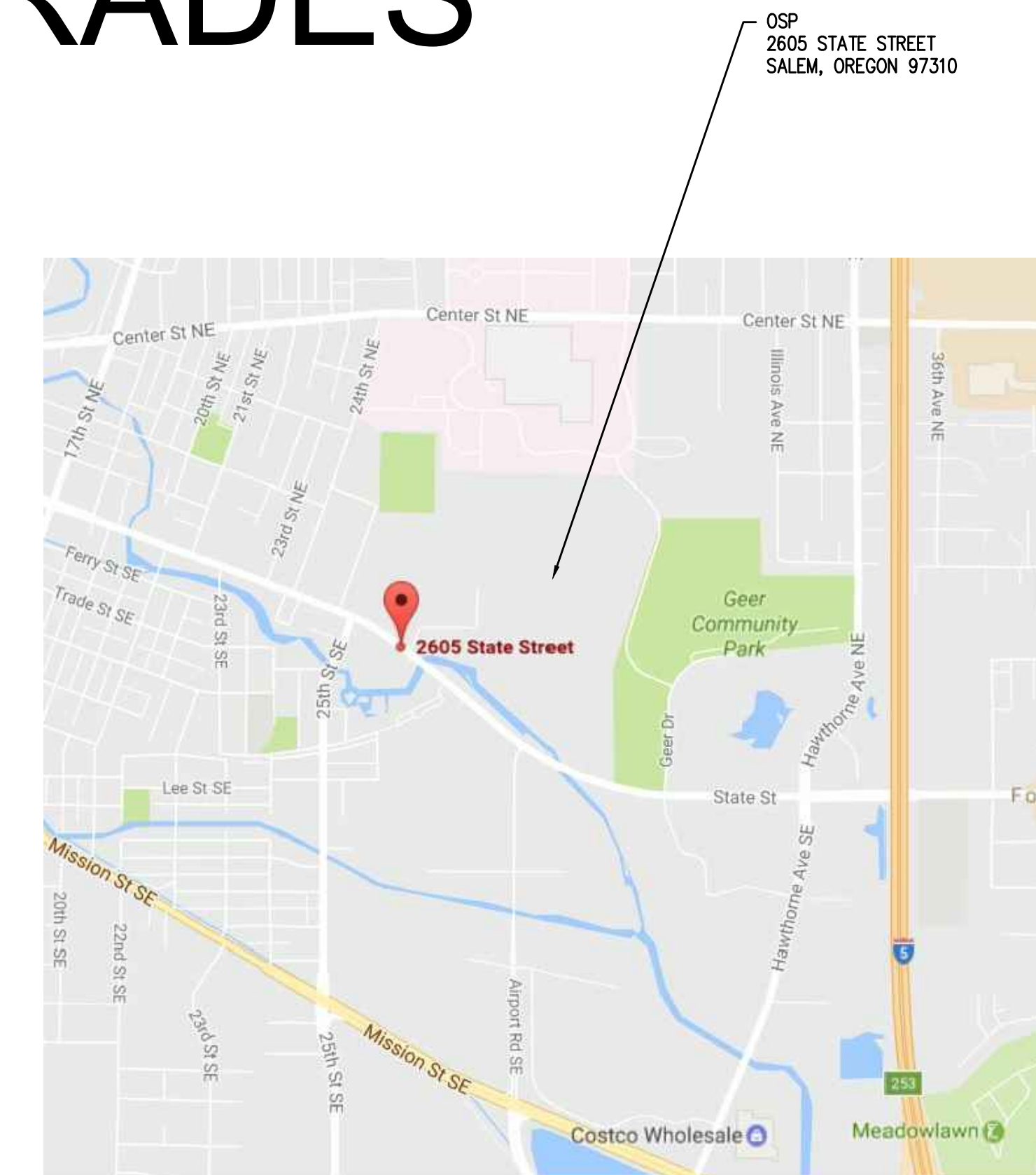
Oregon Department of Corrections

2605 State St, Salem, Oregon 97310

## CELL BLOCK WATER PIPE UPGRADES CELL BLOCK D & E

### Drawing Index:

- |      |   |
|------|---|
| P1.0 | COVER SHEET   |
| P1.1 | SCOPE OF WORK & MATERIALS REQUIREMENTS              |
| P1.2 | SITE PLAN - OVERALL KEY PLAN                        |
| P2.0 | CELL BLOCK 'D' AND 'E' TIER 1 AND TIER 2 DEMO PLANS |
| P2.1 | CELL BLOCK 'D' AND 'E' TIER 3 AND TIER 4 DEMO PLANS |
| P2.2 | CELL BLOCK 'D' AND 'E' TIER 5 DEMO PLAN             |
| P2.3 | CELL BLOCK 'D' AND 'E' TYPICAL RISERS               |
| P3.0 | CELL BLOCK 'D' AND 'E' TIER 1 AND TIER 4 PLANS      |
| P3.1 | CELL BLOCK 'D' AND 'E' TIER 3 AND TIER 4 PLANS      |
| P3.2 | CELL BLOCK 'D' AND 'E' TIER 5 PLAN                  |
| P4.0 | CELL BLOCK 'D' AND 'E' PLUMBING SECTIONS            |
| P4.1 | CELL BLOCK 'D' AND 'E' PLUMBING SECTIONS            |
| P4.2 | CELL BLOCK 'D' AND 'E' PLUMBING SECTIONS            |
| P6.0 | PIPE CHASE PHOTOS                                   |
| P6.1 | PIPE CHASE CONNECTION DETAILS                       |
| P6.2 | EQUIPMENT CUT SHEETS.                               |



8-7-20




Date: 8-7-20  
 Proj No: 9835  
 Drawn By: MD  
 Chkd By: MD  
 DSN By: MD  
 Acad File: 9982P10

OREGON  
**OREGON STATE PENITENTIARY  
 CELL BLOCK WATER PIPE UPGRADES**  
 OREGON DEPT OF CORRECTIONS  
 COVER SHEET  
 SALEM



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 2007 S.E. Ash St.  
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SHEET  
**P1.0**  
 1 OF 16

**PROJECT SCOPE OF WORK:**

**BASE BID: D-BLOCK**

- CONNECT DCW, DHW AND HOT WATER RECIRC TO EXISTING WATER SUPPLIES AS SHOWN ON SHEET P6.0 & P6.1
- ROUTE 4" DCW AND 3" DHW MAINS FROM POINT OF CONNECTION UP NORTH END OF PLUMBING CHASE TO 5TH FLOOR CEILINGS.
- ROUTE 8 DCW & DHW RISERS (4 PER SIDE) DOWN TO LOWEST FLOOR WITH VALVED AND CAPPED TEES AS SHOWN ON THE PLANS. ROUTE 3/4" HOT WATER RECIRC LINES OFF BOTTOM OF EACH RISER WITH 3/4" THERMOSTATIC ZONE VALVE AND 1" HOT WATER RECIRC LINE BACK TO (E) HOT WATER RECIRC POC. SEE SHEET M6.2 FOR EQUIPMENT CUT SHEETS.
- BASE BID KEEPS EXISTING WATER SYSTEM FULLY OPERATIONAL.
- CONTRACTOR RESPONSIBLE FOR ALL REQUIRED BUILDING SUPPORTS/HANGARS FOR NEW WATER MAINS.

**ALT BID #1: D-BLOCK**

- CONNECT DCW AND DHW TO 400 LAVATORIES AND WATER CLOSETS AS SHOWN ON THE PLANS.
- PROVIDE INDIVIDUAL SHUT OFF VALVES FOR EACH FIXTURE.
- PROVIDE 1" CW & 1/2" HW WATER HAMMER ARRESTORS ON EVERY BRANCH LINE AS SHOWN ON PLANS.
- PROVIDE ALL REQUIRED WALL OR HANGER BRACKETS AS NEEDED FOR NEW COPPER AND PEX PIPING.
- DEMO EXISTING DCW AND DHW LINES BACK TO POINT OF CONNECTION AT TUNNEL.

**ALT BID #2A: E-BLOCK:**

- ROUTE TRUNK LINES AS NOTE IN BASE BID FOR D-BLOCK.
- WATER CONNECTIONS TO EXISTING MAINS IS SIMILAR TO THE PHOTOS AND DETAILS SHOWN ON SHEET P6.0 & P6.1

**ALT BID #2B: E-BLOCK:**

- CONNECT DCW AND DHW TO 400 LAVATORIES AND WATER CLOSETS AS SHOWN ON THE PLANS.
- PROVIDE INDIVIDUAL SHUT OFF VALVES FOR EACH FIXTURE.
- PROVIDE 1" CW & 1/2" HW WATER HAMMER ARRESTORS ON EVERY BRANCH LINE AS SHOWN ON PLANS.
- PROVIDE ALL REQUIRED WALL OR HANGER BRACKETS AS NEEDED FOR NEW COPPER AND PEX PIPING.
- DEMO EXISTING DCW AND DHW LINES BACK TO POINT OF CONNECTION AT TUNNEL.

**MATERIALS AND DESIGN REQUIREMENTS:**

**PIPE MATERIAL:**

- ALL PIPE 3" AND LARGER TO BE RUN AS COPPER.
- PRESS FIT FITTINGS MAY BE USED AS AN ALTERNATE METHOD OF PIPE JOINTS.
- OTHER MECHANICAL JOINTS SYSTEMS MAY BE PROPOSED DURING BIDDING.
- ALL PIPE 2-1/2" AND SMALLER TO BE PEX - SUPPORT WITH SADDLES AS REQUIRED FOR INSTALLATION IN A EXHAUST AIR PLENUM. SEE CUT SHEETS ON SHEET P6.2
- 2-1/2" PIPES MAY USE COPPER IF DESIRED.

**VALVES:**

- ALL NEW VALVES TO BE 3-PIECE BALL VALVES WHERE POSSIBLE.
- GATE VALVES MAY BE USED WHERE SPACES OR INSTALLATION CONSTRAINTS PREVENT USE OF BALL VALVES.
- PROVIDE WATER HAMMER ARRESTERS AS SHOWN ON THE PLANS AND AS SHOWN ON THE CUT SHEETS ON SHEET P6.2
- PROVIDE THERMOSTATIC ZONE VALVES AT THE BASE OF EACH HOT WATER RISER/START OF HOT WATER RECIRC SYSTEM, PROVIDE ACORN THERMOSTATIC ZONE VALVE AS SHOWN ON PLANS AND CUT SHEETS ON SHEET P6.2
- PROVIDE NEW WYE STRAINERS ON COLD WATER AND HOT WATER SUPPLIES TO CELL BLOCKS.

**SPECIALTY TOOLS:**

- ONE SET OF SPECIALTY TOOLS NEEDED FOR PIPE INSTALLATION OR REPAIR TO BE TURNED OVER TO OWNER AT COMPLETION OF THE PROJECT - -THIS INCLUDES TOOLS NEEDED FOR PEX FITTINGS UP TO THE LARGEST SIZE OF PEX USED ON THE PROJECT AND ANY TOOLS REQUIRED FOR PRESS FIT OR OTHER MECHANICAL JOINT SYSTEMS USED ON THE PROJECT.

