

Planning for Tomorrow, Today: Asset Management in the Digital Age

Presented by:



SIEMENS

July 30, 2026





Featured Panelists



Chris DeJuneas,
Enterprise
Solutions
Consultant,
Siemens



David Sklar,
Senior Vice
President &
National Asset
Management Lead,
WSP



Kristina Swallow,
Assistant City
Manager,
City of Tucson, AZ

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2025 REPORT CARD
FOR AMERICA'S INFRASTRUCTURE

2025 Report Card for America's Infrastructure

	AVIATION		D+		PARKS AND RECREATION		C-
	BRIDGES		C		PORTS		B
	BROADBAND	NEW	C+		RAIL		B-
	DAMS		 D+		ROADS		D+
	DRINKING WATER		C-		SCHOOLS		D+
	ENERGY		 D+		SOLID WASTE		C+
	HAZARDOUS WASTE		 C		STORMWATER		D
	INLAND WATERWAYS		 C-		TRANSIT		D
	LEVEES		 D+		WASTEWATER		D+

America's
Cumulative
Infrastructure
Grade



A EXCEPTIONAL

B GOOD

C MEDIOCRE

D POOR

F FAILING

Methodology

CAPACITY

OPERATION AND MAINTENANCE

CONDITION

PUBLIC SAFETY

FUNDING

RESILIENCE

FUTURE NEED

INNOVATION

What the Grades Mean



MEDIOCRE
Requires attention



EXCEPTIONAL
Fit for the future



POOR
At risk



GOOD
Adequate for now



FAILING/CRITICAL
Unfit for purpose

Investment Gap

Infrastructure System	TOTAL NEEDS	FUNDED	FUNDING GAP
AVIATION	\$310	\$197	\$113
BRIDGES	\$538	\$165	\$373
BROADBAND	\$61	\$61	\$0
DAMS	\$185	\$20	\$166
DRINKING WATER	\$670	\$361	\$309
ENERGY	\$1,886	\$1,308	\$578
HAZARDOUS & SOLID WASTE	\$162	\$146	\$16
INLAND WATERWAYS & PORTS	\$45	\$32	\$13
LEVEES	\$97	\$7	\$91
PUBLIC PARKS	\$106	\$62	\$44
RAIL	\$145	\$113	\$32
ROADS	\$2,233	\$1,549	\$684
SCHOOLS	\$1,100	\$671	\$429
TRANSIT	\$618	\$466	\$152
WASTEWATER + STORMWATER	\$983	\$293	\$690
TOTALS	\$9,139	\$5,450	\$3,689

