

2026 CSHE ANNUAL INSTITUTE

Bridging the Gap Between Design and Operations: How Sutter Health Modernized its MEP Standards

**SILICON SYSTEMS:
POWERING THE FUTURE OF
HEALTHCARE FACILITIES**

**MAY 13 - 15
SANTA CLARA, CA**



Sutter Health Introductions



Angel Borja
Senior Director
Acute Facility Management



Chris Burun
Senior Director
Project Delivery



Teon Lee
MEP Program Manager
Facility Management



Orion Morrissey
Mechanical Engineer
Facility Planning



Sutter Health: Mission and Values

Our Mission

Caring for our patients first and our people always.

Our Vision

To be the most comprehensive, integrated and connected health system for getting and staying well.

Our Values

Compassion

We show empathy and understanding in every personal interaction.

Curiosity

We are constantly learning and creating new ways to advance healthcare.

Excellence

We deliver high-quality care, have courage to take on the toughest challenges and model stewardship.

Inclusion

We cultivate a sense of belonging by creating spaces for all of our people to feel valued.

Integrity

We earn trust by doing the right thing and delivering on our commitments.

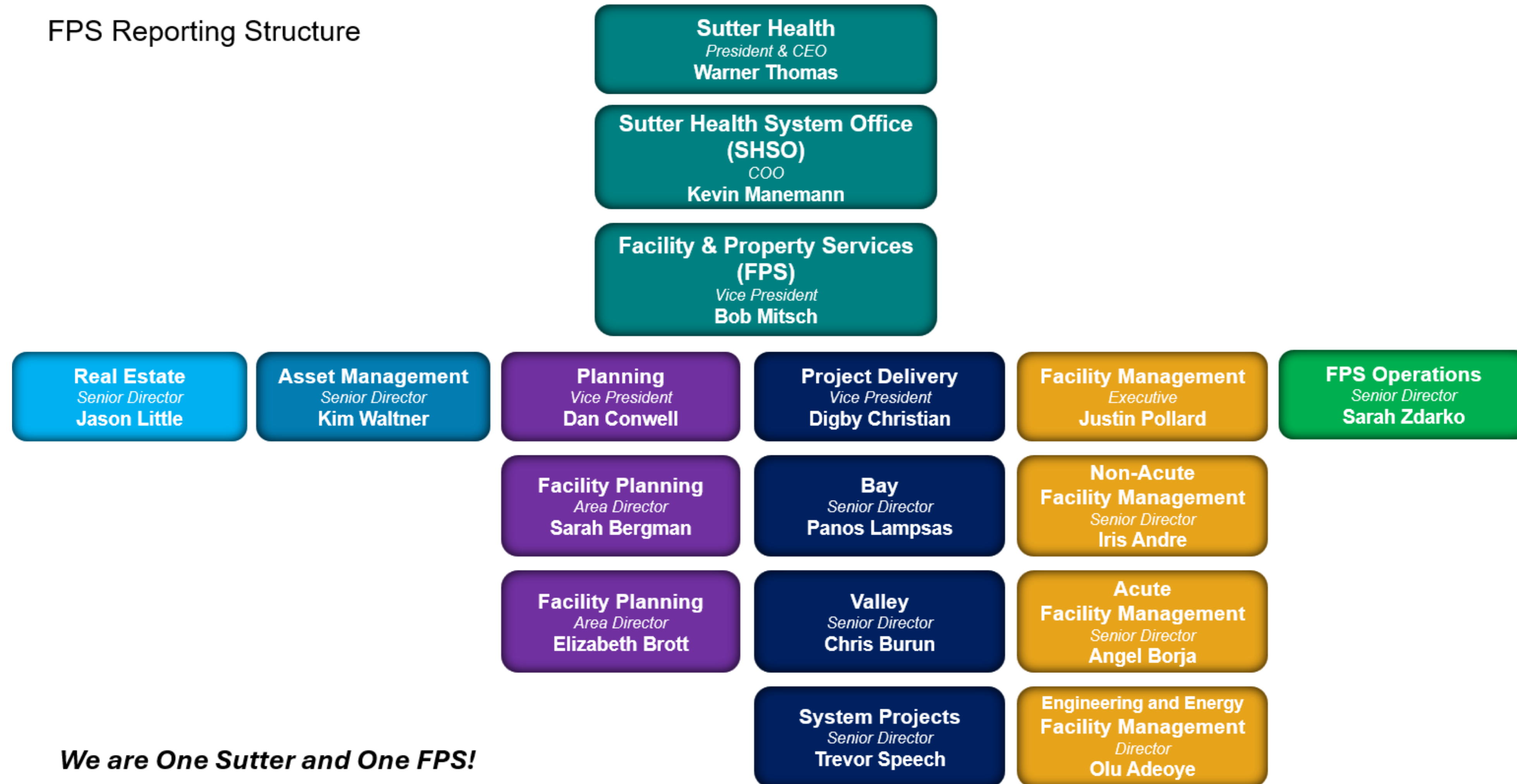
Teamwork

We collaborate with humility and solve for ONE Sutter.



Sutter Health FPS Structure

FPS Reporting Structure



We are One Sutter and One FPS!



Sutter Health: MEP Standards Program

Overall Sutter Health FPS Design Standards



SharePoint

Search this library



Facility & Property Services

Home FPS Onboarding Documents Core Services Applications HR IS Ticket ...

Documents > **_Sutter Health Facility Standards**

Open Share Copy link Add shortcut Download Copy to Edit in grid view Integrate ...

Name	Module	Modified
0 - List of All Standards (PDF In Progress)		May 22, 2025
1 - FPS Facility Standards		May 22, 2025
2 - Standards by Other SH Departments		May 22, 2025
<input checked="" type="checkbox"/> Sutter Health Facility Standards - Exception Request Form.url		March 26



Sutter Health: MEP Standards Program

2024 – Renewed Focus and Vision

- MEP Standards had not been updated since initial issuance in 2014.
- Key hires were required.
- Co-Executive Sponsors – Dan Conwell and Justin Pollard

Planning
Vice President
Dan Conwell

Facility Management
Executive
Justin Pollard

January 24, 2014

Page 2 of 29

Sutter Health
Facility Planning and Development

Mechanical and Plumbing Design Guidelines



Sutter Health: MEP Standards Program

2024 – Renewed focus and Vision

Sutter Health - MEP Dyad



Teon Lee
MEP Program Manager
Facility Management
Hired: September 9th, 2024



Orion Morrissey
Mechanical Engineer
Facility Planning
Hired: November 18th, 2024

dyad noun

dy·ad ('dī-,ad) -əd

[Synonyms of dyad >](#)

1 : PAIR

specifically, sociology : two individuals (such as husband and wife) maintaining a sociologically significant relationship

2 *genetics* : a meiotic chromosome after separation of the two homologous (see [HOMOLOGOUS](#) sense 1a(2)) members of a tetrad

3 *mathematics* : an operator (see [OPERATOR](#) sense 3a) indicated by writing the symbols of two vectors (see [VECTOR](#) entry 1 sense 1a) without a dot or cross between

| In the equation $D = AB$, AB is a *dyad*.

dyadic (dī-'a-dik) adjective

dyadically (dī-'a-di-k(ə-)lē) adverb



Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards

3/27/25: MEP Standards – Steering Committee was started.

Sutter Health - MEP Guidelines - Steering Committee

Topic: Weekly Agenda		
Planning Leader:	Orion Morrissey	FM Leader: Teon Lee
Meeting Date:	3/27/25	Location: Teams Meeting
Start Time:	3:00 PM	End Time: 4:00 PM
Topic	Leader	Issues/Discussion
Intent of Committee	Orion/Teon	<p>Make updates to the MEP Guidelines</p> <p>Multi-pillar participation(Planning, FM, PD) to build consensus.</p> <p>Dan Conwell + Justin Pollard - Co-Executive Sponsors within FLT for this effort.</p> <p>Be a resource/outlet for Sutter Health FM personnel to bring concerns/issues to avoid repeating issues.</p>
Schedule	Orion	<p>Weekly - Initially to get through the "heavy lift" of the proposed updates to the Guidelines.</p> <p>Move to Bi-Weekly in the future from a maintenace perspective.</p>
Hot Topics	Orion	<p>Wireless Lighting Control Devices - Is this what we want?</p> <p>Instrument Air Compressors vs Nitrogen</p> <p>Nitrous Oxide(N2O) - E cylinders</p>
MEP Guideline Review	Orion	Review "General Guidelines" sections - Line-by-Line

Attendees	SH FPS Pillar
Deborah Cho	FM - Non-Acute
Angel Borja	FM - Acute
Mike Pilkay	FM - Acute
Jason Simmons	FM - Acute
Johnny Taylor	FM - Acute
Tom McCarthy	FM - Non-Acute
Arley Wolf	FM - Non-Acute
Teon Lee	FM - ECS
Wayne Bader	FM - ECS
Iris Andre	FM - Non-Acute
Justin Pollard	FM - Acute
Dan Conwell	Planning
Emily Laughton	Planning
Orion Morrissey	Planning
Chris Burun	Project Delivery
Jeannie Austin	Project Delivery
Sean Franklin	Project Delivery
Randy Flower	Project Delivery



Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards – Guiding Principals

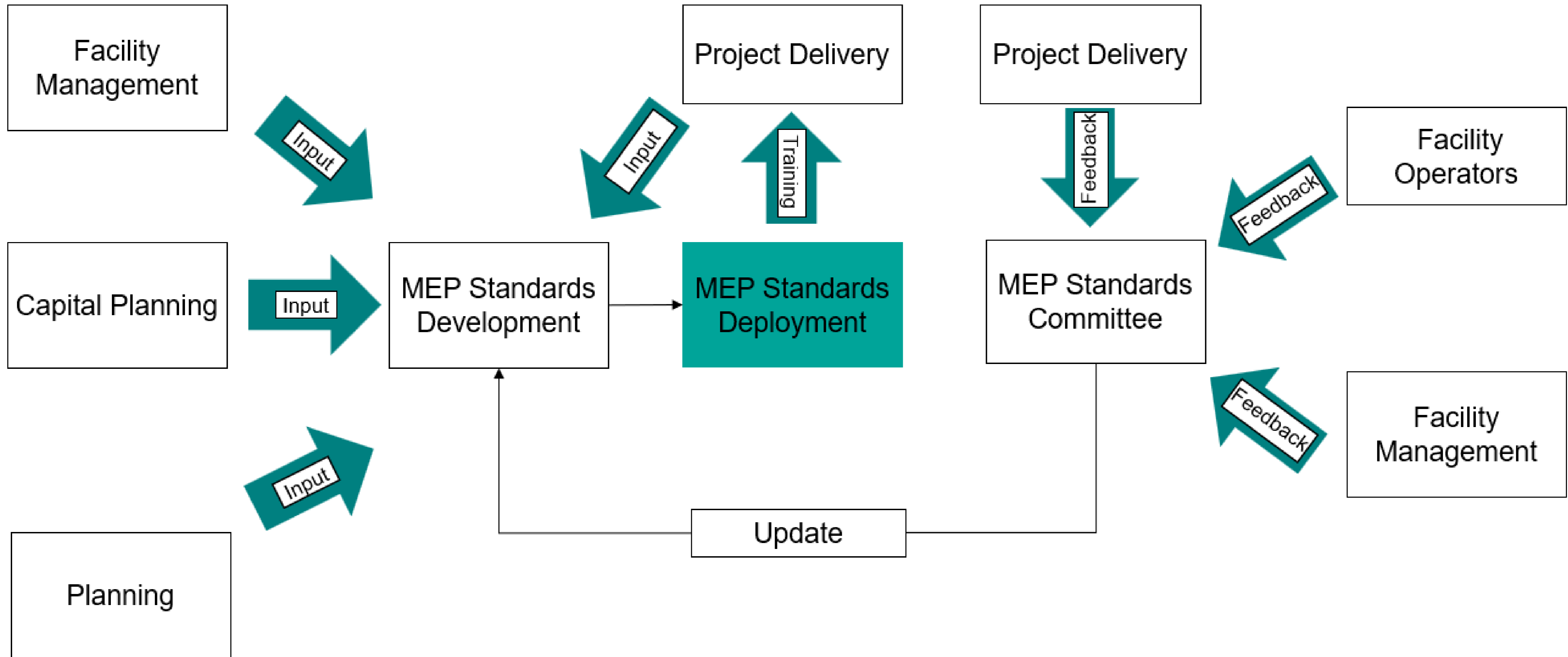
MEP Design Standards – Guiding Principles

1. Create healing environments.
2. Minimize Hospital-Associated Infections (HAIs).
3. Create safe working environments for FM.
4. Energy efficient systems.
5. Total cost of ownership.



Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards – Information Flow



Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards – Plumbing Fixtures

SUTTER HEALTH - PLUMBING FIXTURE STANDARDS FOR OSHPD FACILITIES																
ROOM TYPE (NOTE 12,15)	LAVATORY OR SINK (NOTES 3,5)					WATER CLOSET (NOTE 1)					SHOWER FLOW RATE (GPM) (NOTE 4)	CLINICAL SERVICE SINK	MODULAR TOILET	URINAL		ROOM OR FIXTURE SPECIFIC NOTES
	SENSOR - SELF POWER SYSTEM (NOTE 2)	WRIST BLADES	EYE WASH (NOTE 11,14)	SINK DEPTH (IN)	FAUCET FLOW RATE (GPM)	SENSOR - HARDWIRED	MANUAL	FLOW RATE (GPM)	BED PAN WASHER (NOTE 6)	BED PAN LUGS				SENSOR - HARDWIRED	FLOWRATE (GPF)	
PATIENT ROOM	X	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
PATIENT ROOM TOILET	-	X	-	-	1.5	-	X	1.28	X	X	1.8	-	-	-	-	-
PUBLIC TOILET	X	-	-	-	0.5	X	-	1.28	-	-	-	-	X	0.125	-	-
PATIENT TOILET	X	-	-	-	1.5	X	-	1.28	-	-	-	-	-	-	-	-
STAFF TOILET	X	-	-	-	1.5	X	-	1.28	-	-	-	-	-	-	-	-
EXAM ROOM	X	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
SOILED UTILITY	X	-	X	-	1.5	-	-	-	-	-	-	-	X	-	-	-
SOILED HOLDING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LD/DRIP ROOM	X	-	-	-	1.5	-	X	1.28	X	X	NOTE 13	-	-	-	-	-
MEDICINE PREPARATION (SINK)	-	X	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
MEDICINE PREPARATION (HANDWASH FIXTURE)	-	X	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
STAFF LOUNGE	-	X	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
ON-CALL TOILET	-	X	-	-	1.5	-	X	1.28	-	-	1.8	-	-	-	-	-
AIRBORNE INFECTION ISOLATION EXAM ROOM	X	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
AIRBORNE INFECTION ISOLATION ANTEROOM	X	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
AIRBORNE INFECTION ISOLATION TOILET ROOM	-	X	-	-	1.5	-	X	1.28	X	X	1.8	-	-	-	-	-
NOURISHMENT AREA (SINK)	-	X	-	8	1.5	-	-	-	-	-	-	-	-	-	-	16
NOURISHMENT AREA (HANDWASH FIXTURE)	-	X	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
NURSES STATION	X	-	X	-	1.5	-	-	-	-	-	-	-	-	-	-	-
ICU PATIENT ROOM	X	-	-	-	1.5	-	-	-	-	-	-	-	X	-	-	-
MOTHER'S ROOM	-	X	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
DIAGNOSTIC IMAGING PROCEDURE ROOMS (ALL MODALITIES)	X	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	8
TRIAGE	X	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	9,7
DRINKING FOUNTAIN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ICE MACHINE/COFFEE MAKER/WATER DISPENSER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- ROOM OR FIXTURE SPECIFIC NOTES:**
1. ALL WATER CLOSETS SHALL BE FLOOR MOUNTED CAPABLE OF SUPPORTING A STATIC WEIGHT LOAD OF 2,500 LBS.
 2. SENSORED FAUCETS SHALL BE PROVIDED WITH A SELF GENERATING POWER SYSTEM. MANUFACTURERS INCLUDE, BUT NOT LIMITED TO, SLOAN SELF SUSTAINING POWER SYSTEM, TOTO SELF POWER TECHNOLOGY, OR ZURN HYDRO X-POWER.
 3. WALL HUNG LAVATORIES AND SINKS SHALL COMPLY WITH ASME A112.6.1M. FIXTURE SHALL BE CAPABLE OF SUPPORTING THE LAVATORY WITH 250 POUND VERTICAL LOAD APPLIED AT THE FRONT OF THE FIXTURE.
 4. ALL SHOWERS SHALL BE ADA COMPLIANT, TYPE TIP MIXING VALVE, SELF DRAINING SHOWERHEAD, METAL SHOWERHEAD (PLASTIC NOT ALLOWED, AND PROVIDED WITH TWO 3/4-INCH HOSES WITH AN AUTOMATIC HOSE DRAIN (MUST BE CENTERED IN THE HOSE)).
 5. ALL COUNTER MOUNTED SINKS SHALL BE UNDERMOUNT AND NOT DROP IN.
 6. ALL BEDPAN WASHERS SHALL BE HANDHELD, REGARDLESS OF WHETHER THE PATIENT BATHROOM IS ACCESSIBLE OR NOT.
 7. WATER SUPPLY FOR COUNTER MOUNTED APPLIANCES SHALL BE PROVIDED VIA A WALL BOX MOUNTED IN THE WALL ABOVE THE COUNTER. WALL BOX SHALL BE PROVIDED WITH QUARTER TURN VALVE. PROVIDE WATER HAMMER ARRESTOR IF EQUIPMENT HAS INTERNAL SOLENOID VALVE. DO NOT ROUTE A WATER LINE THROUGH THE COUNTER.
 8. DRINKING FOUNTAINS SHALL HAVE AN ELECTRIC WATER COOLER, HIGH/LOW BASINS, ADA, LAMINAR FLOW WATER BOTTLE FILLER, AND NO FILTER. PROVIDE ON THE MAIN LEVEL AND EVERY SECOND FLOOR THEREAFTER.
 9. PROVIDE REINFORCED BRAIDED STAINLESS STEEL TUBING BETWEEN WALL BOX AND COUNTERMOUNTED APPLIANCE. DO NOT ROUTE TUBING DIRECTLY IN FRONT OF THE COMPRESSOR HEAT REJECTION GRILLE.
 10. OSHPD 3 PROJECTS, WHEN EMERGENCY POWER IS NOT AVAILABLE, HANDWASH FIXTURES SHALL BE PROVIDED WITH AN EMERGENCY BACKUP POWER SYSTEM (CHICAGO FAUCET EBPS OR EQUAL).
 11. EYE WASH FIXTURES SHALL BE DESIGNED TO ENSURE THAT WATER SHALL BE CONTAINED BY THE PLUMBING FIXTURE. WATER SHALL NOT SPILL ALL OVER THE COUNTER OR FLOOR.
 12. NOT ALL ROOM TYPES LISTED IN THE CALIFORNIA PLUMBING CODE ARE LISTED IN THIS MATRIX.
 13. COORDINATE WITH PROJECT USER GROUP ON THE SPECIFIC BATHTUB OR SHOWER REQUIREMENT.
 14. EACH PROJECT SHALL CONDUCT A RISK ASSESSMENT WITH SUTTER HEALTH EH&S FOR SPECIFIC LOCATIONS AND TYPES OF EMERGENCY FIXTURES.
 15. THIS TABLE IS NOT APPLICABLE TO BEHAVIORAL FACILITIES.
 16. WALL HUNG LAVATORY (KOHLER SOHO K-2084-R) SHALL BE PROVIDED WITH HYDRO TURBINE FAUCET (ZURN Z6920-XL-MV-HYD-I) AND EYEWASH (GUARDIAN GBF1779LH, LESS MOUNTING PINS).

