

Healthcare Facilities Management

Module 3: Operations & Maintenance

Student Workbook



Lesson 11 ~ O & M 3







1

Monitor Indoor Air

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Healthcare Environment in General

Air Changes per Hour, Outside Air, Humidity, Filtration

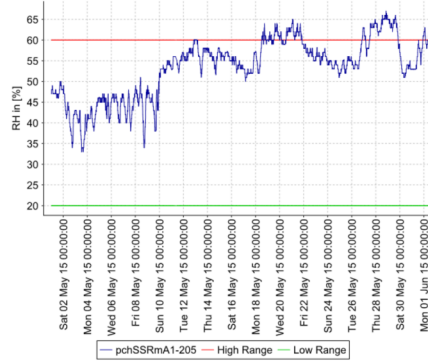
Table 1 Sample of ASHRAE Standard 170 Design Parameters

Function of Space	Pressure Relationship to Adjacent Areas	Minimum Outdoor ach*	Minimum Total ach*	All Room Air Exhausted Directly to Outdoors	Air Recirculated by Room Units	Design Relative Humidity, %	Design Temp. °F
Operating room	Positive	4	20	NR*	No	20 to 60	68 to 75
Emergency department public waiting area	Negative	2	12	Yes	NR*	max. 65	70 to 75
AII rooms	Negative	2	12	Yes	No	max. 60	70 to 75
Patient room	NR*	2	4	NR*	NR*	max. 60	70 to 75

* ach = air changes per hour, NR = no requirement.

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OR Humidity Log - example



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Example OR Policy – event response

Humidity and Temperature Response _____ Hospital

Recommended Range Anesthetizing spaces:
 RELATIVE HUMIDITY (RH) RANGE: 20% - 60% TEMPERATURE (TEMP): 68°F - 73°F
 Recommended Range Sterile Supply Storage spaces:
 RELATIVE HUMIDITY (RH) RANGE: 35% - 60% TEMPERATURE (TEMP): 68°F - 73°F

HUMIDITY & TEMPERATURE MEASUREMENTS Policy Number 86100-EOC-030
 Humidity & Temperature are monitored and documented via Aeroscote tags.
 Digital Humidity & Temperature devices are provided in the room for department staff reference only and shall not be recorded as an official record.

HIGH RELATIVE HUMIDITY ACTIONABLE EVENT: IF RELATIVE HUMIDITY (RH) is over 60% & TEMPERATURE (TEMP) is UNDER 60°F for a period of time greater than 120 minutes, then Engineering shall contact Nurse Supervision to coordinate an assessment of the space with PCH Facility Services, Infection Control, EVS and the Department Manager/ Director.

LOW RELATIVE HUMIDITY ACTIONABLE EVENT: IF RELATIVE HUMIDITY (RH) is under 20% in Anesthetizing spaces for a period greater than 120 minutes, then Engineering shall contact Nurse Supervision to contact the Department Manager to inform them that Low Relative Humidity protocol should be put into place. Engineering shall contact Nurse Supervision to contact the Department Manager/ Director to inform them when Low Relative Humidity has returned to the acceptable range for a continuous 8 hours.

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Cleanliness

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Workplace: Organization / Productivity

Workplace organization (5S)



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Workplace: Organization / Productivity (5S)

- Sort
 - Clearly distinguish needed items from unneeded and eliminate the latter. (e.g. excess supplies, outdated data or information).
- Set In Order/Straighten
 - Organize and identify a specific place for everything. Keep needed items in the correct place to allow for easy and immediate retrieval. Immediately recognize items out of place, and an excessive or insufficient amount of items. Eliminate time wasted locating items; Improve customer service.
- Shine
 - Keep the workplace neat and clean. A clean and organized environment can boost employee morale and create a sense of ownership and belonging.
- Standardize
 - This is the method by which sort, straighten and shine are made habitual. Standardization enhances organizational performance and eliminates the need to re-do the first 3S's. It encourages consistency.
- Sustain
 - The final S involves the effective, ongoing application of 5S in order to improve organizational performance. Here, you're simply maintaining established procedures.