\$3.7
Trillion
needed

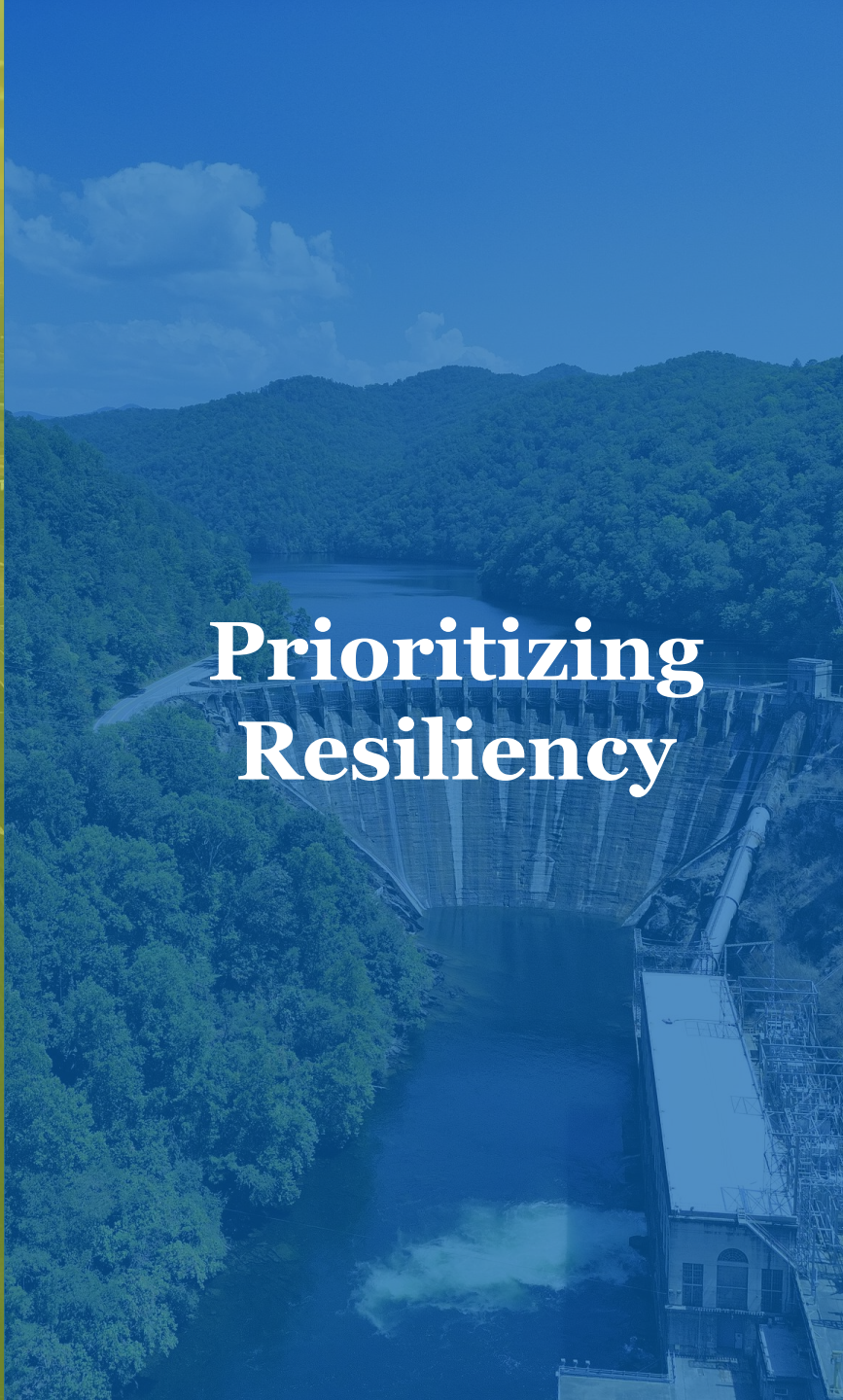


CURRENT
FUNDING

FUNDING
GAP



**Sustaining
Investment**



**Prioritizing
Resiliency**



**Advancing
Policy &
Innovation**

What is Infrastructure Asset Management (IAM)

- Managing physical assets including transportation, water, buildings, and energy systems
- Contributing activities include planning, design, construction, operation, and maintenance
- Primary goals:
 - Service performance
 - Risk management
 - Maximizing lifecycle



Connecting Policy to Performance

- Asset management is initiated through policy whether proactive (ex. planning) or reactive (ex. mandate), and interacts w. ASCE's three recommendations
 - Ex. Investment
 - Assign life-cycle costs to projects to get the most value out of their investments.



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Report Card + Asset Management

- Aviation
 - Adoption of Building Information Modeling (BIM), Geographic Information Systems (GIS), & Enterprise Asset Management (EAM)
- Drinking Water
 - As of 2024, asset management plans are required in 13 states w. 22 states providing financial assistance
- Parks
 - Increased adoption of GIS in state parks to monitor ongoing needs and projects



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Typical AM Tactical Program Components

Agencies Typically Take a Phased Approach for Incremental Benefits

What Do We Have and How is it Performing?

How Do We Enhance Decision Making and Improve Performance?

How Do We Develop and Communicate Long-Term Needs

Strategy, Structure, and Change Management

Information Systems

Condition, Criticality, Risk Frameworks

Capital and Financial Planning / Optimization

Data Management

Maintenance Strategies

Monitoring, Benefits Tracking, and Communication

LOS and Performance Metrics

Asset Planning and Modeling

Building Asset Management Competencies at Each Phase of the Lifecycle

Plan and Design

Establish data frameworks and use LCA for design decisions and incorporate O&M input and reviews