Sutter Health - Pricing Simulation - Valley							
MACH MOB							
	# of Fixtures	Manual	Battery	Hardwire + Plug	Hydro Turbine	Long Term Power System	Square Footage
Life Expectancy	-	-	3	-	10	15	173,684
OSHPD 3	67	\$20,100	\$43,014	\$101,773	\$61,171	\$55,811	
Non-OSHPD	201	\$60,300	\$129,042	\$234,969	\$183,513	\$167,433	
Total	268	\$80,400	\$172,056	\$336,742	\$244,684	\$223,244	
\$/SF		\$0.46	\$0.99	\$1.94	\$1.41	\$1.29	
Folsom MOB							
	# of Fixtures	Manual	Battery	Hardwire + Plug	Hydro Turbine	Long Term Power System	Square Footage
Life Expectancy	-	-	3	-	10	15	107,000
OSHPD 3	50	\$15,000	\$32,100	\$75,950	\$45,650	\$41,650	
Non-OSHPD	155	\$46,500	\$99,510	\$181,195	\$141,515	\$129,115	
Total	205	\$61,500	\$131,610	\$257,145	\$187,165	\$170,765	
\$/SF		\$0.57	\$1.23	\$2.40	\$1.75	\$1.60	
Sutter Amador Hospital							
	# of Fixtures	Manual	Battery	Hardwire + Plug	Hydro Turbine	Long Term Power System	Square Footage
Life Expectancy	-	-	3	-	10	15	103,613
OSHPD 1	181	\$54,300	\$116,202	\$274,939	\$165,253	\$150,773	
Total	181	\$54,300	\$116,202	\$274,939	\$165,253	\$150,773	
\$/SF		0.52	1.12	2.65	1.59	1.46	
Mills Peninsula Medical Center							
	# of Fixtures	Manual	Battery	Hardwire + Plug	Hydro Turbine	Long Term Power System	Square Footage
Life Expectancy	-	-	3	-	10	15	452,000
OSHPD 1	708	\$212,400	\$454,536	\$1,075,452	\$646,404	\$589,764	
Total	708	\$212,400	\$454,536	\$1,075,452	\$646,404	\$589,764	
\$/SF		\$0.47	\$1.01	\$2.38	\$1.43	\$1.30	

Extreme Durability
Heavy-duty ASA polymer housing protects all internal components.

Superior Protection
Fully potted mono-battery system resists humidity and water infiltration.

Easy Installation
Simple, secure wiring connections provide a watertight seal and are keyed and color-coded to ensure correct installation.

Maximum Performance
Cross-flow turbine with specially designed nozzle can exceed 6200 RPM.

High Efficiency
16-pole magnet turbine provides optimal power generation even at low flow rates.

Safe and Reliable
All waterway components are made from materials proven to provide superior performance in almost any water condition, while also meeting NSF 61 drinkability standards and low-lead requirements.

SSPS is available as a power source option with many of our touchless electronic faucets. Visit chicago faucets.com for a complete list of models and options.

SILICON SYSTEMS: POWERING THE FUTURE OF HEALTHCARE FACILITIES

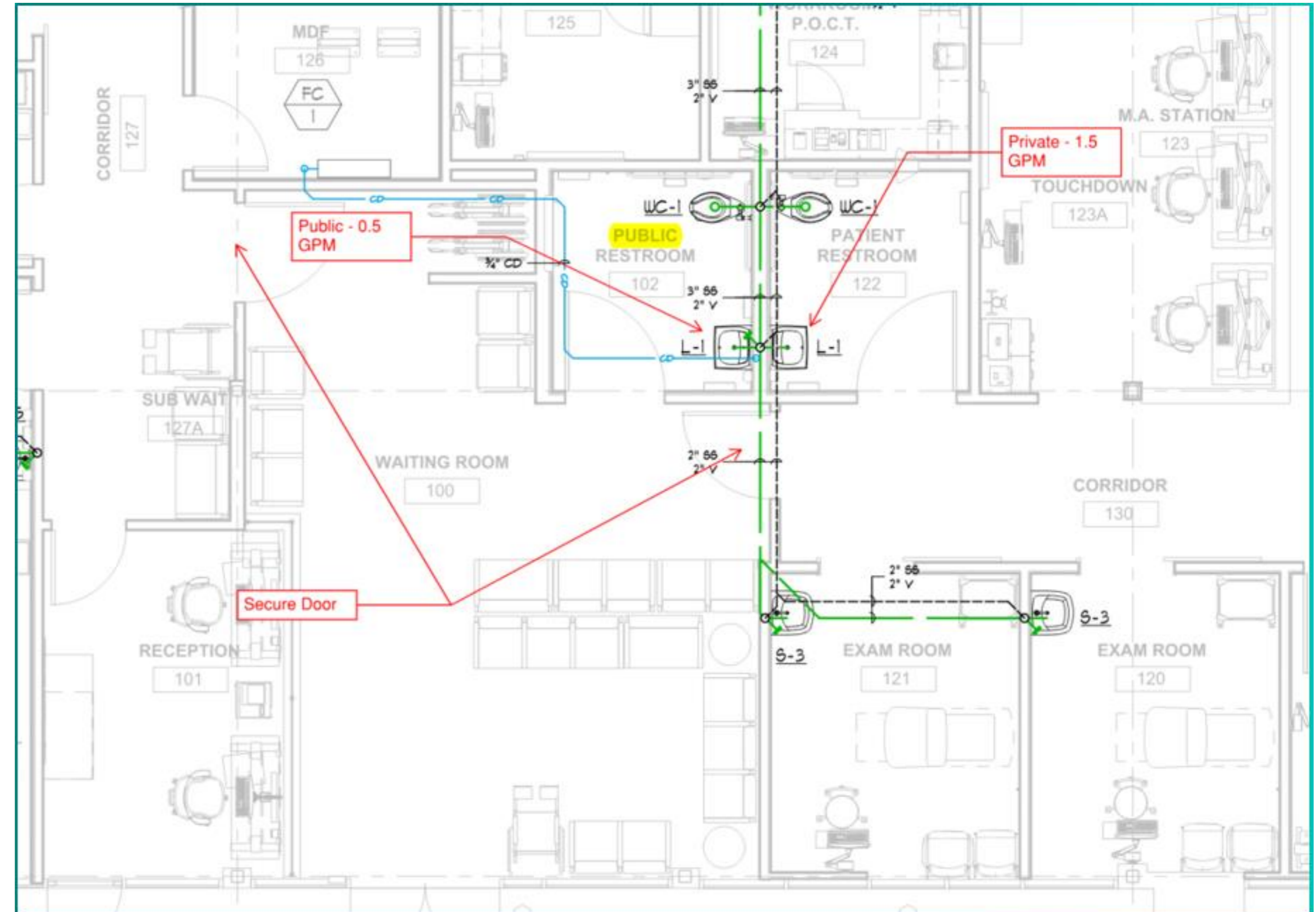
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Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards – Plumbing Fixtures