**PUMPS**

MARK NUMBER	CF T
SERVICE	DHW RECIRC
TYPE	CIRC
CONTROLLED BY	AQUASTAT
ARRANGEMENT	IN-LINE
FLOW RATE (GPM)	6.0
HEAD (FT)	40
MOTOR HP	40 WATTS
RPM	---
DESIGN WEIGHT (LBS)	20




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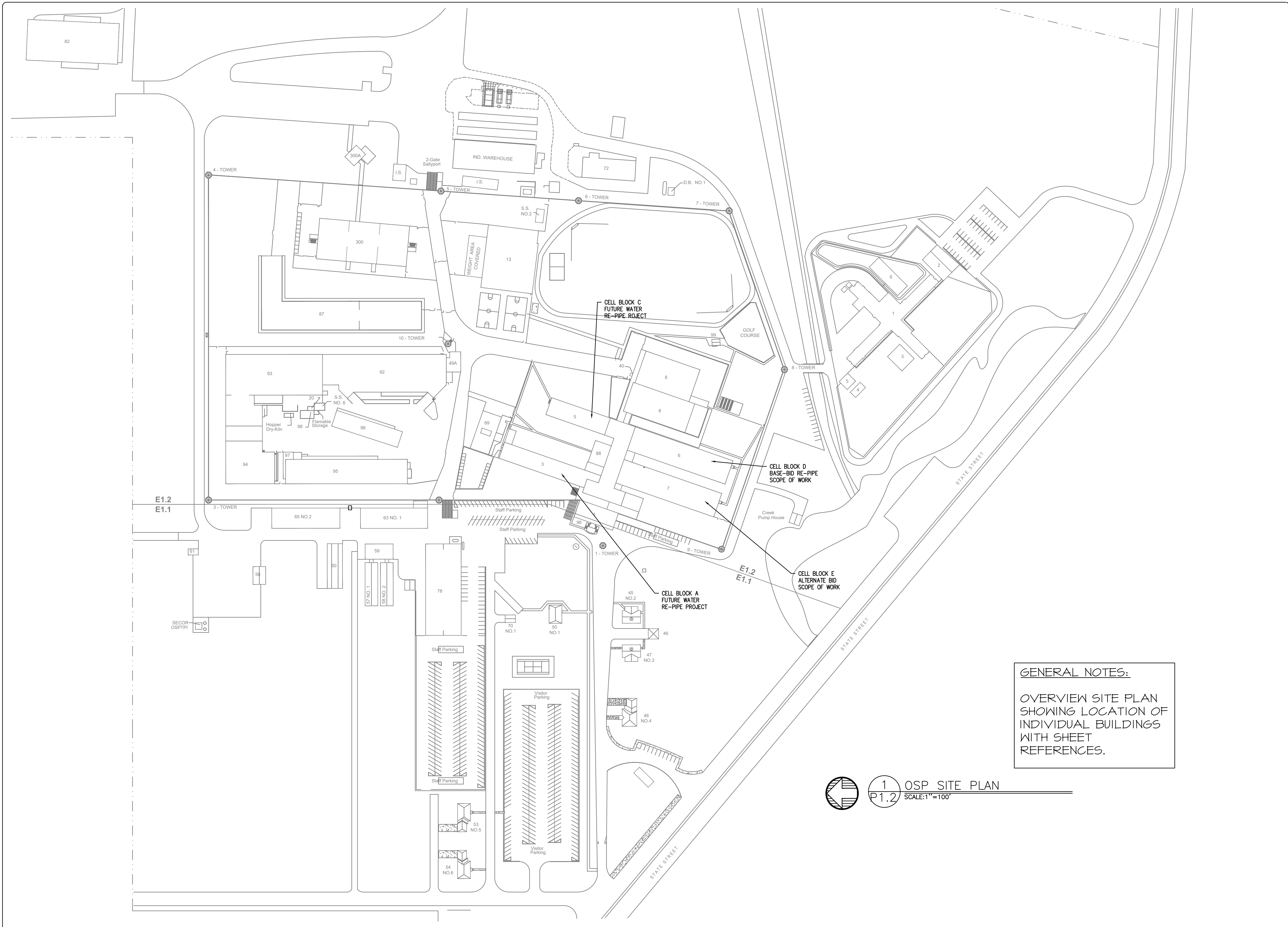
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CELL BLOCK WATER PIPE UPGRADES  
OREGON DEPT OF CORRECTIONS**

COVER SHEET

SALEM



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**GENERAL NOTES:**  
 OVERVIEW SITE PLAN  
 SHOWING LOCATION OF  
 INDIVIDUAL BUILDINGS  
 WITH SHEET  
 REFERENCES.

1 OSP SITE PLAN  
 SCALE: 1"=100'



Date:	8-7-20
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 SITE PLAN



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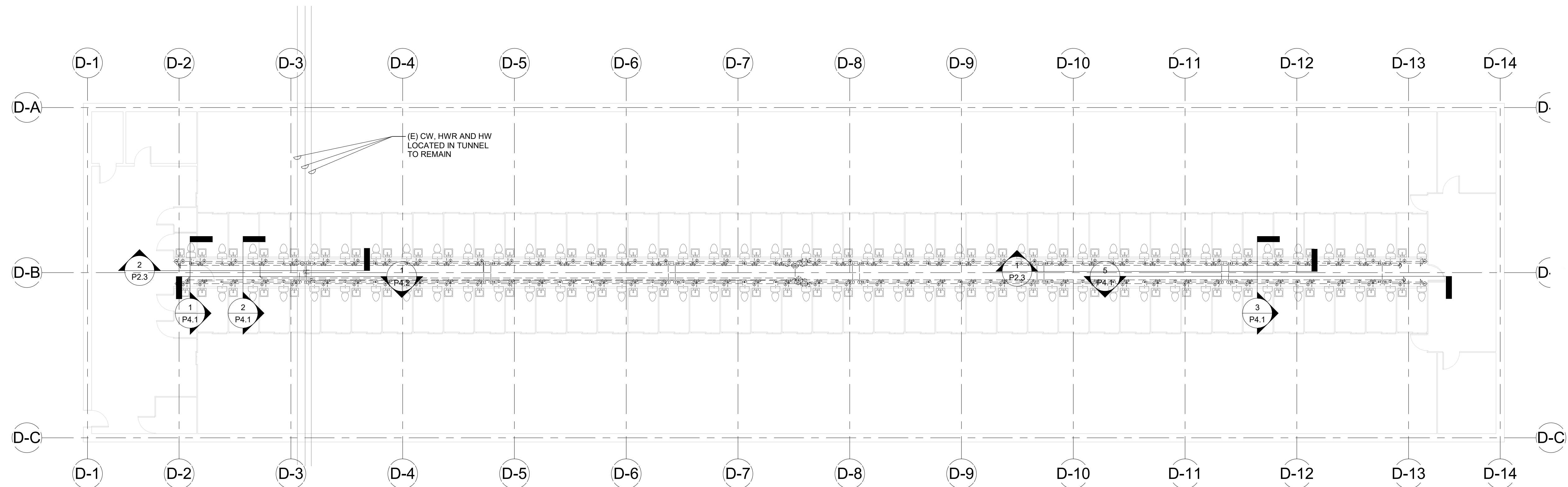
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CELL BLOCK 'D' AND 'E' TIER 1 AND TIER 2 DEMO PLANS



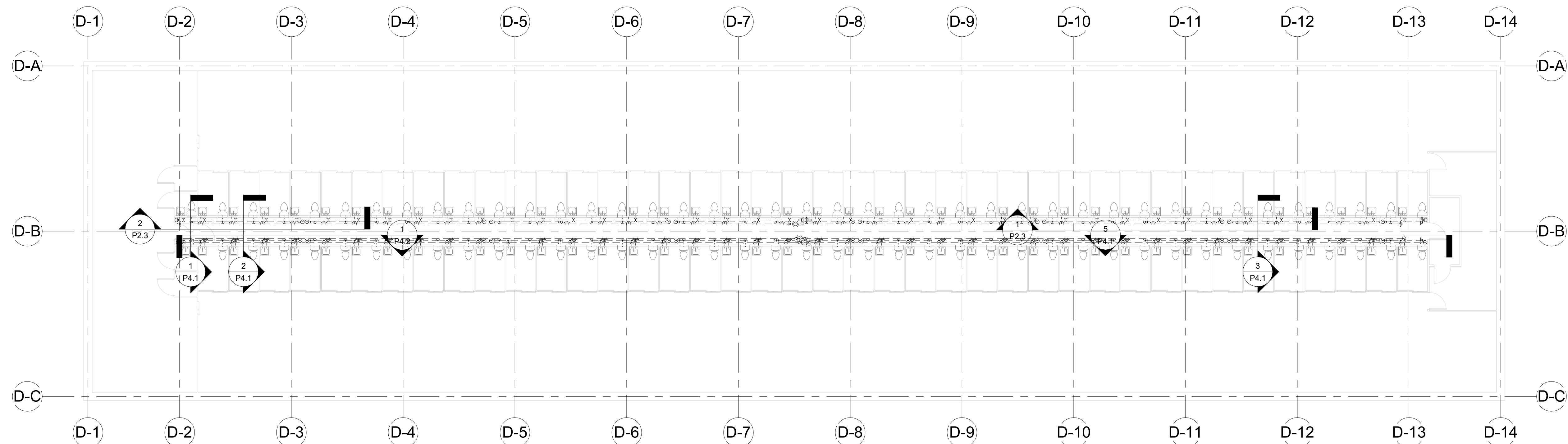
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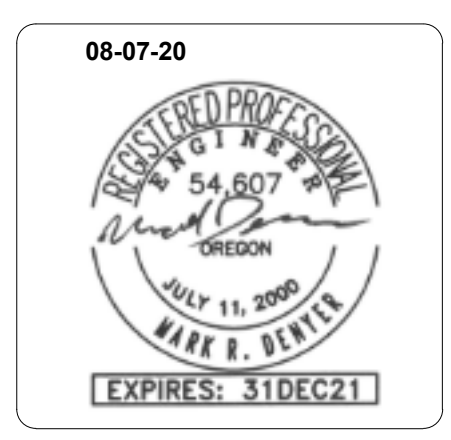
P2.0



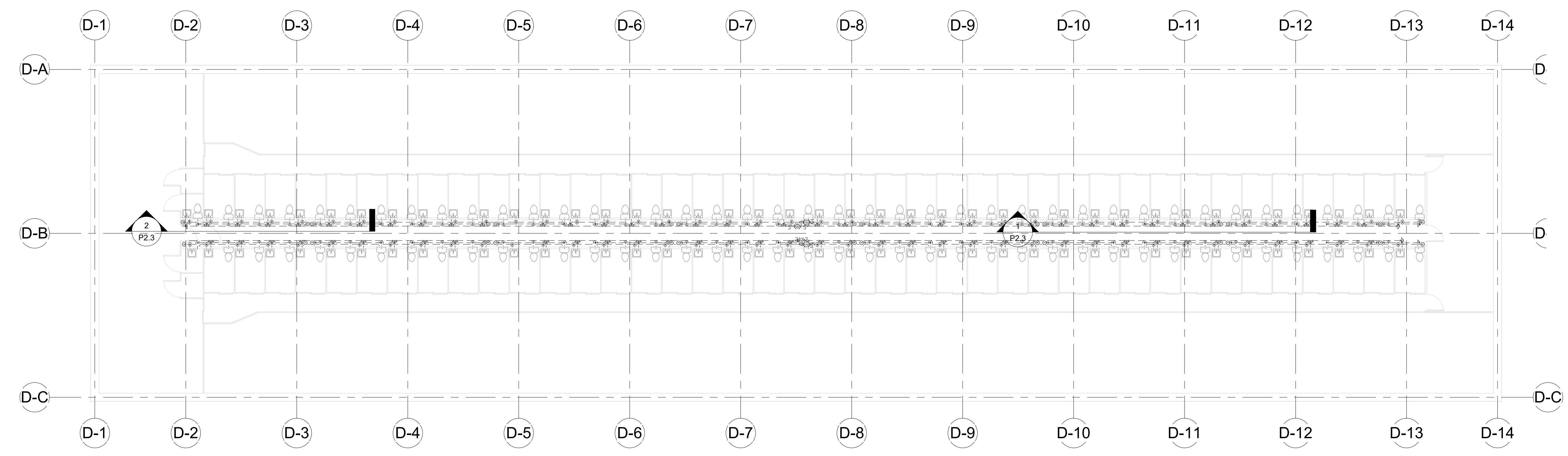
1 CELL BLOCK 'D' AND 'E' TIER 1 PLAN DEMO  
3/32" = 1'-0"



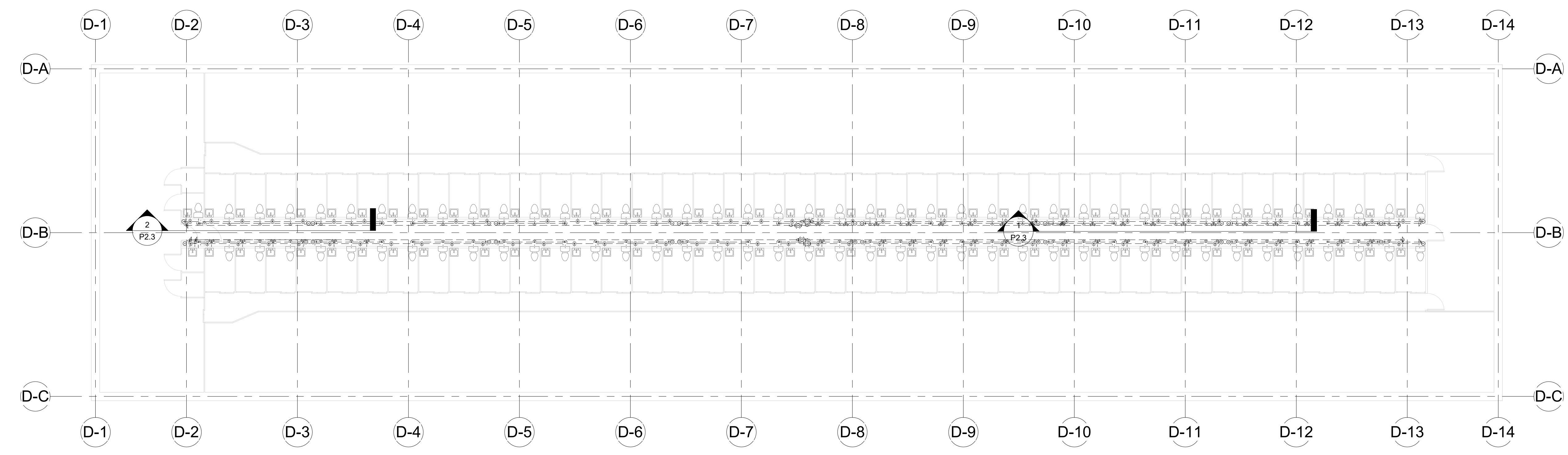
2 CELL BLOCK 'D' AND 'E' TIER 2 PLAN DEMO  
3/32" = 1'-0"