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Hospital Cleaning Tasks – Servicemaster Example

COMPREHENSIVE HOUSEKEEPING CLEANING CHECKLIST FOR HOSPITALS

Cleaning Duties for Patient Rooms

- Wash & sanitize hands. Put on disposable gloves.
- Leave cleaning carts in hall, set up a safety sign outside door.
- Knock while slowly entering. Respect patient & guest privacy.
- Quickly straighten room, empty and reline trash cans.
- Clean & disinfect high-touch areas.
- Dust air vents, lights, television sets & window sills.
- Disinfect & sterilize bedside commode.
- Wipe down countertops, spot-wipe walls, check furniture.
- Wipe down doors & kickplates, disinfect door handles
- Sweep floors & wet mop as needed.

Patient Room Bathroom Cleaning Procedures

- Empty & disinfect trash cans as needed, replace liners.
- Disinfect touch-points: light switches, door knobs, handrails.

Reporting through CMMS - Example

Response and Completion Times Report

Central Campus-Capitol Hill
Requested From 01/01/2020 to 01/01/2020

	Met Response Target?				Met Completion Target?				Total
	No		Yes		No		Yes		
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	
KPWA									
EVS/Janitorial - Carpet Cleaning	8	88.9%	1	11.1%	0	0.0%	9	100.0%	9
No services provided	8	88.9%	1	11.1%	0	0.0%	9	100.0%	9
Priority 4	8	88.9%	1	11.1%	0	0.0%	9	100.0%	9
EVS/Janitorial - Dispensing/Refilling	7	26.9%	19	73.1%	1	3.8%	25	96.2%	26
No services provided	7	26.9%	19	73.1%	1	3.8%	25	96.2%	26
Priority 2	7	26.9%	19	73.1%	1	3.8%	25	96.2%	26
EVS/Janitorial - Floor/Furniture Clean	3	13.0%	19	86.4%	2	8.7%	20	90.5%	22
No services provided	3	13.0%	19	86.4%	2	8.7%	20	90.5%	22
Priority 3	3	13.0%	19	86.4%	2	8.7%	20	90.5%	22
EVS/Janitorial - Restroom Clean	11	32.4%	23	67.6%	5	14.7%	29	85.3%	34
No services provided	11	32.4%	23	67.6%	5	14.7%	29	85.3%	34
Priority 2	10	30.3%	23	69.7%	5	15.2%	28	84.8%	33
Priority 4	1	100.0%	0	0.0%	0	0.0%	1	100.0%	1
EVS/Janitorial - Room Clean	16	9.6%	150	90.4%	16	9.6%	150	90.4%	166
No services provided	16	9.6%	150	90.4%	16	9.6%	150	90.4%	166
Priority 2	15	9.1%	150	90.9%	16	9.7%	150	90.3%	166
Priority 4	1	100.0%	0	0.0%	0	0.0%	1	100.0%	1
EVS/Janitorial - Spill	5	29.4%	12	70.6%	3	17.6%	14	82.4%	17
No services provided	5	29.4%	12	70.6%	3	17.6%	14	82.4%	17
Priority 2	5	29.4%	12	70.6%	3	17.6%	14	82.4%	17

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Waste Management

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Waste Streams – Medical Waste