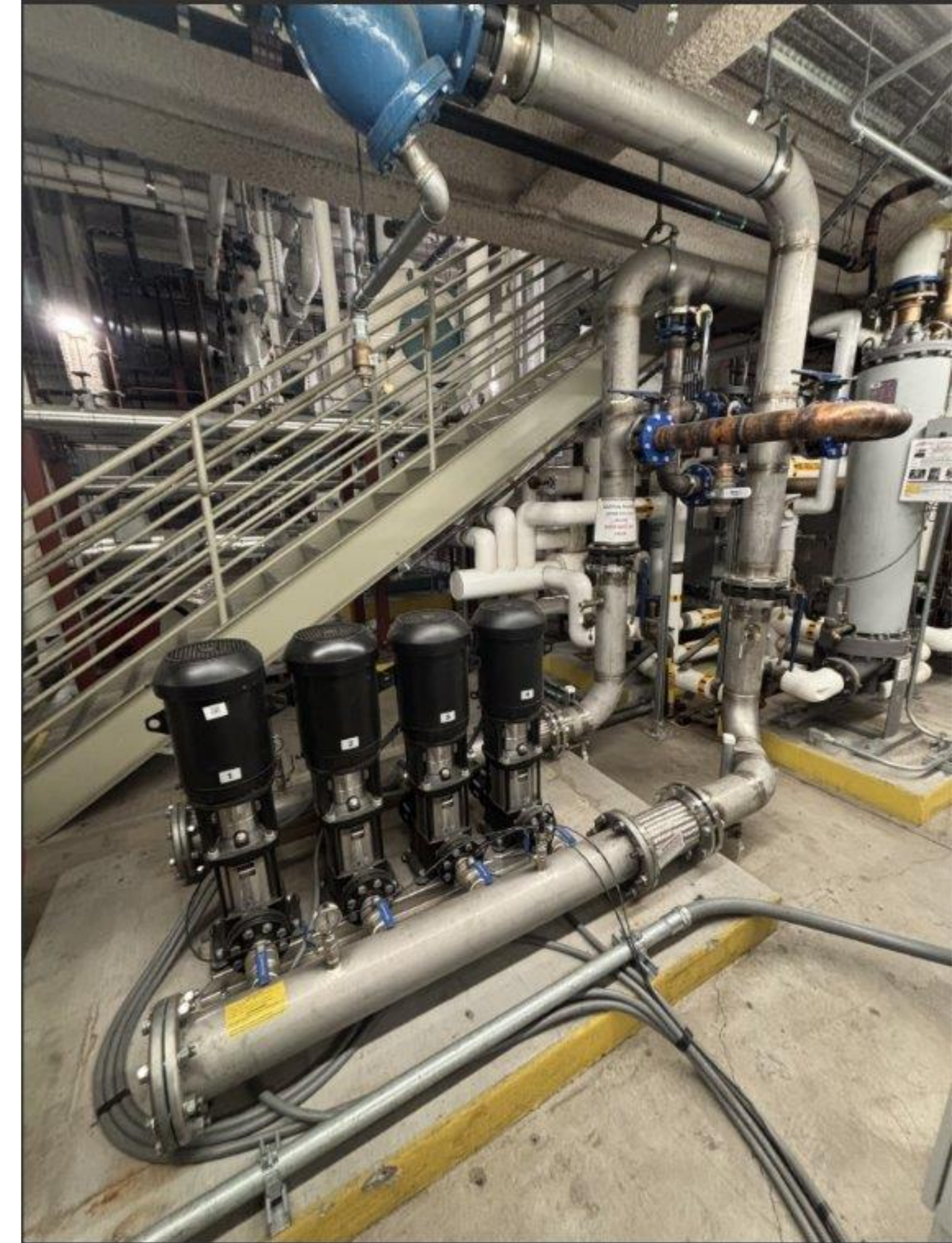
- Faucets for private (clinical) operation: 1.5 GPM
- Faucets for public operation: 0.5 GPM.
- Keep the water flowing!
- Efficient hand washing for clinicians.
- Clinical confidence in handwash fixtures.



Sutter Health: MEP Standards Program

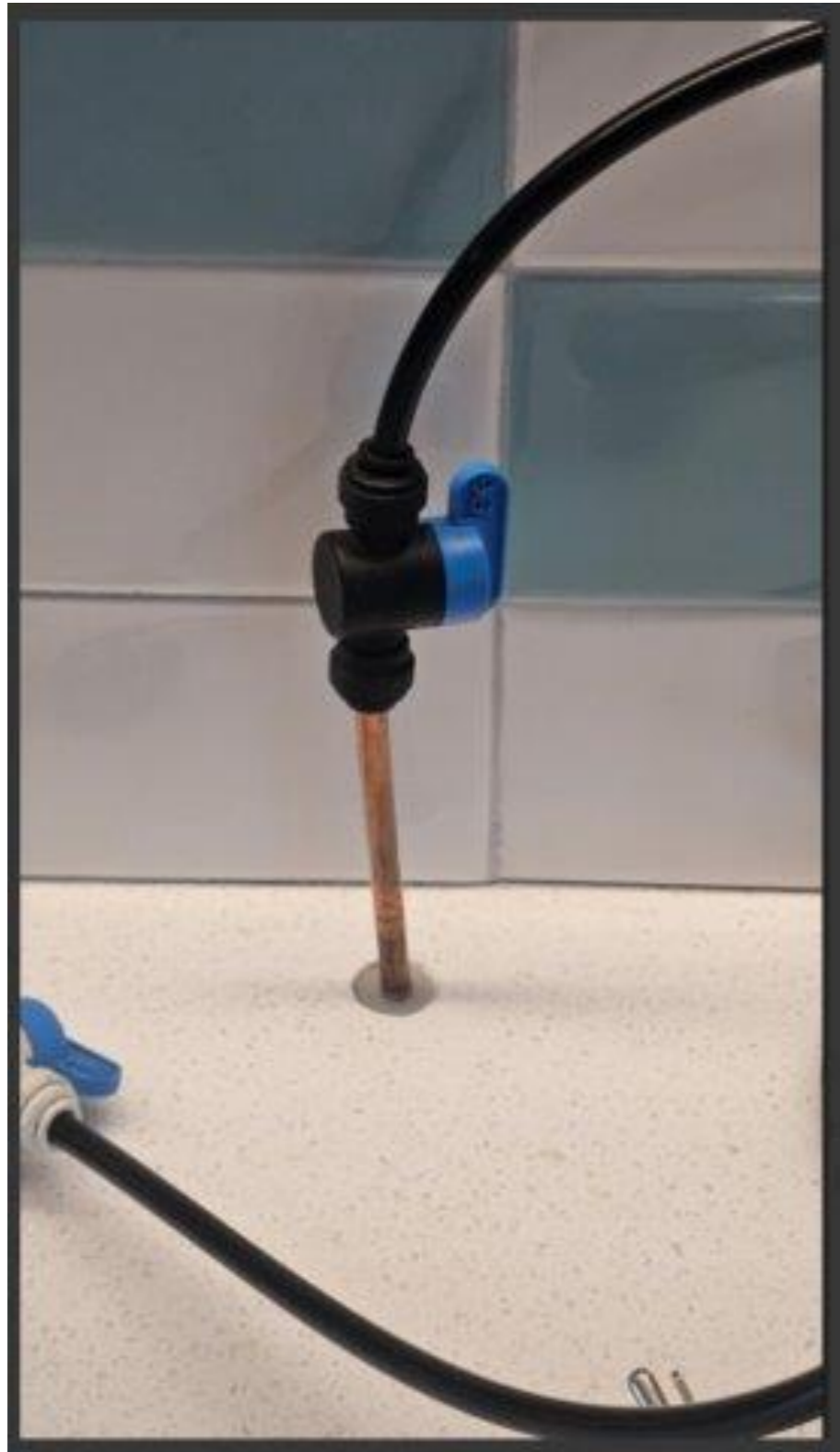
2025 – Updating the MEP Standards – Equipment Replacement

- Domestic Water Booster Pumps, Medical Vacuum Pumps, and Medical Air Compressors
- Provide Tee with Isolation valves
- New Builds – Provide space for temporary equipment.

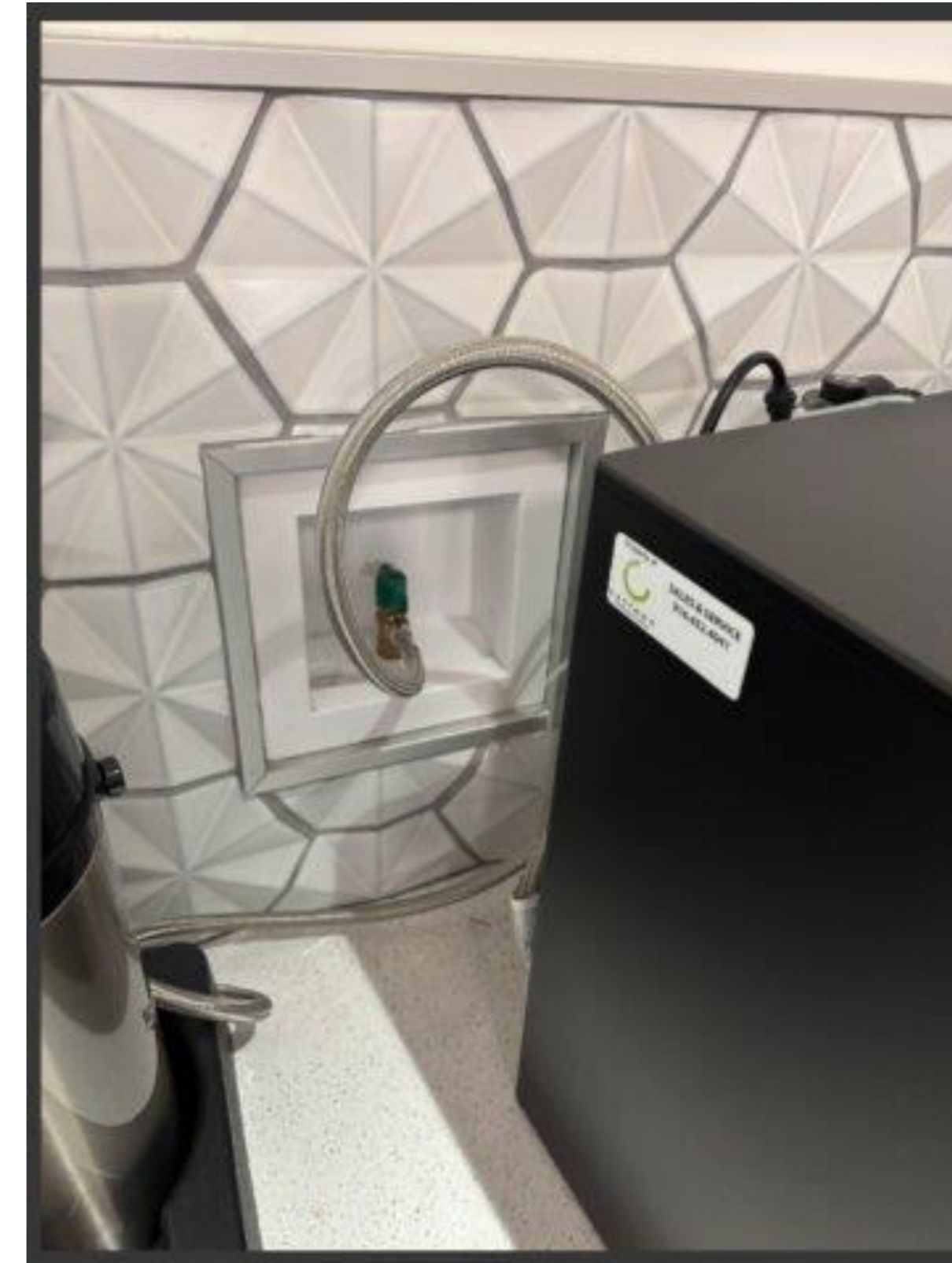


Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards – Overall Quality



- 2014: No Standard



- 2026: Standards



Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards – Overall Quality

f. Roof Mounted Ductwork

- 1) No supply or return roof mounted ductwork.
- 2) Exhaust ductwork on the roof is acceptable.
 - a) Shall be installed at a minimum of 18-inches above the finished roof.