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① CELL BLOCK 'D' AND 'E' TIER 3 PLAN DEMO  
3/32" = 1'-0"

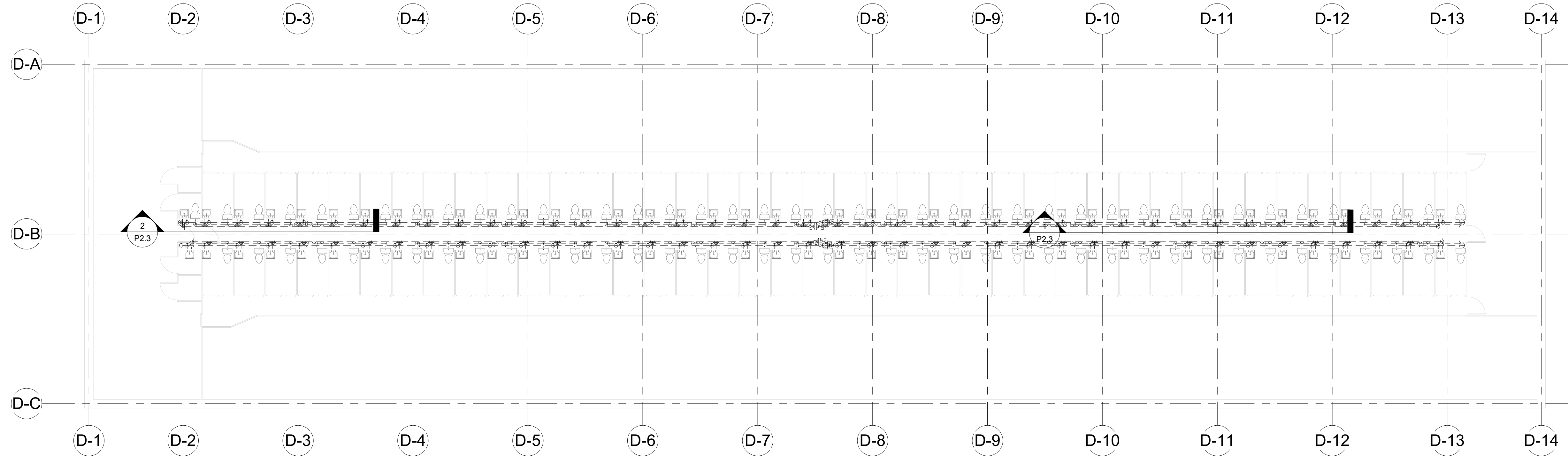


② CELL BLOCK 'D' AND 'E' TIER 4 PLAN DEMO  
3/32" = 1'-0"

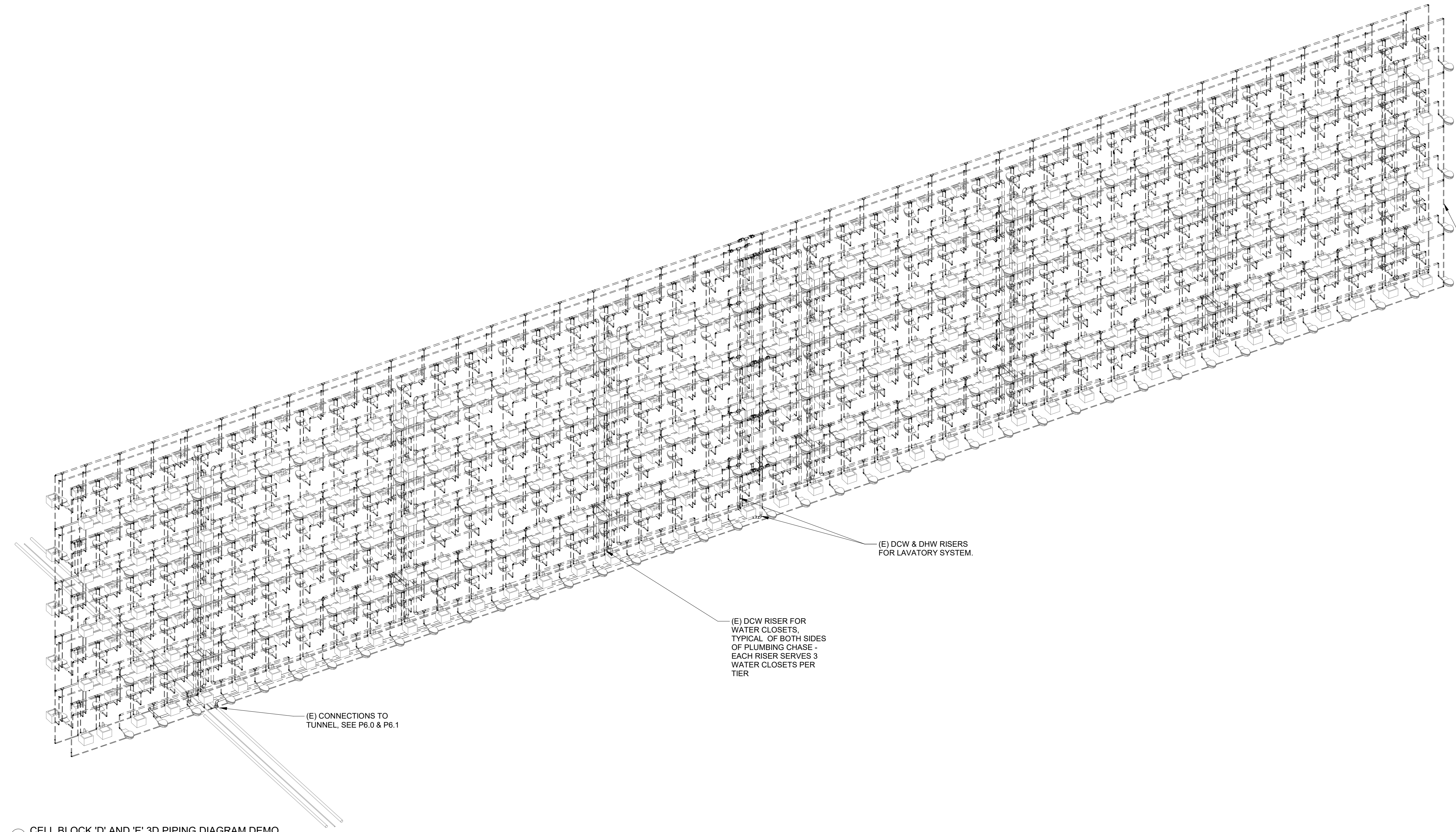
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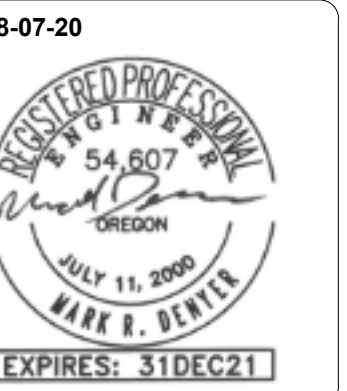
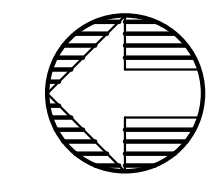
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1 CELL BLOCK 'D' 4TH FLOOR PLAN DEMO  
3/32" = 1'-0"



2 CELL BLOCK 'D' AND 'E' 3D PIPING DIAGRAM DEMO



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CELL BLOCK 'D' AND 'E' TIER 5 DEMO PLAN



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P2.2



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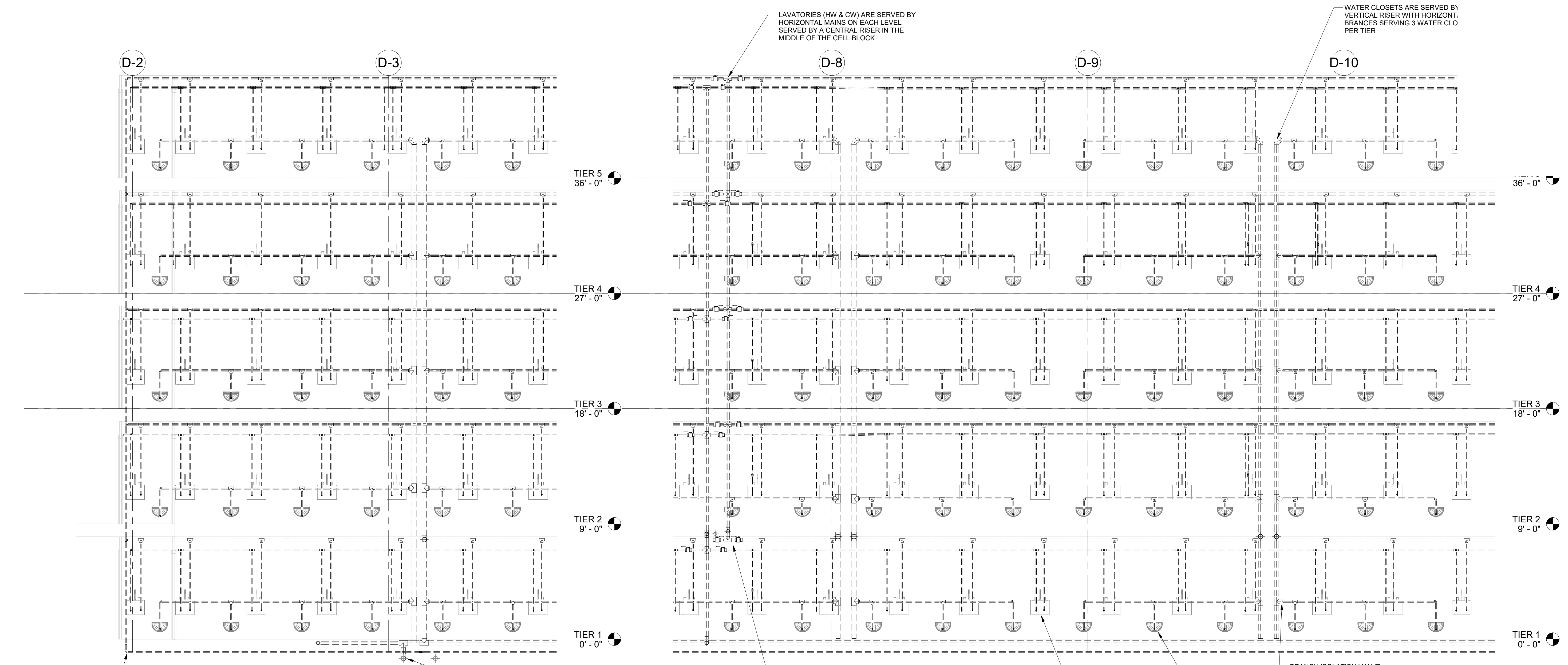
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CELL BLOCK 'D' AND 'E' TYPICAL RISERS



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P2.3



LAVATORIES (HW & CW) ARE SERVED BY HORIZONTAL MAINS ON EACH LEVEL SERVED BY A CENTRAL RISER IN THE MIDDLE OF THE CELL BLOCK