Procure and Construct

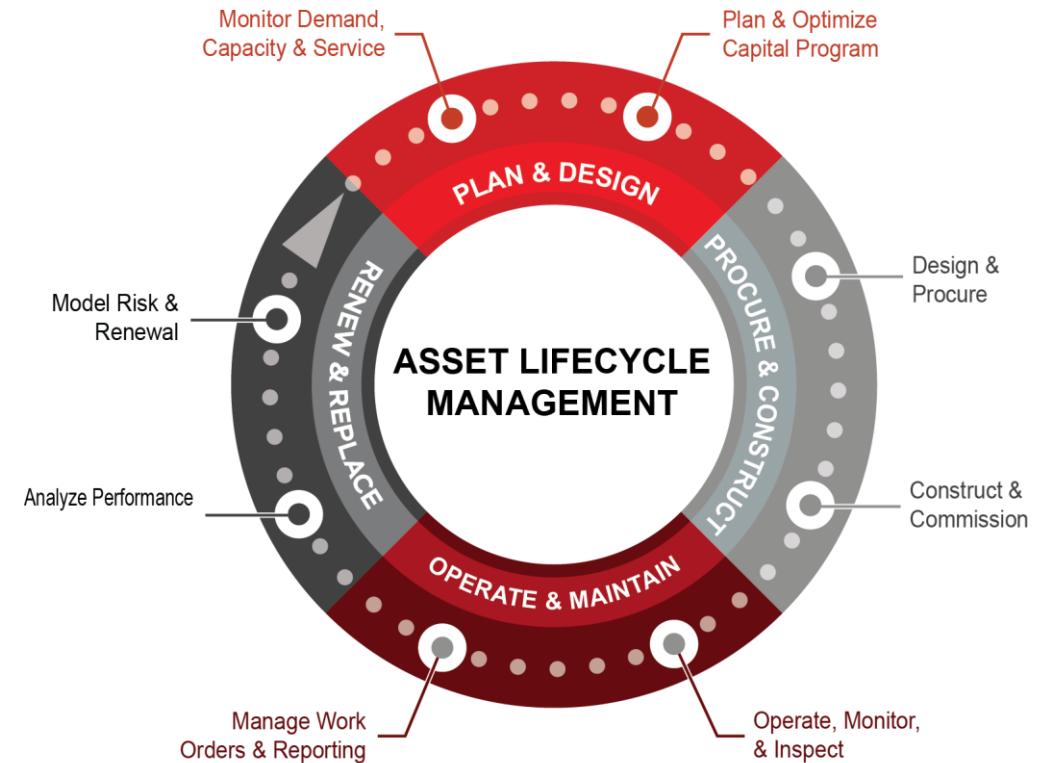
Capture and populate systems and data and establish maintenance plans and formal commissioning