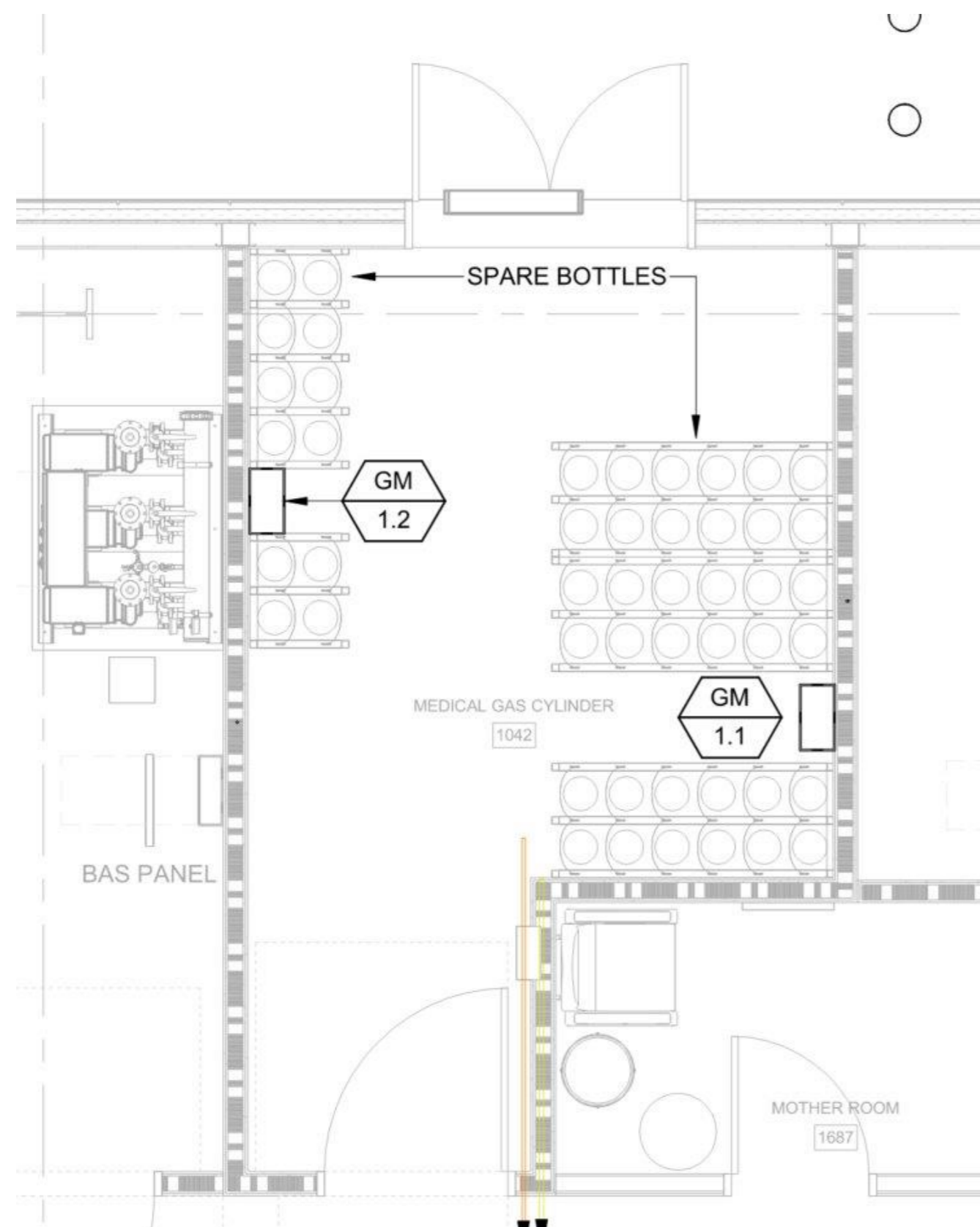


- **No supply or return roof mounted ductwork!**
- Significant paradigm shift for our vendors.
- It can be done with intentional coordination between Mechanical Engineers and Architects.
- Increased re-roofing costs, leaks, and increased maintenance costs for the lifetime of the facility if allowed.

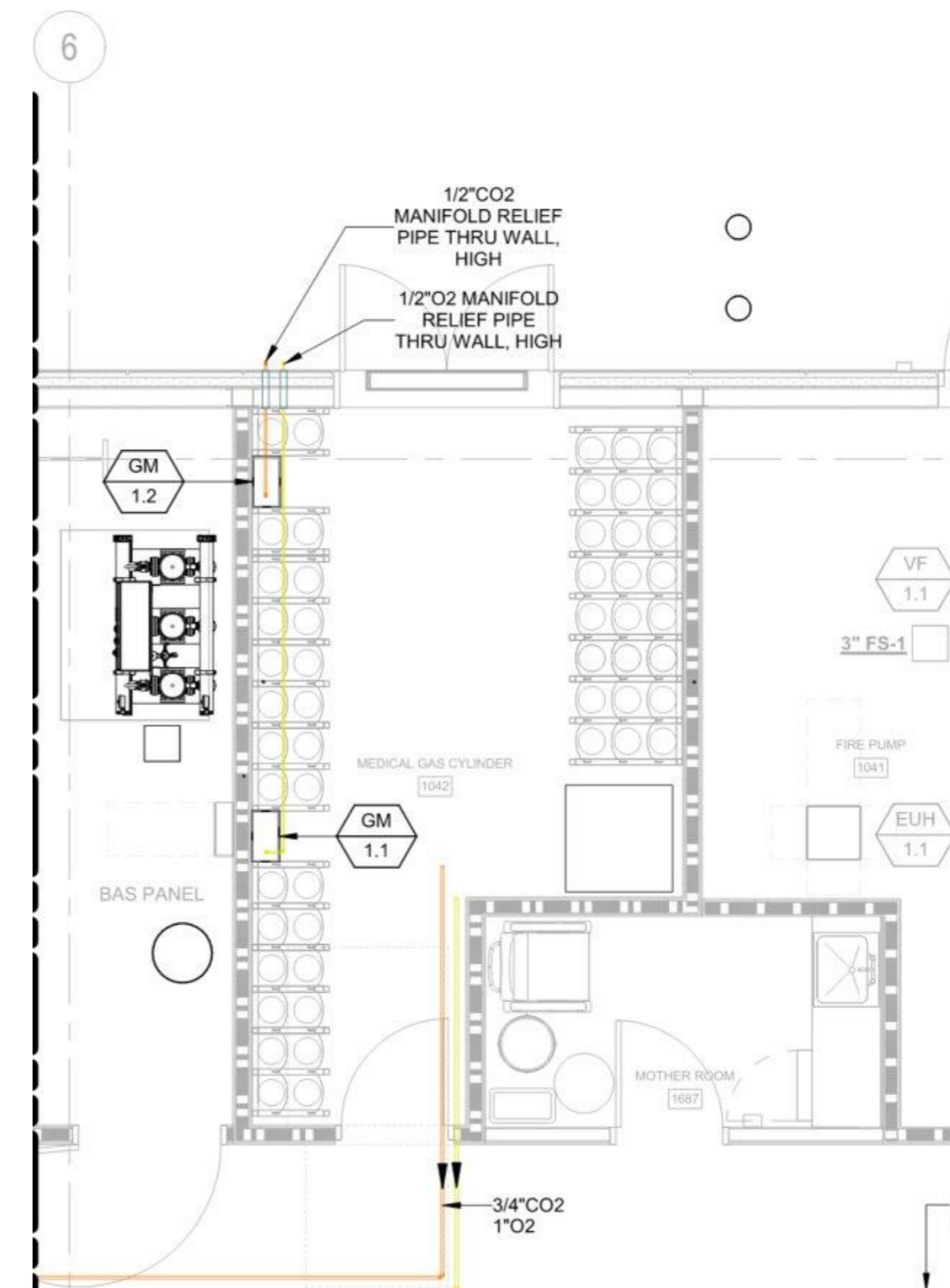


Sutter Health: MEP Standards Program

2025 – Updating the MEP Standards – Engineering Involvement and Oversight



- 2014: No Standard



- 2026: Standards



Sutter Health: MEP Standards Program

2026 – Rollout Process – Internal Training

Timeline & Milestones

Milestone	Date
Trusted Mech Contractor Review Window & QA/QC	Nov 11 th , <u>2025</u> to Nov 21 st , 2025
FM Area Director QA/QC Period	Nov 12 th , <u>2025</u> to Dec 5 th , 2025
FLT QA/QC Period	Nov 13 th , <u>2025</u> to Dec 5 th , 2025
FM Facility Forum Presentation	Dec 12 th , 2025
KDS Review Meeting	Jan 6 th , 2026 (Ongoing)
MEP Standards KDS	Jan 12 th , 2026
Valley PD and Planning Training	Jan 9 th , 2026
FM Plant Operations & Maintenance Planning Meeting	Jan 9 th , 2026
FM Plant Operations & Maintenance MEP Announcement	Feb 6 th , 2026
Bay Area PD and Planning Training	Mar 6 th , 2026
Acute FM/PM Training	Mar 24 th , 2026
Non-Acute FM/PM Training	Mar 25 th and 26 th , 2026



Sutter Health: MEP Standards Program

2026 – Rollout Process – Office Hours

All,

To support the MEP Standards Rollout and the New Exception Process, Orion and I are opening office hours for all FM, Planners, and PMs that are looking for MEP support. Please bring your questions or forward these office hours to your project teams for support in all MEP related questions.