WATER CLOSETS ARE SERVED BY VERTICAL RISER WITH HORIZONT. BRANCES SERVING 3 WATER CLO PER TIER

(E) HOT WATER RECIRC LINES ARE CONNECTED TO THE END OF EACH TIER HOT WATER SUPPLY BRANCH - EACH END OF CELL BLOCK

2 CELL BLOCK 'D' TYPICAL NORTH RISERS DEMO DIAGRAM  
1/4" = 1'-0"

(E) DCW CONNECTION TO TUNNEL, SEE P6.00 & P6.1

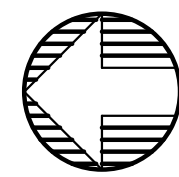
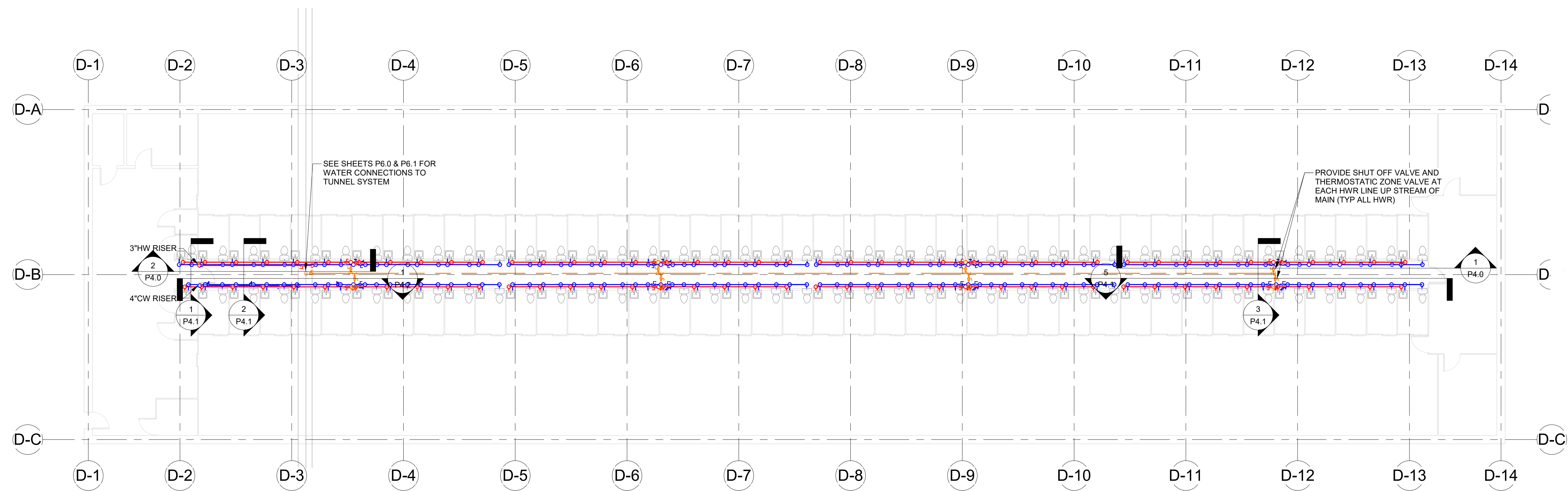
1 CELL BLOCK 'D' TYPICAL RISERS DEMO DIAGRAM  
1/4" = 1'-0"

BRANCH CW & HW ISOLATION VALVE ON LAVATORY SYSTEM SERVES HALF OF TIER. (SEPARATE RISERS ON EACH SIDE OF TIER)

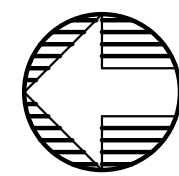
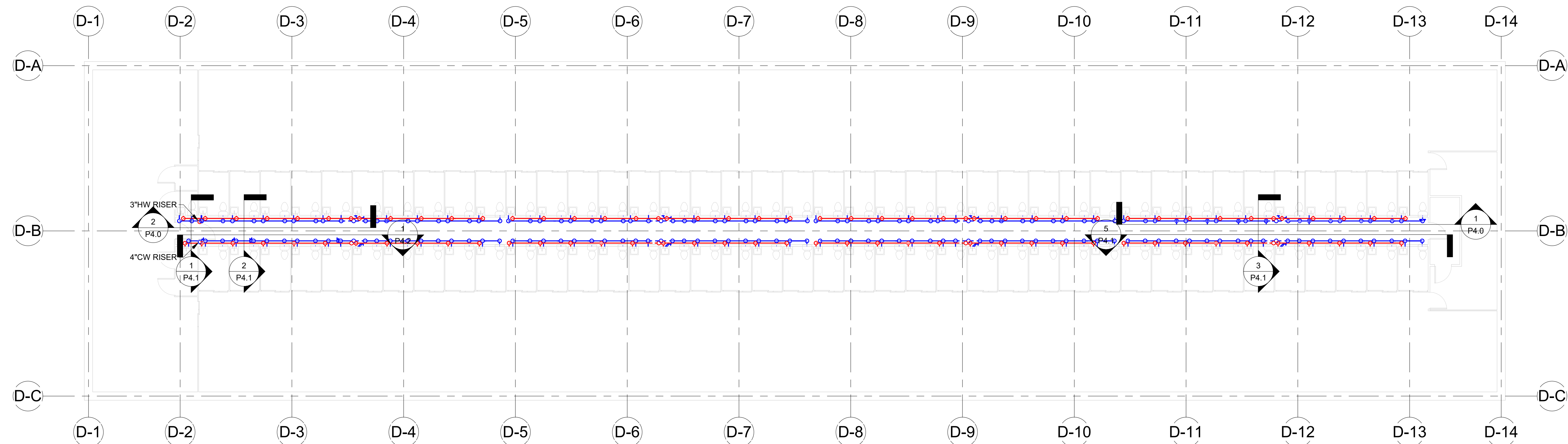
TYPICAL LAVATORY WATER CONNECTIONS

TYPICAL WATER CLOSET. EXISTING FLUSH SYSTEM TO REMAIN OPERATIONAL

BRANCH ISOLATION VALVE TO BE USED FOR FIXTURE SWITCH OVER TO NEW SYSTEM



1 CELL BLOCK 'D' AND 'E' TIER 1 PLAN  
3/32" = 1'-0"

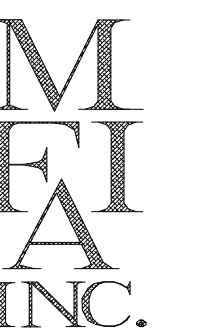


2 CELL BLOCK 'D' AND 'E' TIER 2 PLAN  
3/32" = 1'-0"

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CELL BLOCK 'D' AND 'E' TIER 1 AND TIER 2 PLANS



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P3.0





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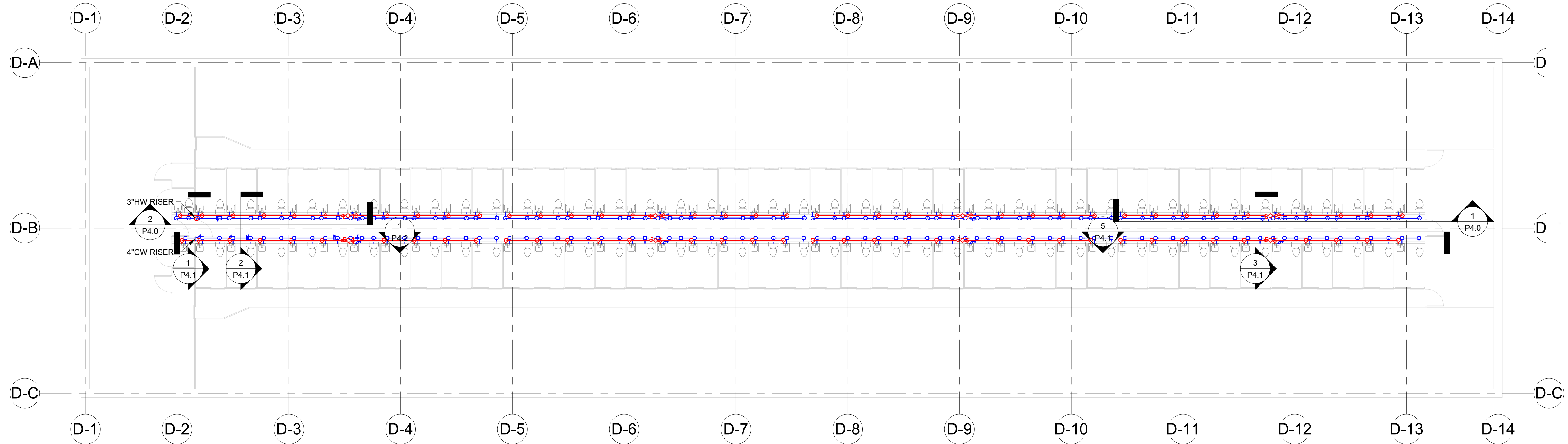
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 CELL BLOCK 'D' AND 'E' TIER 3 AND TIER 4 PLANS



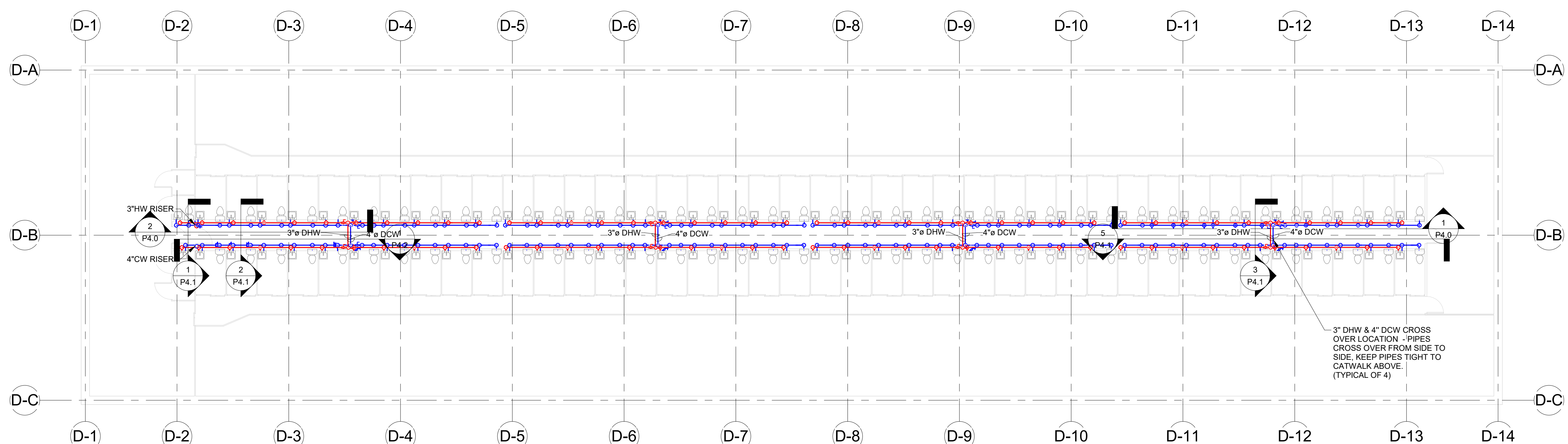
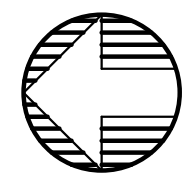
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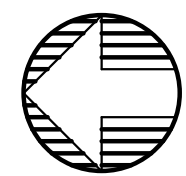
P3.1



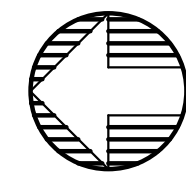
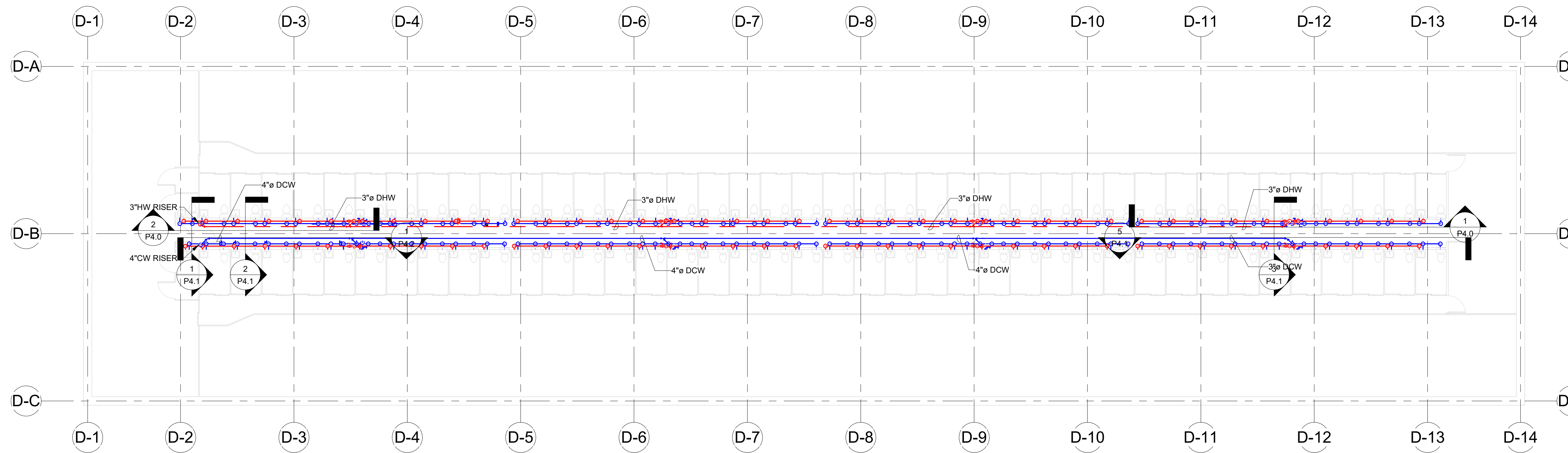
1 CELL BLOCK 'D' AND 'E' TIER 3 PLAN  
 3/32" = 1'-0"