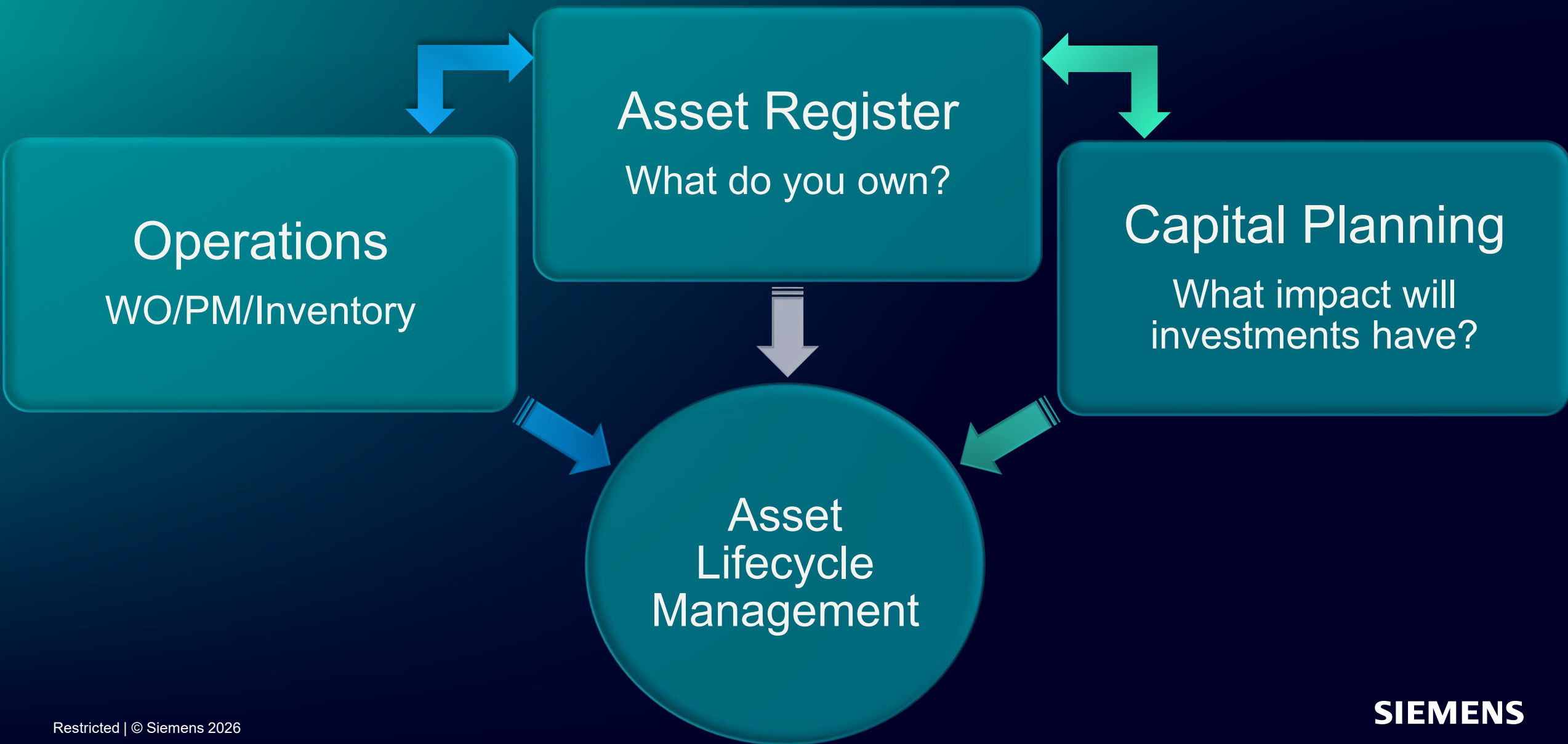
Operate and Maintain

Monitor work management tracking, condition assessments, and asset reliability

Renew and Replace

Lifecycle analysis and decision tools for asset preservation and replacement decisions





Facility Condition Assessment

Name Plate Data
Current Condition and Replacement Value
Replacement timeline
Industry Planned Maintenance Schedules

- 1) Heating System
- 2) Ventilation System
- 3) Air Conditioning System
- 4) Roofing System
- 5) Electrical System
- 6) Plumbing

- 7) Vertical Transportation
- 8) Building Envelope
- 9) Structural Components
- 10) Site Paving
- 11) Commercial Kitchen
- 12) Life Safety/Security

Asset specifications are complex and hard to scale

Equipment nameplate and schema → A single model code can encode dozens of asset-specific decisions

NAMEPLATE

Manufacturer

Carrier

Model

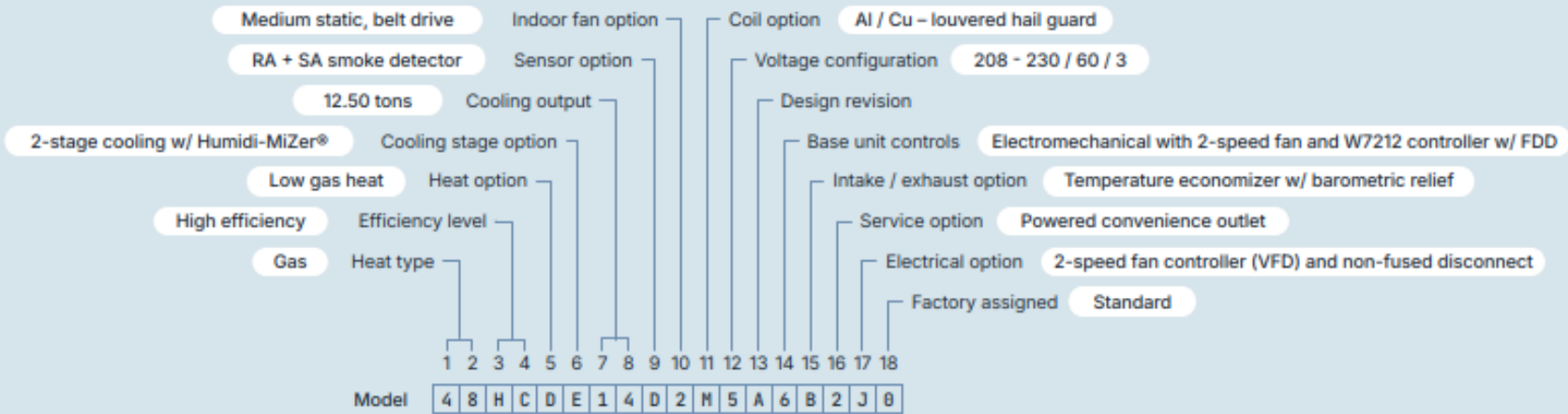
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Product