Teon Lee, PE, BCxP

MEP Program Manager
Facility & Property Services

M: 341-758-1253

Teon.Lee@sutterhealth.org

Orion Morrissey, PE

Principal Healthcare Mechanical Engineer
Facility & Property Services

M 916-462-7854

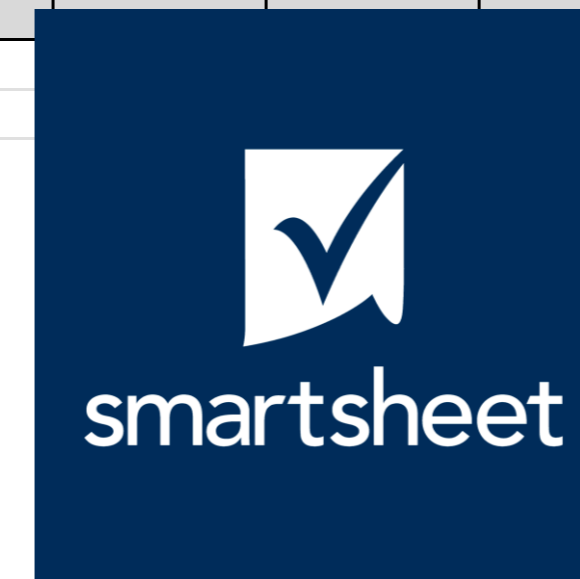
Orion.Morrissey@sutterhealth.org

- Frequency: Every other week
- Average attendance: 55 people.
- Attendees: Project Delivery, Vendors,



FPS Design Standard Exception Form

Item	Std. Ref. Number	Category	Deviation from Standard	Rationale for Deviation	Requested By:	Can Standard be met (Y/N)?	Delivery Team Accepts (Y/N)?	Operating Entity Accepts (Y/N)?	FPS Planner/PM Accepts (Y/N)?	Increases or Decreases Budget?	Increases or Decreases Schedule?	Impacts Function/ Usability?	FLT Committee Decision
1	3.c	Building Footprint	Actual building width is only 88', less than 90' minimum	Buildable area in existing development only allows a max width of 88'	Howard Roark, Architect	No	Yes	Yes	Yes	Increases; +/- \$10K	No impact	Exam rooms slightly narrower than ideal.	Accepted
2	5.d	Exterior Finish	Use EIFS system instead of tilt up panels or plaster system	Architect feels that the finish consistency will be better with an EIFS system	Howard Roark, Architect	Yes	Yes	Yes	No	Increases; +/- \$25K	Decreases 1 to 2 days	None	Rejected



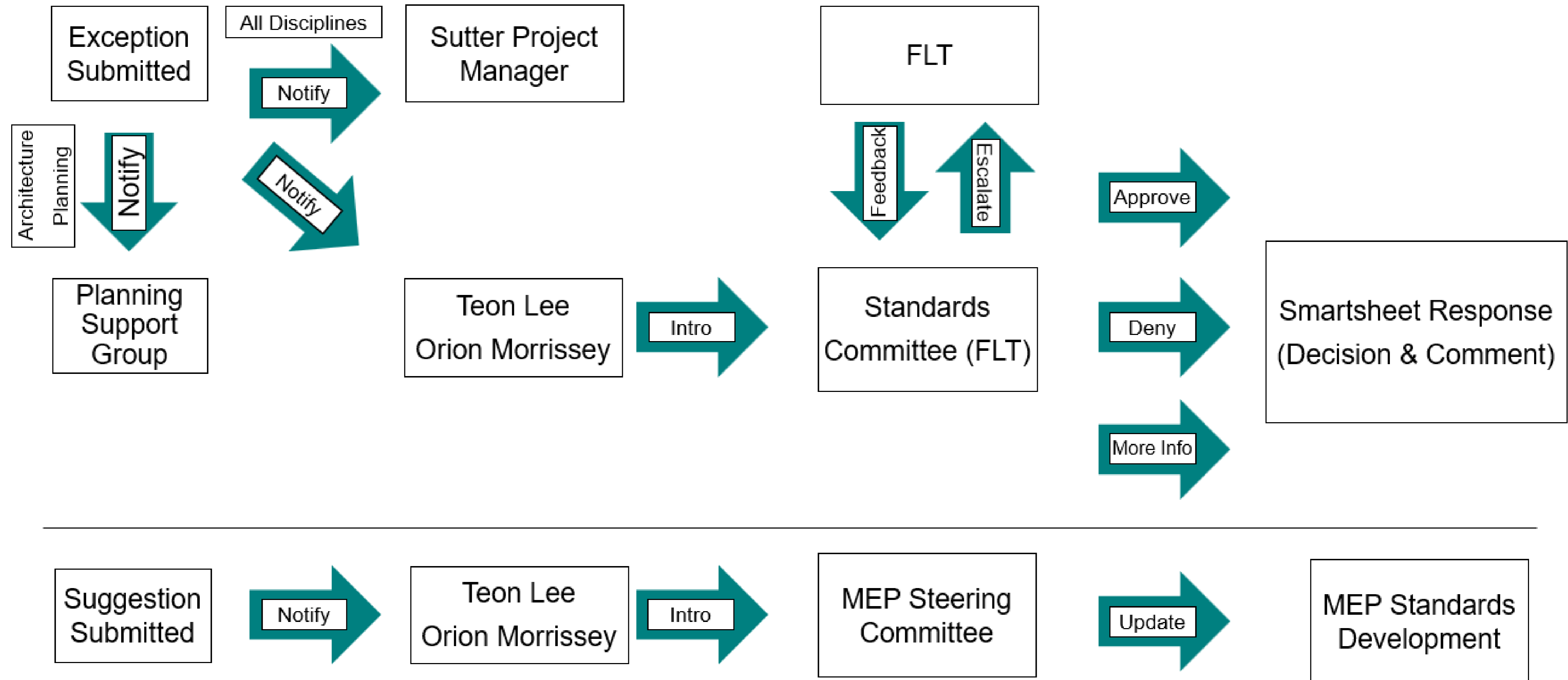
Sutter Health Facility Standards - Exception Request Form

Please use this form to request and document exceptions to the Sutter Health Facility Standards.

Upon receipt, your request will be reviewed and an emailed response sent from the Standards Committee.