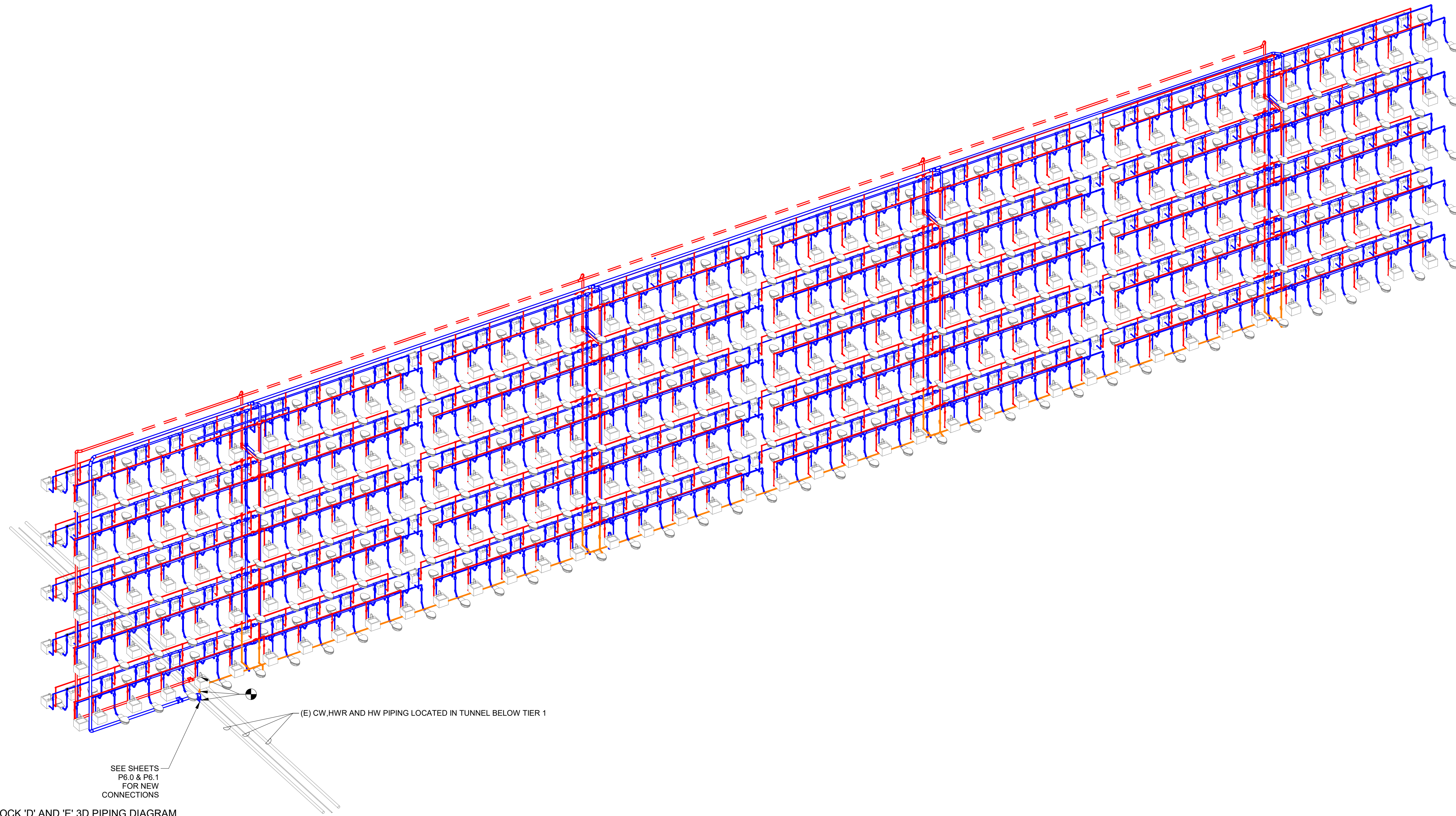
2 CELL BLOCK 'D' AND 'E' TIER 4 PLAN  
 3/32" = 1'-0"



3" DHW & 4" DCW CROSS  
 OVER LOCATION - PIPES  
 CROSS OVER FROM SIDE TO  
 SIDE. KEEP PIPES TIGHT TO  
 CATWALK ABOVE.  
 (TYPICAL OF 4)



1 CELL BLOCK 'D' AND 'E' TIER 5 PLAN  
3/32" = 1'-0"



2 CELL BLOCK 'D' AND 'E' 3D PIPING DIAGRAM

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CELL BLOCK 'D' AND 'E' TIER 5 PLAN



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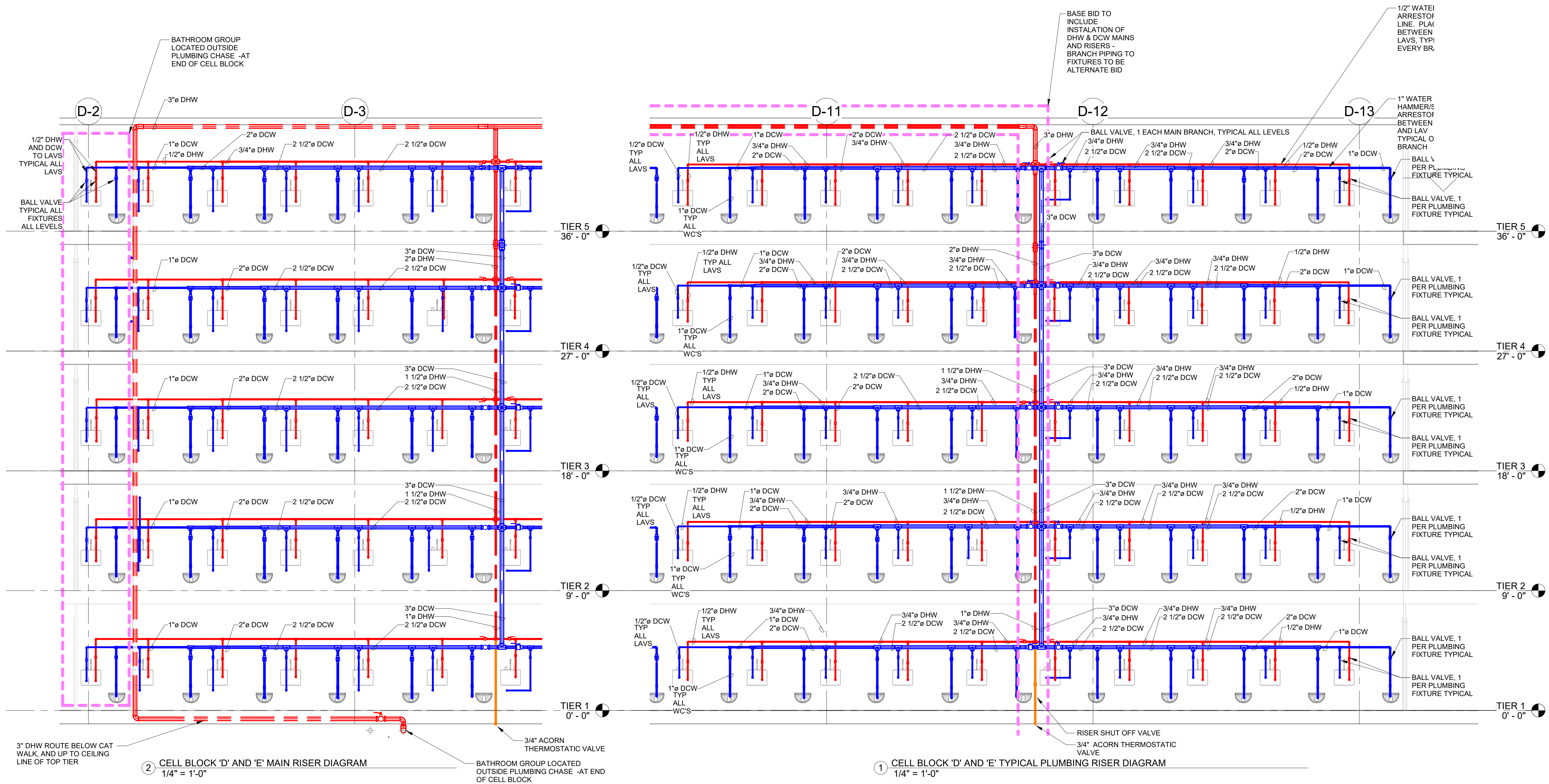
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**P3.2**

10 OF 16



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 CELL BLOCK 'D' AND 'E' PLUMBING SECTIONS



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P4.0



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 DSGN By: MRD

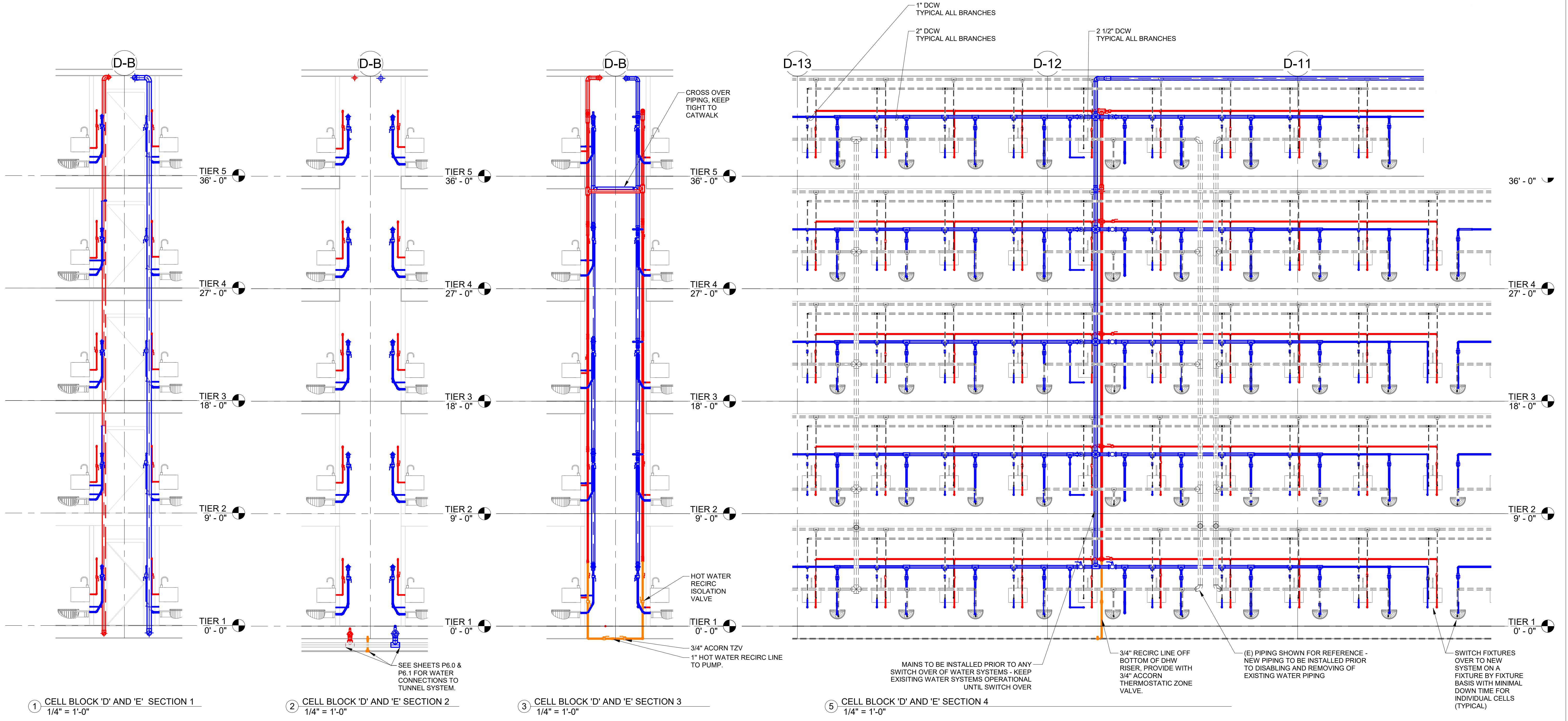
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P4.1



1 CELL BLOCK 'D' AND 'E' SECTION 1  
1/4" = 1'-0"

2 CELL BLOCK 'D' AND 'E' SECTION 2  
1/4" = 1'-0"

3 CELL BLOCK 'D' AND 'E' SECTION 3  
1/4" = 1'-0"

5 CELL BLOCK 'D' AND 'E' SECTION 4  
1/4" = 1'-0"

SEE SHEETS P6.0 & P6.1 FOR WATER CONNECTIONS TO TUNNEL SYSTEM.