MEDICAL WASTE SEGREGATION CHART 2015

SHARPS Red Sharps Container	BIOHAZARD Red Container or Red Leak Container	TRACE CHEMO Yellow Container
<ul style="list-style-type: none"> ✓ Needles ✓ Ampoules ✓ Broken Glass ✓ Blades ✓ Razors ✓ Staples ✓ Tackers ✓ Guide Wires ✓ Other Sharps 	<ul style="list-style-type: none"> ✓ Infectious Waste ✓ Blood Products (serum) ✓ Contaminated Personal Protective Equipment (PPE) ✓ IV Tubing ✓ Cultures, Stocks 	<ul style="list-style-type: none"> ✓ Empty vials, ampoules ✓ Empty Syringes, Needles ✓ Empty IVs ✓ Gowns ✓ Gloves ✓ Tubing ✓ Aprons ✓ Wipes ✓ Packaging
RCRA HAZARD Black Container	PHARMACEUTICAL Blue Container	RADIOACTIVE Shielded Containers with Radioactive Symbol
<ul style="list-style-type: none"> ✓ Hazardous metals (PCPA) ✓ Half/Partial doses (PCPA) ✓ Hazardous bulk meds ✓ Packed drugs, packaging ✓ Bulk chemo ✓ Pathological Waste (non-infecting) 	<ul style="list-style-type: none"> ✓ Pills ✓ Injectables ✓ Antibiotics 	<ul style="list-style-type: none"> ✓ Fluorine 18 (F-18), radioisotopes ✓ Technetium-99 (Tc-99m), radioisotopes ✓ Iodine-131 (I-131), radioisotopes ✓ Strontium-89 Sr-89, radioisotopes ✓ Iridium-192 (Ir-192), radioisotopes ✓ Cobalt-60 (Co-60), radioisotopes

Download this Printable Chart At: www.BioMedicalWasteCollection.com/Medical-Waste-Disposal/

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Hazardous Waste Tracking

Please print or type. (Form designed for use on white 12-point typewriter) Form Approved, OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number 2. Page 1 of 3 3. Emergency Response Phone 4. Manifest Tracking Number

5. Generator's Name and Mailing Address Generator's Site Address (if different than mailing address)

Generator's Phone U.S. EPA ID Number

6. Transporter 1 Company Name U.S. EPA ID Number

7. Transporter 2 Company Name U.S. EPA ID Number

8. Designated Facility Name and Site Address U.S. EPA ID Number

Facility's Phone

No. (1-4)	9b. U.S. DOT Description (including Proper Shipping Name and Packing Group (if any))	9c. Hazardous Waste ID Number	9d. Quantity		11. Total Quantity	12. Unit (kg/Mt)	13. Waste Codes
			kg	Mt			
1							
2							
3							
4							

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Waste Streams – Haz. Waste Vendor Example

3173200 Commercial Waste Disposal Services & Solutions - Stericycle

Home > Waste Services

Our Medical Waste Solutions Meet All Your Needs.
From biohazardous medical waste disposal and sharps management to document and hard drive destruction, we've got you covered.

[Request Free Quote](#)

Our Medical Waste Solutions Meet All Your Needs
We offer a wide variety of waste disposal services for companies of all sizes.

- Biohazardous Medical Waste**
Stericycle is a leader in providing waste transportation and disposal solutions for specialized and regulated waste streams.
- Industrial Hazardous Waste**
Safely transport and dispose of any hazardous waste, managed with a fleet of specially equipped and permitted vehicles and a national network of Treatment, Storage and Disposal Facilities.
- Sharps Management Service**
Simplify the process of collecting and disposing of sharps in the healthcare environment while utilizing reusable containers to improve sustainability and reduce staff exposure to needles.
- Integrated Waste Stream Solutions for Hospitals**

<https://www.stericycle.com/industrial-waste-services> 1/5

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Hazard Management

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Fuel Oil Storage Risks



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Develop and maintain Spill Prevention, Control, and Countermeasure (SPCC) program.

40 CFR 112.20 Facility Response Plans
40 CFR 112.21 Facility Response Training, Drills & Exercises

Required for navigable waters and adjacent shorelines.

Best practice!