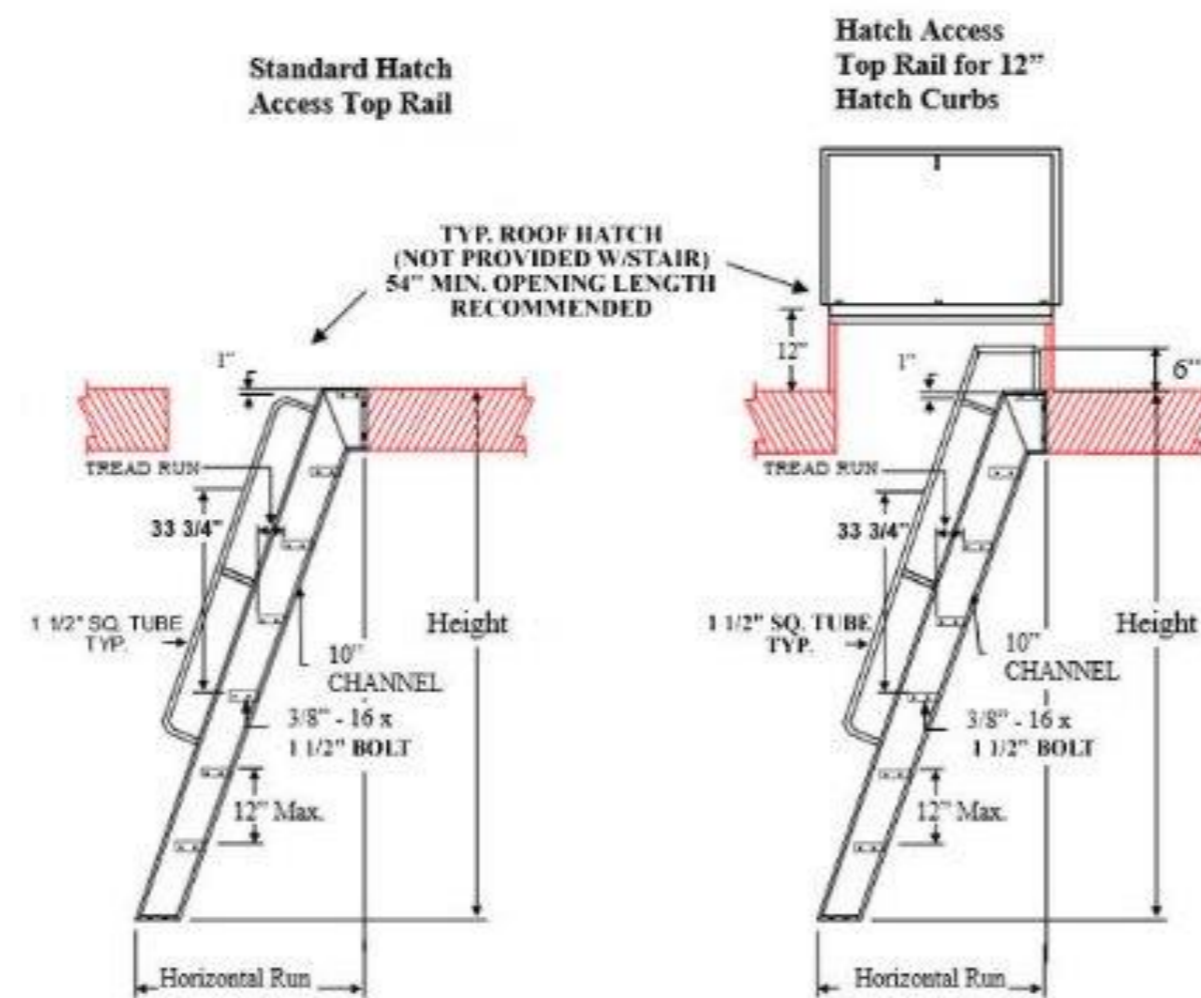
Sutter Health: MEP Standards Program

2026 – Rollout Process – Exception Process



Sutter Health: MEP Standards Program

2026 – Continuous Improvement – Roof Access



3. Architectural Coordination

a. Provide Roof Access

- 1) Ships ladder with single leaf, 2'-6" x 8'-0" hydraulic hinge door.
- 2) Extend railing above roof level for safety.
- 3) Provide powered Davit Lift.



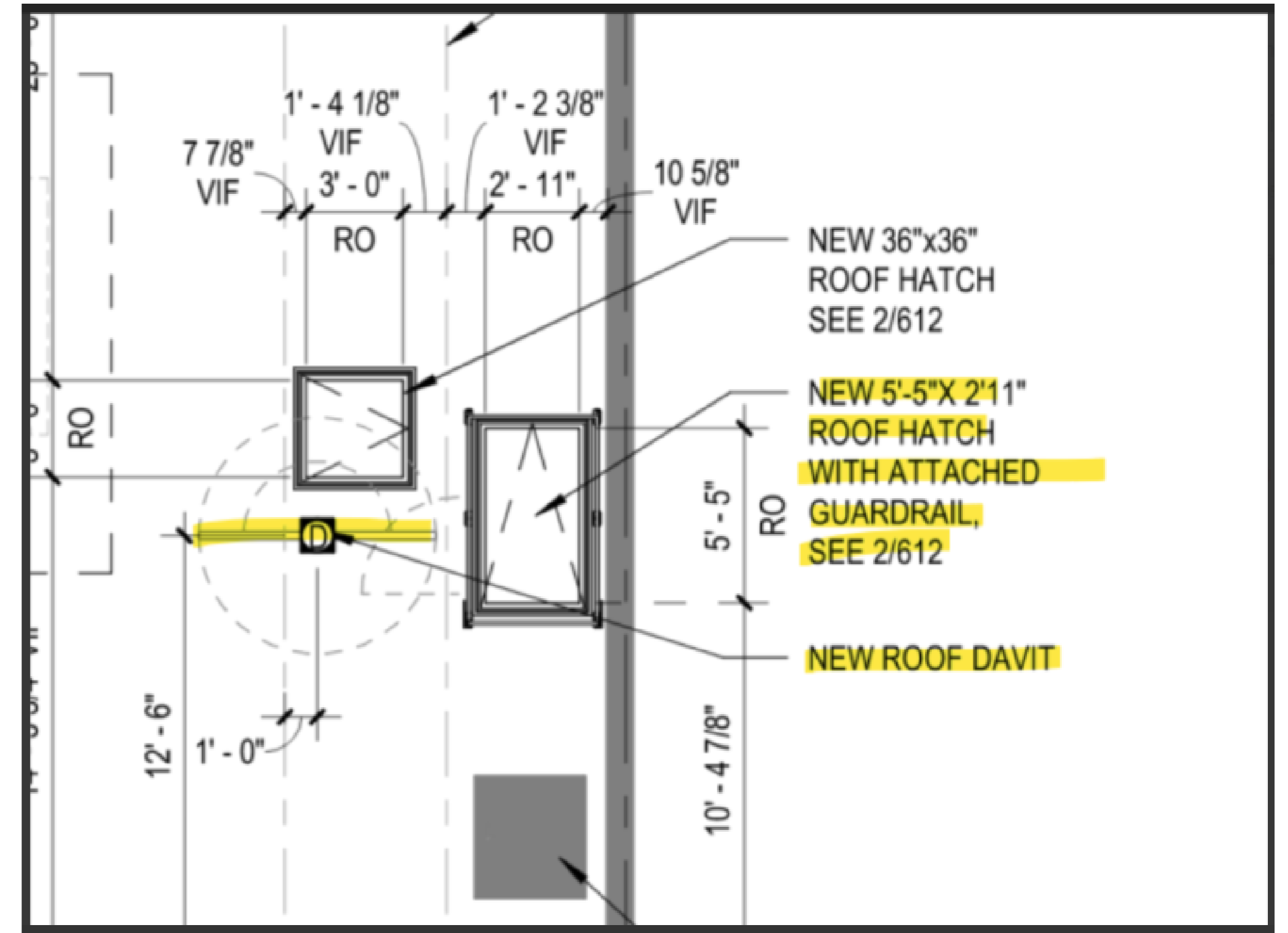
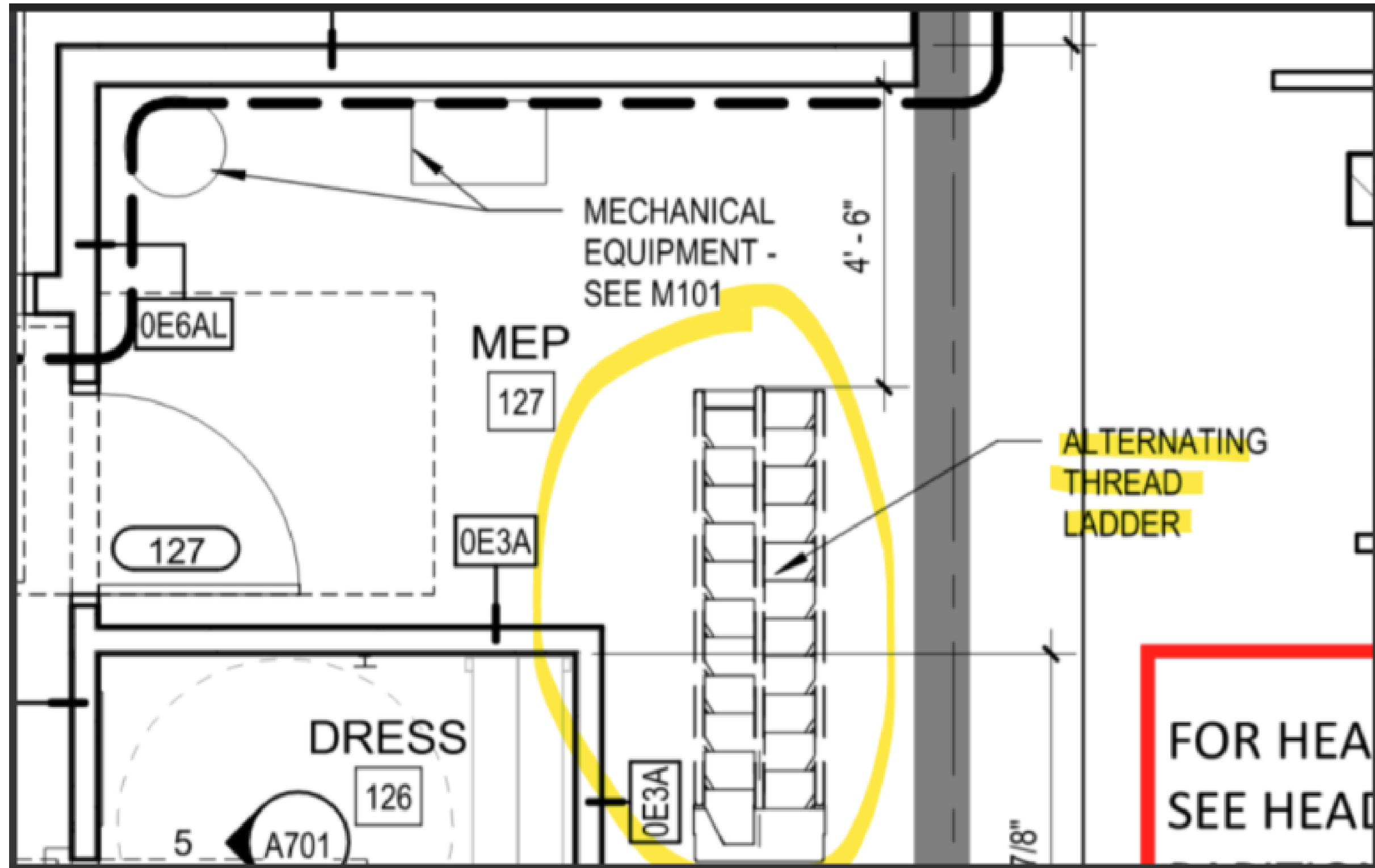
• 2014: No Information

• 2026: Basic Information



Sutter Health: MEP Standards Program

2026 – Continuous Improvement – Roof Access



- 2026: Implementation



Sutter Health: MEP Standards Program

2026 – Continuous Improvement – Roof Access

3. Architectural Coordination

a. Provide Roof Access

- 1) Ships ladder with single leaf, 2'-6" x 8'-0" hydraulic hinge door.
- 2) Extend railing above roof level for safety.

b. Equipment lifting to Roof

1) Provide powered Davit Lift:

- a) Shall be able to extend over the side of the building.
 - i. Coordinate Davit logistics with proposed parapet height.
- b) Shall have 1,000 lb capacity.
- c) Shall be powered
 - i. Provide a weatherproof receptacle within reach of the cord to power the davit motor.
- d) Shall be able to be disassembled.
- e) Provide a manual crank.