HOT WATER RECIRC ISOLATION VALVE  
3/4" ACORN TZV  
1" HOT WATER RECIRC LINE TO PUMP.

CROSS OVER PIPING, KEEP TIGHT TO CATWALK

MAINS TO BE INSTALLED PRIOR TO ANY SWITCH OVER OF WATER SYSTEMS - KEEP EXISTING WATER SYSTEMS OPERATIONAL UNTIL SWITCH OVER

3/4" RECIRC LINE OFF BOTTOM OF DHW RISER, PROVIDE WITH 3/4" ACCORN THERMOSTATIC ZONE VALVE.

(E) PIPING SHOWN FOR REFERENCE - NEW PIPING TO BE INSTALLED PRIOR TO DISABLING AND REMOVING OF EXISTING WATER PIPING

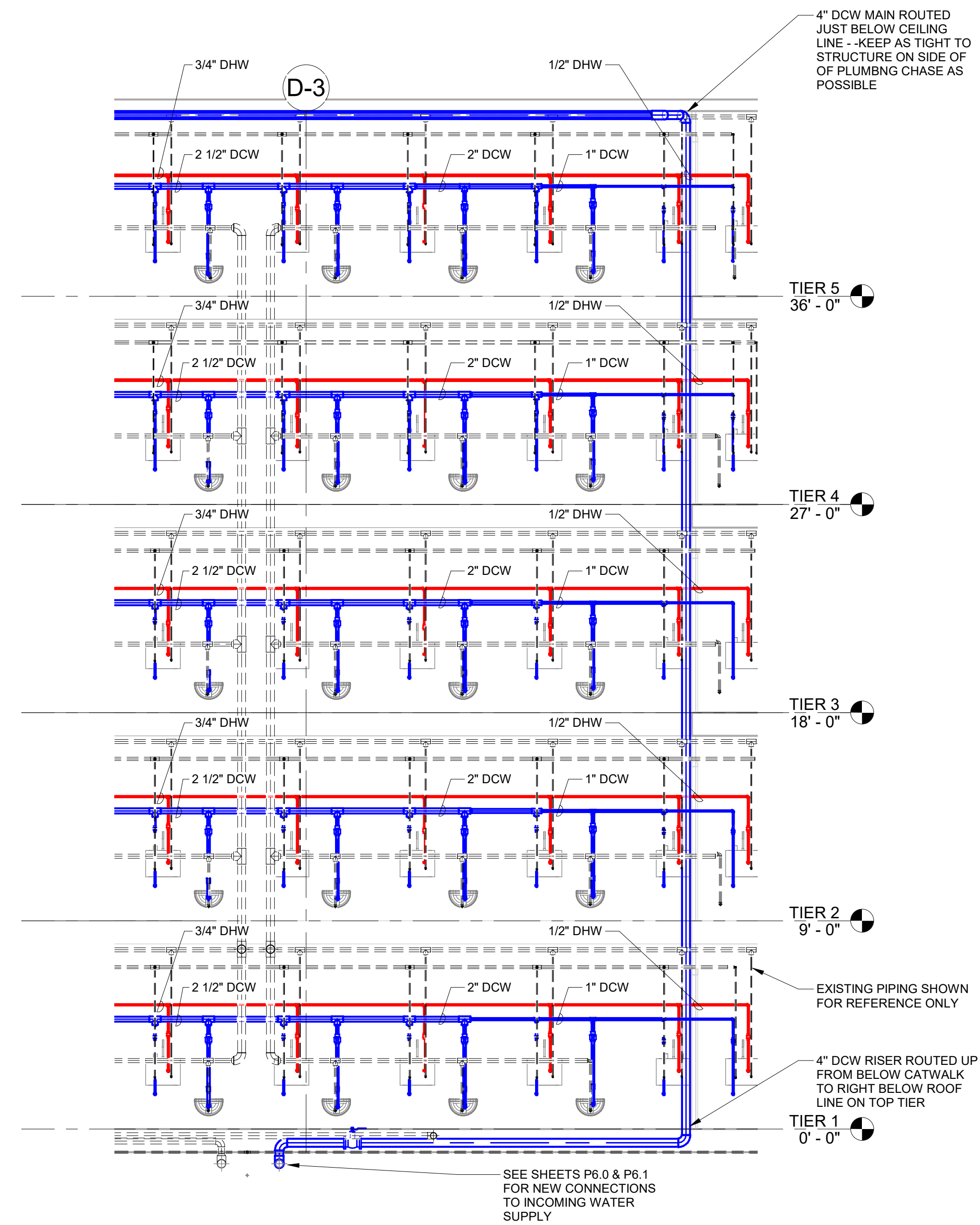
SWITCH FIXTURES OVER TO NEW SYSTEM ON A FIXTURE BY FIXTURE BASIS WITH MINIMAL DOWN TIME FOR INDIVIDUAL CELLS (TYPICAL)

1" DCW TYPICAL ALL BRANCHES  
2" DCW TYPICAL ALL BRANCHES

2 1/2" DCW TYPICAL ALL BRANCHES



Date: 08/07/20  
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① CELL BLOCK 'D' AND 'E' Section 5  
 1/4" = 1'-0"

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CELL BLOCK 'D' AND 'E' PLUMBING SECTIONS



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P4.2



1



3



4



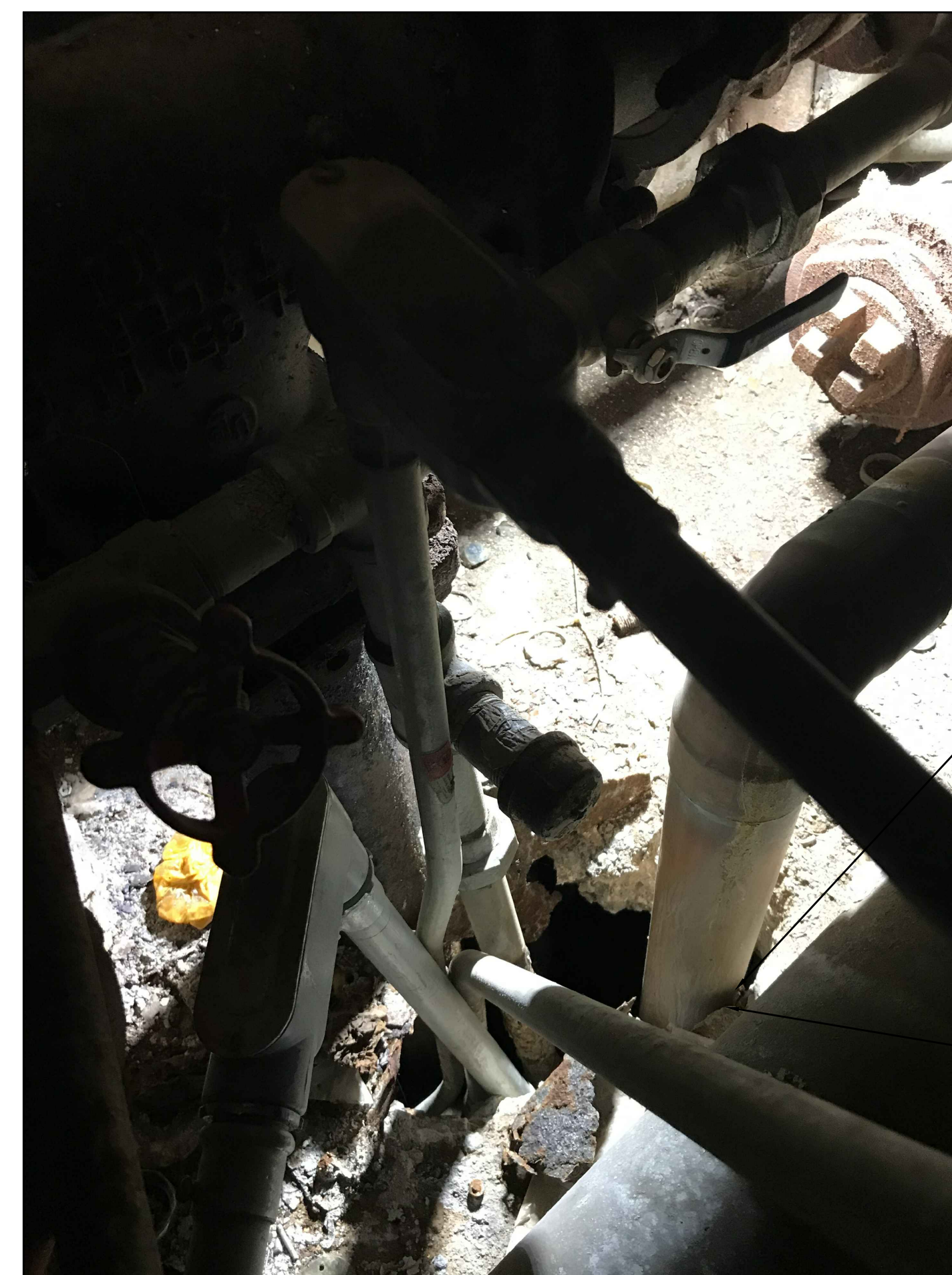
5

4



4" DCW PIPE PENETRATION OF CELL BLOCK PIPE CHASE FLOOR FROM TUNNEL

6



3" DHW PIPE PENETRATION OF CELL BLOCK FLOOR FROM TUNNEL

7

SEE DETAIL ON SHEET P6.1 FOR PICTURE TAGS

D-BLOCK:

PICTURES, DETAILS AND DESIGN ARE SPECIFICALLY FOR D-BLOCK E-BLOCK IS SIMILAR ARRANGEMENT AND ALL REQUIRED WORK TO BE SIMILAR

1 EXISTING WATER SUPPLY PHOTOS  
P6.0 PICTURES




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P6.0



ES-LF15M2

**For Commercial Applications**

Job Name \_\_\_\_\_ Contractor \_\_\_\_\_

Job Location \_\_\_\_\_ Approval \_\_\_\_\_

Engineer \_\_\_\_\_ Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_ Representative \_\_\_\_\_

## LEAD FREE

### Series LF15M2 Water Hammer Arrestors

Sizes: 1/2" - 1"

#### What is Water Hammer?

The noise from banging pipes is caused by shocks of high speed water flowing in the piping system when a fixture is suddenly closed. Sudden stoppage of the water (a non-compressible liquid) flowing at a given pressure and velocity causes a surge or spike of water and is called water hammer. When this occurs, a pressure wave travels back through the piping until it finds a point of relief. The LF15M2 and LF15M2S Water Hammer Arrestors are designed to eliminate this effect. The LF15M2 and LF15M2S features Lead Free\* construction to comply with Lead Free\* requirements. Dishwashers, clothes washers, fast closing positive shutoff valves incorporated in the system all contribute to creating water shock which is not only annoying but damaging to pipes and appliances. The Watts Series LF15M2 and LF15M2S incorporates a pre-charged, permanent sealed air chamber to absorb the shock. The sealed chamber prevents the loss of air to the water and assures long and trouble-free life.

#### Features

- NPT solid hex brass adapter or solder end connection for easy installation
- Approved for installation with no access panel required
- May be installed in new or existing plumbing systems with a standard pipe tee vertically, horizontally or at any angle
- PDI Listed (PDI WH-201)
- Maintenance free – piston is the only moving part
- Air pre-load is 60psi (4.2 bar)
- Factory air charged and permanently sealed

#### Standards



Standard: Listed by IAPMO, ASSE 1010 approved, ANSI A112.26.1M approved, PDI WH201 approved and certified.



LF15M2 LF15M2S

#### Pressure – Temperature

Operating Pressure: Designed to operate on all domestic and commercial lines @ 150psi (10.6 bar) working pressure.  
Temperature Range: 33°F to 180°F (0.5°C to 82°C).

#### Materials

Body: Copper  
Piston: Polypropylene  
Threaded Adapter: Lead Free\* Brass  
O-ring: EPDM

#### NOTICE

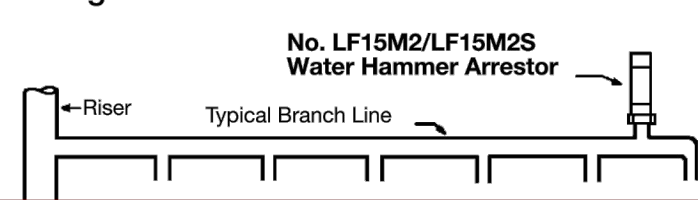
The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

#### NOTICE

Inquire with governing authorities for local installation requirements.