WeatherMaster™

Serial

3020P08924



Supported domains and asset types

Domain \ type	Manufacturers	Models
HVAC \ PKG \ Packaged unit	64	18,400
HVAC \ FURN \ Furnace	47	14,848
HVAC \ CDU \ Condensing unit	61	12,817
HVAC \ BLR \ Boiler	20	8,832
HVAC \ AHU \ Air handling unit	54	7,935
PLMB \ WHTR \ Water heater	44	5,868
FSRV \ RFG \ Refrigerator	17	4,434
HVAC \ COIL \ Coil	29	2,516
HVAC \ CHLR \ Chiller	12	2,011
HVAC \ PTAC \ Packaged terminal air conditioner	17	1,875
FSRV \ FRZ \ Freezer	19	1,719
HVAC \ FCU \ Fan coil unit	11	1,543
FSRV \ MRCH \ Merchandiser	12	1,241
HVAC \ MSPLT \ Mini-split system	21	1,089
FSRV \ ICE \ Ice machine	3	911
HVAC \ ATU \ Air terminal unit	7	487
HVAC \ CRAC \ Computer room air conditioner	2	242
HVAC \ BCU \ Blower coil unit	5	87
HVAC \ UH \ Unit heater	1	70
HVAC \ CNDS \ Condenser	1	32
HVAC \ EVCU \ Evaporative cooling unit	2	25
HVAC \ CRAH \ Computer room air handling unit	1	20

Supported equipment types

Mature

Air handling units	Furnaces
Boilers	Mini-split systems
Blower coil units	PTAC units
Condensing units	Packaged units
Chillers	Water heaters
Coils	
Fan coil units	

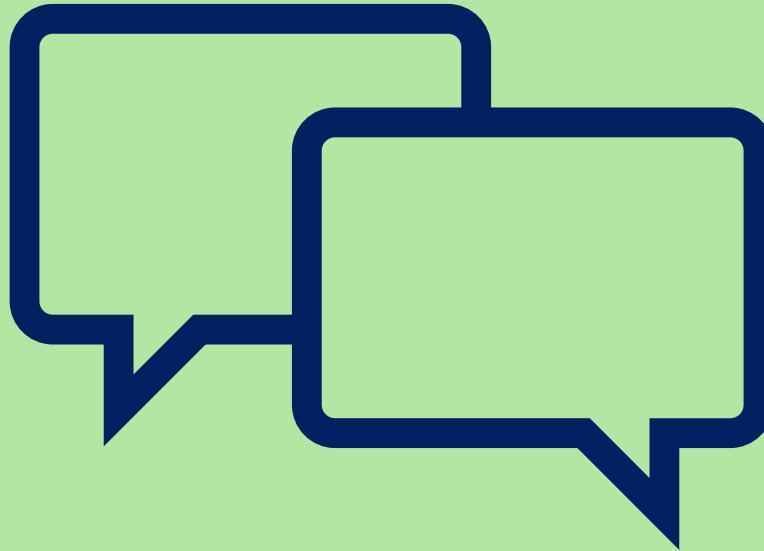
Growing

Refrigerators	CRAC units	Blower coil units
Freezers	CRAH units	Condensers
Merchandisers	Fan coil units	EVCU
Ice machines	Air terminal units	

Coming soon

Fans	Fryers
Ovens	Grills
Rangers	

Panel Discussion



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Questions



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