2) Provide a concrete landing pad at grade for rigging of equipment and associated davit use.

3) Provide a permanent tie-off point for Sutter FM personnel. Capacity of tie-off shall be 500 lbs.

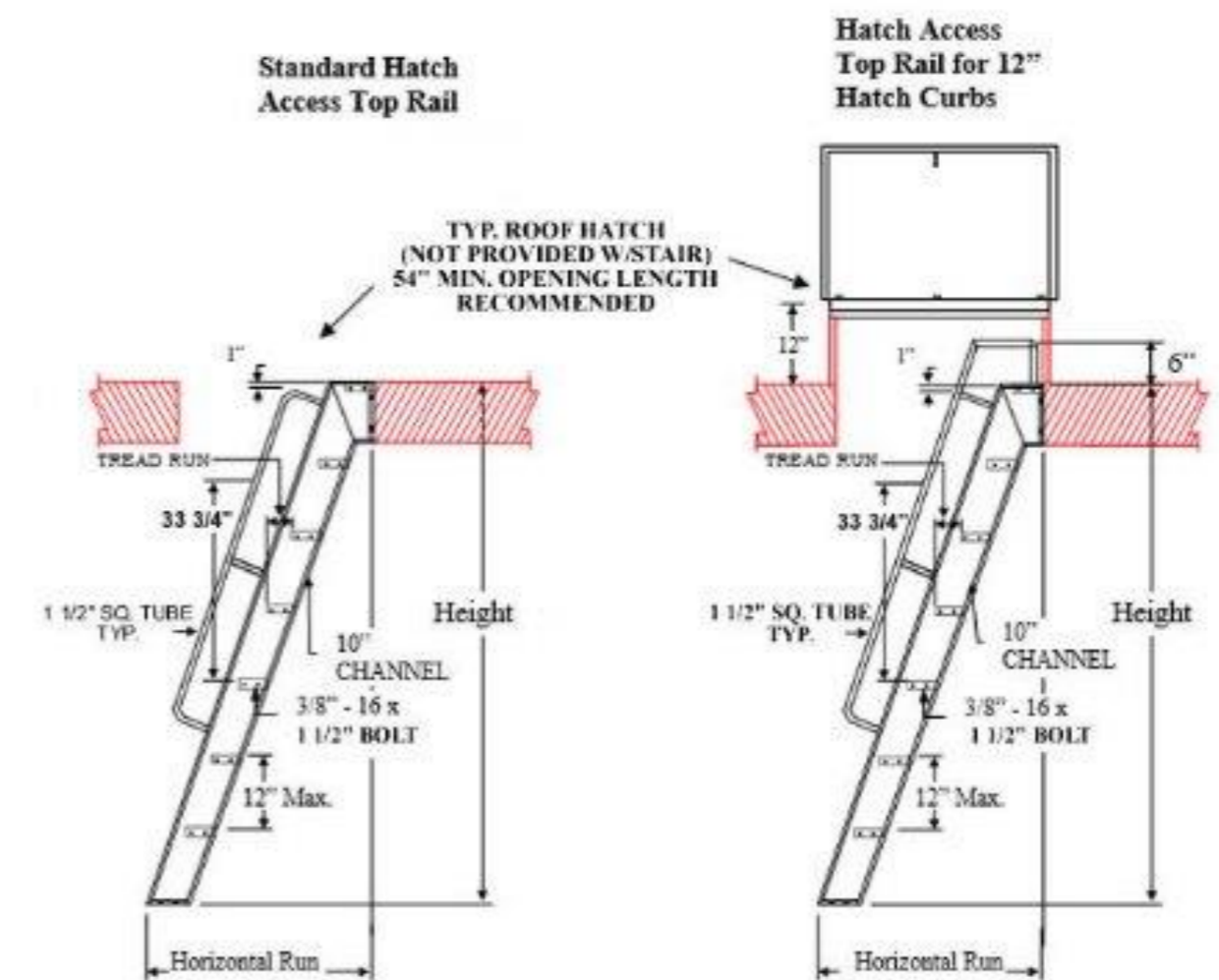
3)4) Provide a lay-down area on the roof.

4. IT rooms

a. General

- 1) Refer to Sutter Health IT standards for additional information.

- Future: Detailed Information



Morrissey, Orion Formatted

Morrissey, Orion Formatted

• ROOFTOP APPLICATIONS

Rooftop Installations

Therm davit cranes installed on rooftop applications provide an economical, permanent solution for lifting tools, maintenance and HVAC equipment versus expensive mobile crane rentals.

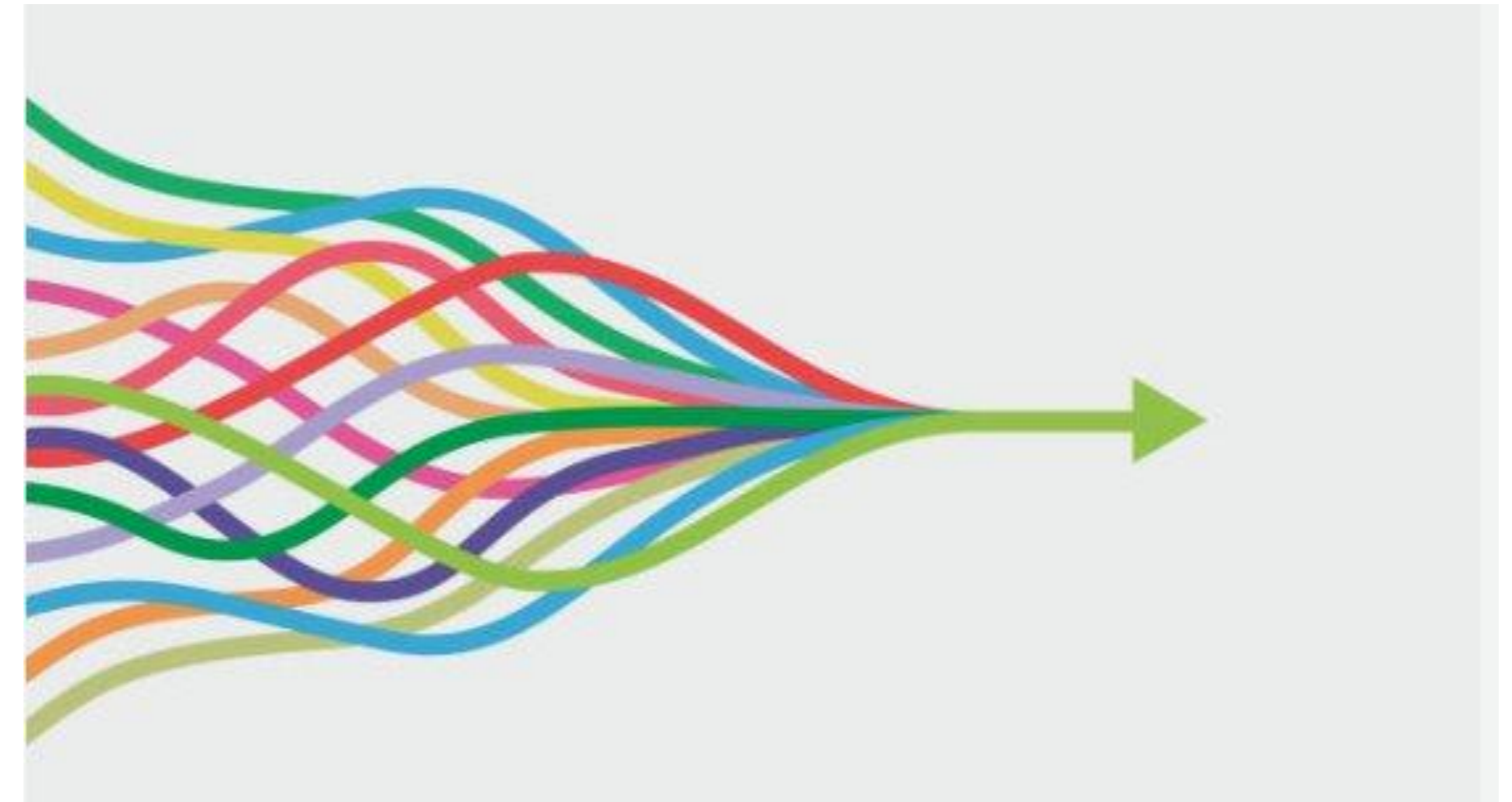
VS



Sutter Health: MEP Standards Program

2026 – Next Steps

- Exception Process Roll-out
- Continued Mechanical/Plumbing updates
- Electrical Standards Update
- BMS Standard Update
- BMS SOO Update



Thank You