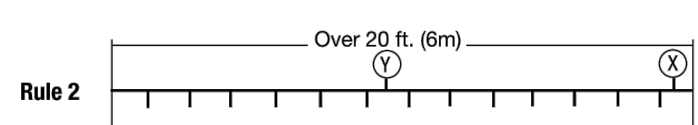
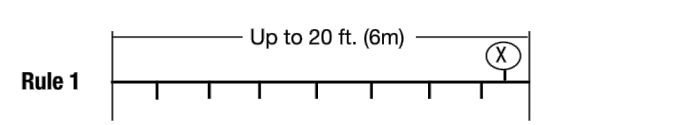
\*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

#### Sizing and Placement



As shown, it has been established that the preferred location for the water hammer arrestor is at the end of the branch line between the last two fixtures served.

The location of the water hammer arrestor shown above applies to branch lines that do not exceed 20 ft. (6m) in length, from the start of the horizontal branch line to the last fixture supply on this branch line. When the branch line exceeds the 20 ft. (6m) length, an additional water hammer arrestor should be used. This practice is best defined by two rules which have been established to cover the placement of water hammer arrestors.



**Rule 1** covers multiple fixture branch lines which do not exceed 20 ft. (6m) in length.  
**Explanation** - Fixture-unit sizing and selection table is used to select the required PDI unit (water hammer arrestor).

**Rule 2** covers multiple fixture branch lines which do exceed 20 ft. (6m) in length.  
**Explanation** - Fixture-unit sizing and selection table is used to select the required PDI unit (water hammer arrestor). The sum of the fixture units rating of units X and Y shall be equal to or greater than the demand of the branches.

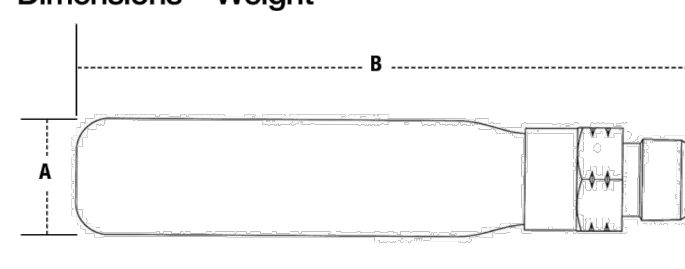
#### Sizing and Selection Table

SIZE	MODEL	ORDER CODE	MODEL	ORDER CODE	CROSS FIXTURE UNITS	REF. PDI STANDARD
1/2"	LF15M2-A	0750160	LF15M2-AS	0750150	1-11	A
3/4"	LF15M2-C	0750161	LF15M2-CS	0750151	12-24	B
1"	LF15M2-E	0750162	LF15M2-ES	0750152	35-60	C
1 1/4"	LF15M2-F	0750163	LF15M2-FS	0750153	87-119	D
1 1/2"	LF15M2-G	0750164	LF15M2-GS	0750154	114-154	E
2"	LF15M2-H	0750165	LF15M2-HS	0750155	155-330	F

#### Fixture Units Sizing Information

FIXTURE	TYPE OF SUPPLY CONTROL	PUBLIC		PRIVATE	
		TOTAL	C.W. N.W.	TOTAL	C.W. N.W.
Water Closet 1.66 PF	Flush Valve	8	8	5	5
Water Closet 1.66 PF	Flush Tank	5	5	2.5	2.5
Pedestal Urinal 1.06 PF	Flush Valve	4	4	-	-
Stall or Wall Urinal	Flush Valve 1.06 PF	4	4	-	-
Stall or Wall Urinal	Flush Tank 1.06 PF	2	2	-	-
Lavatory	Faucet	2	1 1/2	1	1
Bathub	Faucet	4	2	3	2
Shower Head	Mixing Valve	4	2	3	2
Bathroom Group	Flush Valve Closet	-	-	8	8
Bathroom Group	Flush Tank Closet	-	-	6	6
Separate Shower	Mixing Valve	-	-	2	1
Service Sink	Faucet	3	3	-	-
Laundry Tube (1-3)	Faucet	-	-	3	3
Combination Fixture	Faucet	-	-	3	3

#### Dimensions – Weight



SIZE	DIMENSIONS		WEIGHT	
	A	B	lbs.	kg.
<b>Threaded</b>				
1/2"	LF15M2-A	1 1/2 28.5	5 1/4 150.9	0.5 0.2
3/4"	LF15M2-C	1 3/4 34.9	8 1/4 219.0	0.9 0.4
1"	LF15M2-E	2 1/4 41.3	8 1/4 223.5	1.3 0.6
1 1/4"	LF15M2-F	2 3/4 54.0	12 1/4 266.6	2.0 0.9
1 1/2"	LF15M2-G	2 3/4 54.0	12 1/4 266.6	2.3 1.1
2"	LF15M2-H	2 3/4 66.7	11 1/4 283.5	2.7 1.2
<b>Solder</b>				
1/2"	LF15M2-AS	1 1/2 28.5	8 1/4 210.0	0.44 0.2
3/4"	LF15M2-CS	1 1/2 28.5	10 254.0	0.54 0.2
1"	LF15M2-ES	1 1/2 34.9	12 1/4 317.5	0.92 0.4
1 1/4"	LF15M2-FS	2 1/4 54.0	11 280.0	1.63 0.7
1 1/2"	LF15M2-GS	2 1/4 54.0	13 1/4 343.0	1.98 0.9
2"	LF15M2-HS	2 1/4 54.0	16 406.5	2.32 1.1

#### Uponor PEX codes and standards

Codes: IMC, IPC, IRC, NSPC, UMC, UPC, NPCC, IRC

Listings: AWWA, HUD, IAPMO, ICC, Intertek, ITS, NSF, NSF-pw, NSF-rcw, NSF-rfb, PPI, QAI, UL

Standards: ASTM E84, ASTM E814, ASTM E119, ASTM F876, ASTM F877, ASTM F2023, ASTM F1960, ASTM F2657, ANSINFSF 14 and 61, ANSINFSF 359

Fire-rated assemblies: Tested in accordance with ASTM E119/UL 263; G573, K913, L557, U372, V444

#### ASTM E84 (plenums)

Uponor PEX pipe products are approved for installation in return-air plenums as described below. All Uponor PEX pipe, Uponor ProPEX rings and Uponor ProPEX fittings (EP, brass and lead-free brass) were tested and approved.

#### 1/2" to 1/4" Uponor PEX (uninsulated)

Adjacent runs of uninsulated 1/2" to 1/4" Uponor PEX pipe in a return-air plenum must be separated by 18".

#### Up to and including 3" Uponor PEX-a supported with Uponor PEX-a Pipe Support

Uponor PEX-a piping manufactured with a maximum nominal outside diameter (OD) of 3" and supported with Uponor PEX-a Pipe Support. Pipe or fitting sections without PEX-a Pipe Support must be covered with a rated insulation. There is no minimum length of PEX-a Pipe Support segments. There are also no spacing limitations between adjacent runs of this pipe.

Classified as to surface burning characteristics			
ASTM E84	Flame spread	Smoke developed	Limitations
Nominal 1/2" to 1/4" size	25 or less	50 or less	Adjacent pipe runs shall be located at least 18" apart.
3" maximum nominal size Uponor PEX-a supported with Uponor PEX-a Pipe Support	25 or less	50 or less	Pipe or fitting sections without PEX-a Pipe Support must be covered with a rated insulation. There is no minimum length of PEX-a Pipe Support segments.
3" maximum nominal size Uponor PEX-a with 1/2" insulation	25 or less	50 or less	1/2" minimum thickness insulation

#### Table 5: Uponor PEX ASTM E84 requirements

#### PEX-a Pipe Support installation in ASTM E84 applications

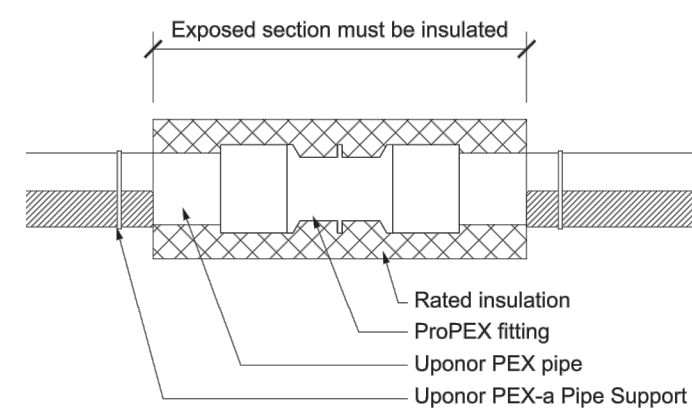
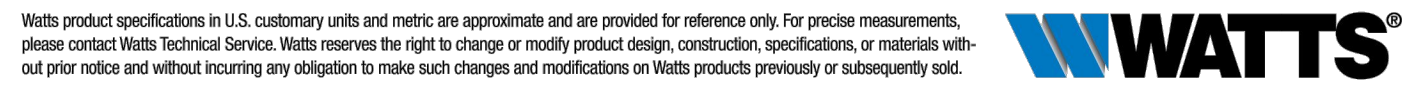


Figure 4: PEX-a Pipe Support installation in ASTM E84 applications



USA: T: (978) 889-8286 • F: (978) 975-8320 • Watts.com  
Canada: T: (905) 332-4090 • F: (905) 332-7068 • Watts.ca  
Latin America: T: (52) 81-1001-8600 • Watts.com

ES-LF15M2 1329

## TempFlow®

### Model TZV Thermostatic Zone Valve

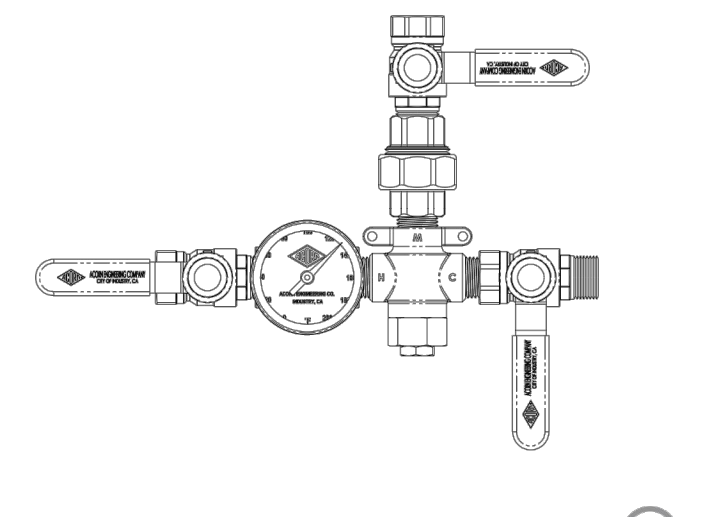


#### APPLICATION:

The Acorn TZV is a thermostatically controlled zone balancing valve which automatically maintains the domestic hot water loop/zone temperature. By simply installing the valve after the last hot water device in each loop, it will self-adjust and balance the recirculated flow and heat loss of each TZV controlled zone. This ensures fast and consistent delivery of hot water to all fixtures all the time.

#### FEATURES:

- Eliminates the need for time-consuming and costly setup balancing and frequent rebalancing required by Circuit Setters
- Lead-Free certified DZR brass body with corrosion-resistant and lead-free internal components.
- Includes a test port which can also serve as a bleed valve during setup.
- Integral and cartridge-style check with accessible screens to prevent backflow and to filter debris from entering the valve.
- The TZV is field adjustable from 100°F to 160°F. Replacement is not required if the target temperature changes.
- An Allen wrench/locknut helps prevent unauthorized setpoint adjustment.
- Commercial quality paraffin actuator provides repeatable, reliable performance.
- Factory set to 110°F (43°C).
- Enables/promotes less expensive pumps.
- Reduces installation and maintenance costs.
- Reduces pipe/fitting erosion by minimizing fluid velocities.



Model TZV-2 Shown (⊕) Patent Pending

#### VALVE SELECTION:

- TZV-1 Thermostatic Zone Valve with Cap on Cold Water Port
- TZV-2 Thermostatic Zone Valve with Three Ball Valve Shut-Offs, Inlet Temperature Gauge and Pipe Union (⊕ NOTE: Components Shipped Unassembled For Field Installation)

#### ACCESSORIES:

- AD Access Door (20" x 20") White Prime Coat Finish with Cylinder Lock
- SS Stainless Steel With Satin Finish

⊕ The wetted surface of these valves contacted by consumable water contains less than 0.25% of lead by weight in conformance with national lead free law.