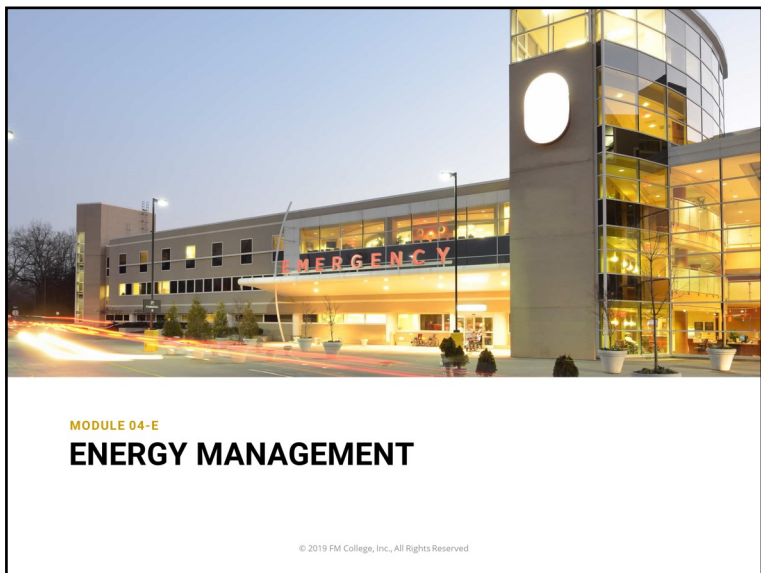
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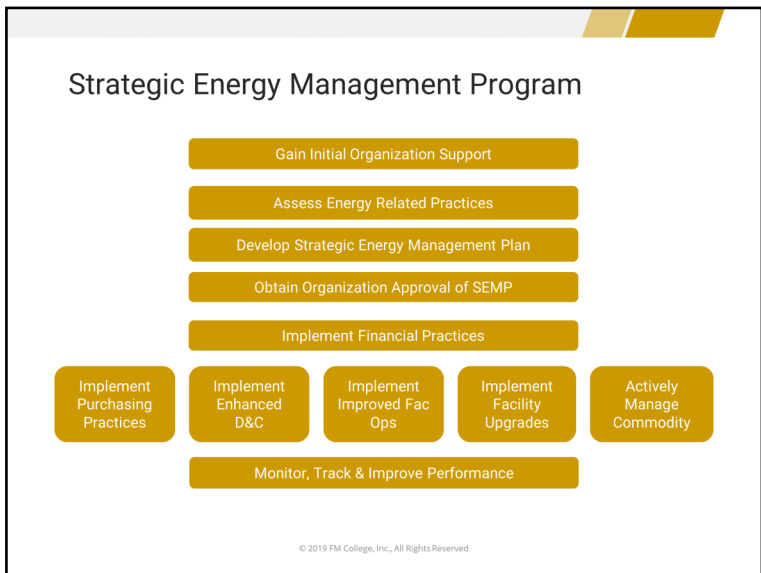
Other Hazards

Chemical / Biologic Spills
Asbestos
Radiation

Plan & Drill

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Strategic Energy Management plan Development

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1. Gain Initial Organizational Support for Strategic Approach

1. Key Corporate Executives (CEO, CFO, COO) have expressed willingness to commit personal time to Goal 2&3 efforts
2. Key Corporate Executives (CEO, CFO, COO) have expressed willingness to direct Key Corporate Staff to commit personal & departmental time to Goal 2&3 efforts
3. Key Corporate Staff (Energy Mgrs, Finance, Regional Execs, Hospital Execs.) have been directed to commit personal & departmental time to Goal 2&3 efforts
4. Key Regional Staff and Key Individual Hospital staff have expressed willingness to commit personal and staff time to Goal 2&3 efforts and have so directed their staff.
5. Key Medical Directors (MDs, Nursing, etc.) are aware of effort and supportive.

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2. Assess Energy-Related Practices; Benchmark Facility

1. Organizational Assessment has been completed using at Corporate Level
2. Appropriate additions to Organizational Assessment have been completed at Regional and Individual Hospital levels.
3. All key facilities have been benchmarked
4. Significant opportunities to improve energy-related business practices have been identified at the corporate level
5. Significant opportunities to improve energy-related business practices have been identified at the individual hospital level

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3. Develop Strategic Energy management Plan (SEMP)

1. Energy management vision and guiding principles have been developed and documented.
2. Business case has been developed and documented.
3. Goals and objectives for strategic energy management plan have been developed and documented.
4. Timeline, ROM implementation budget, and responsibilities are developed and documented.
5. Business proposition has been developed and documented

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4. Obtain Organizational Approval of SEMP and Commitment of Resources

1. Identify lead staff whose buy-in and support is critical (financial management, purchasing/procurement, construction, building ops, etc.), discuss plan, and gain their support.
2. With organization's financial staff, draft appropriate budget documents (organization specific) to cover SEMP implementation.
3. SEMP Implementation plan has been presented to key executive(s) and executive decision-making bodies as necessary.
4. Budgetary and resource authorizations have been obtained from organization for SEMP implementation.
5. Staff responsibilities, performance goals, and reporting protocols for energy management have been established and documented within the organization.