#### GUIDE SPECIFICATION:

The Thermostatic Zone Valve shall have a solid brass body with corrosion-resistant internal components. It shall include an integral check valve and strainer to prevent backflow and filter debris from entering the valve. Zone temperature adjustment shall be from 100°F to 160°F (38°C to 71°C) and is made using an Allen wrench and a locknut on the bonnet prevents unauthorized or accidental temperature adjustment. Valve shall proportionally modulate to maintain zone temperatures based on heat loss and shall stabilize pump demand to prevent cycling. The TZV modulates its Cv to a minimum of 0.05 with a 10°F (5.6°C) change in zone temperature. The valve shall not have positive shut-off thereby preventing pump dead-heading and/or subsequent overheating. Valve shall be Acorn model TZV.

#### Certifications:

Acorn Controls assumes no responsibility for use of lead or hazardous data. © Copyright Acorn Controls, City of Industry, CA, Division of Acorn Engineering Company, a member of Morris Group International. Please visit [www.acorneng.com](http://www.acorneng.com) or most current specifications.

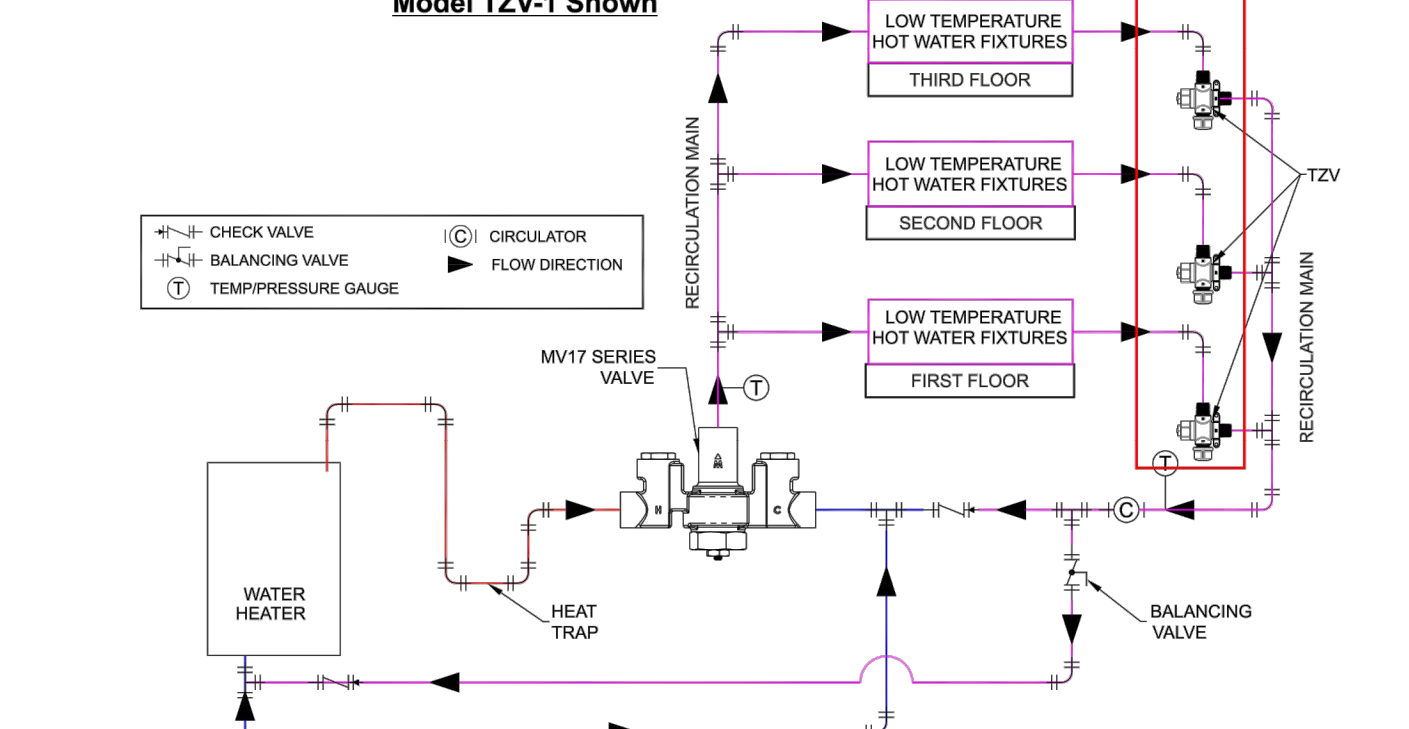
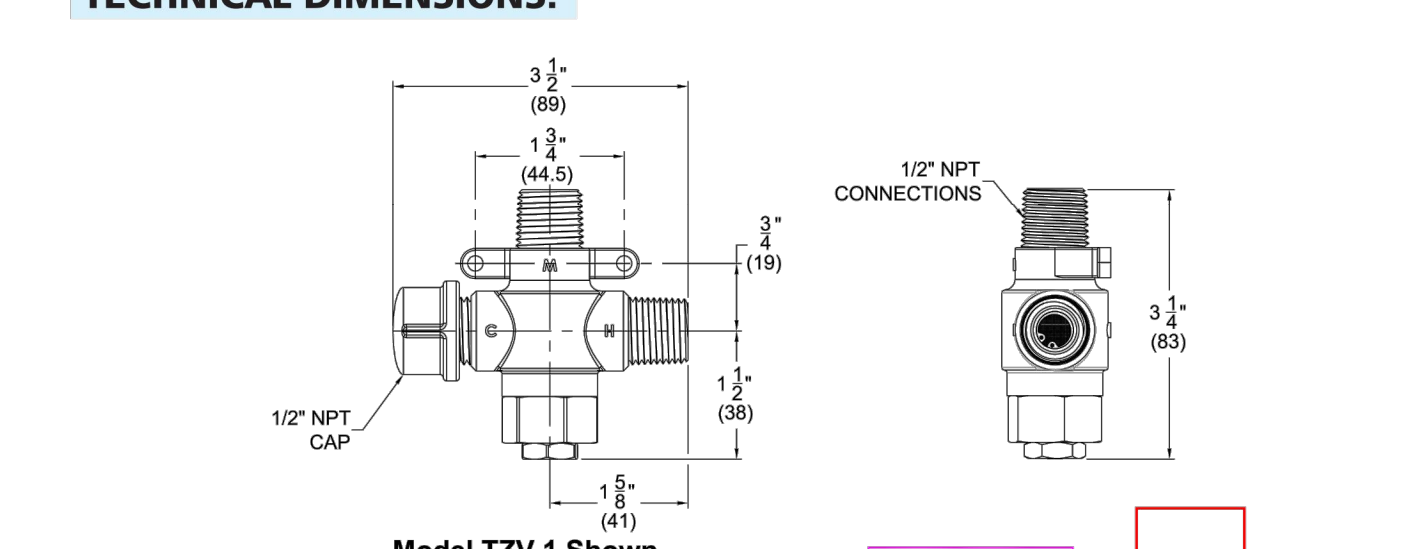
Submitted by **TN**  
Revised: 07/15/19

#### Acorn Engineering Company

1974  
ACORN ENGINEERING COMPANY  
Member of Morris Group International™

ACORN ENGINEERING COMPANY  
P.O. BOX 3027  
City of Industry, CA 91744, U.S.A.  
Phone: 800-488-8999  
800-336-4561  
Fax: 626-861-2202  
www.acorneng.com

#### TECHNICAL DIMENSIONS:



TYPICAL PIPING DIAGRAM

# TZV Revised: 07/15/19 WARNING: Cancer and Reproductive Harm - www.P6Warnings.ca.gov

Acorn Controls warrants that its products are free from defects in material or workmanship under normal use and service for a period of one year from date of shipment. Acorn's liability under this warranty shall be discharged solely by replacement or repair of defective material, provided Acorn is notified in writing within one year from date of shipment, F.O.B. City of Industry, California.

Model Number & Options \_\_\_\_\_ Quantity \_\_\_\_\_

Company \_\_\_\_\_

Contact \_\_\_\_\_ Title \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

**ACORN ENGINEERING COMPANY**  
800-488-8999  
or 626-336-4561  
www.acorneng.com

## uponor

### PEX-a Pipe Support

Submission Information  
Revision D: Dec. 23, 2014

Project Information  
Job Name: \_\_\_\_\_ Part No. Ordered: \_\_\_\_\_  
Location: \_\_\_\_\_ Date Submitted: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Submitted By: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Approved By: \_\_\_\_\_  
Manufacturer's Representative: \_\_\_\_\_

Technical Data  
Material: Commercial-grade (Type B) galvanized steel

#### Product Information and Application Use

PEX-a Pipe Support is a non-combustible, self-gripping, galvanized-steel channel for crosslinked polyethylene (PEX-a) pipe. It provides continuous, uninterrupted support of PEX-a pipe, allowing hanger placement similar to that of metallic pipe. Use PEX-a Pipe Support in conjunction with un-insulated Uponor AquaPEX™ or Wirsbo hePEX™ PEX-a pipe in ASTM E84 plenum applications. The PEX-a pipe with pipe support can be insulated with typical CTS (copper tube size) pipe insulation. PEX-a Pipe Support is offered in 9-foot lengths and comes with nylon-coated, stainless-steel strapping.

Description	Part Number	Height	Width	Length	Gauge	Weight
<input type="checkbox"/> 1/2" PEX-a Pipe Support, 9-ft. length	F7040500	0.42"	0.75"	108"	23	1.10 lbs.
<input type="checkbox"/> 3/4" PEX-a Pipe Support, 9-ft. length	F7040750	0.56"	1.00"	108"	23	1.50 lbs.
<input type="checkbox"/> 1" PEX-a Pipe Support, 9-ft. length	F7041000	0.64"	1.13"	108"	23	1.91 lbs.
<input type="checkbox"/> 1 1/4" PEX-a Pipe Support, 9-ft. length	F7041250	0.79"	1.38"	108"	23	2.10 lbs.
<input type="checkbox"/> 1 1/2" PEX-a Pipe Support, 9-ft. length	F7041500	0.93"	1.63"	108"	23	2.50 lbs.
<input type="checkbox"/> 2" PEX-a Pipe Support, 9-ft. length	F7042000	1.14"	2.00"	108"	23	3.60 lbs.
<input type="checkbox"/> 2 1/2" PEX-a Pipe Support, 9-ft. length	F7042500	1.25"	2.52"	108"	23	4.60 lbs.
<input type="checkbox"/> 3" PEX-a Pipe Support, 9-ft. length	F7043000	1.90"	3.12"	108"	23	6.20 lbs.
<input type="checkbox"/> 3 1/2" PEX-a Pipe Support, 9-ft. length	F7043500	2.16"	3.60"	108"	23	6.40 lbs.

#### Installation

Install PEX-a Pipe Support vertically or horizontally for plenum and non-plenum applications. Refer to the Uponor PEX-a Pipe Support Instruction Sheet for installation guidelines.

#### Accessories

Q7410510: PEX-a Pipe Support Strapping (1/2", 3/4", 1" PEX)  
Q7411220: PEX-a Pipe Support Strapping (1 1/4", 1 1/2", 2" PEX)  
Q7412540: PEX-a Pipe Support Strapping (2 1/2", 3", 3 1/2", 4" PEX)

#### Standards

ASTM E84 (up to 3")

#### Codes

IMC, UMC, NBCC

#### Listings

QAI P321 (up to 3")

#### Related Applications

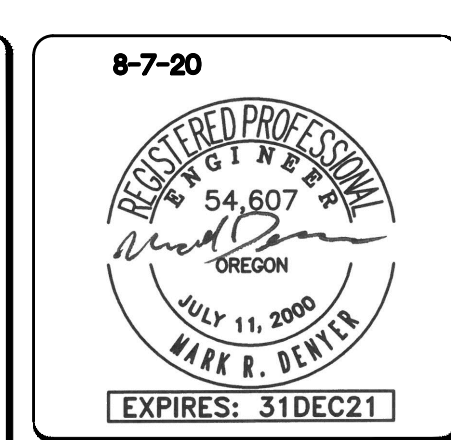
PEX-a Plumbing Systems  
Radiant Heating and Cooling Systems  
AquaSAFE™ Fire Safety Systems

#### Contact Information

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5925 148th Street West  
Apple Valley, MN 55124 USA  
Phone: 800.321.4739  
Fax: 952.891.2008  
www.uponorpro.com

#### Uponor Ltd.

2000 Argentina Rd., Plaza 1, Ste. 200  
Mississauga, ON L5N 1W1 CANADA  
Phone: 888.994.7726  
Fax: 800.638.9517  
www.uponorpro.com



Date: 8-7-20

Proj. No.: 9835

Drawn By: MD

Chkd By: MD

DSGN By: MD

Acad File: 9982P10

Date: 8-7-20

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