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Strategic Energy Management Plan Implementation

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5. Implement Financial Practices

1. Consideration of energy efficiency as a documented part of the budgeting process for capital and operations projects
2. An overall budget for energy efficiency measures has been approved and funded for the current budget cycle.
3. The financial methods and decision process specifically requires the use of LCCA and a consistent "Hurdle Rate"
4. An LCCA tool and approach has been selected and adopted formally
5. An LCCA training plan has been approved, and all key staff have been trained.

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6A. Implement Purchasing Practices

1. Supply chain management policies have been developed and implemented for all energy using equipment and services.
2. Efficiency specifications have been developed and implemented for all centrally purchased equipment that is routinely replaced (e.g. lights, motors, computers, etc.).
3. Efficiency standards for services related to design and construction have been developed and implemented.
4. Efficiency standards for equipment & services related to operations and maintenance have been developed and implemented at the Facility level.
5. Implementation of purchasing practices related to energy efficiency are routinely evaluated and corrective action is taken as needed.

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6B. Implement Enhanced Design & Construction Practices

1. The Early Collaboration / Integrated Design Process has been implemented as a policy for all New Construction Projects
2. Energy Performance Benchmarks or Standards that minimize Total Cost of Ownership have been established for all New Construction Projects
3. Financial Analysis Methods (Goal 5) and Procurement Policies/Procedures (Goal 6A) have been implemented for all New Construction Projects
4. Advanced Design Technical Practices (to include Daylighting, Energy Recovery, VAV, 3-D Design, & Commissioning) have been implemented as a policy for all New Construction Projects
5. An optimized turnover to the Owner's Staff has been implemented as a policy for all new construction projects. (Includes Training, Punchlist/Warranty Coordination, Benchmarking, and Charting Actual Building Performance vs. Design Performance.)

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6C. Implement Improved Facility Operations Practices

1. Benchmarking Results (Goal 2) have been used to identify all underperforming facilities and/or systems
2. Improved O&M Practices to optimize current systems and equipment have been implemented. Minor capital investments have been made where appropriate.
3. A staff training program in enhanced building operations has been approved and implemented.
4. A Preventative Maintenance Program that specifically addresses the root causes of poor energy efficiency has been implemented.
5. Service Provider Contracts have been reviewed and optimized to better support in-house staff responsibilities and maintain an enhanced level of operating performance.

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6D. Implement Facility Upgrades

1. Facility or Equipment Upgrade Opportunities are assessed on a regular/ongoing basis.
2. All projects are implemented where LCCA (Goal 5) justifies the investment.
3. Consider lost benefit of energy savings if/when making budgetary decision to postpone Facility Upgrades due to financing constraints.
4. Contract to outside Service Providers where no in-house expertise exists, or timelines necessitates contracting.
5. Actual Facility Upgrade performance is charted against Facility Upgrade designed performance

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6E. Actively Manage Commodity

1. Energy Commodity pricing and consumption are regularly monitored to minimize utility costs and exposure to market risks.
2. Open market savings, group purchasing, and term contracts are regularly considered as tools to minimize utility costs & risks
3. Cogeneration and other on-site generation/distribution opportunities are regularly considered and pursued.
4. Where practical, alternative and interruptible fuel sources and prices are regularly considered.
5. The organization is an active participant in the energy/utility regulatory process.

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7. Monitor, Track, and Improve Performance

1. Monitor, Track, and Improve Performance
2. Standard tools for tracking energy use and accounting have been implemented at all key facilities.
3. Facility energy performance is (will be) tracked over time (multi-year).
4. Monitoring & Verification (M&V) protocols have been established and implemented at all key facilities.
5. M&V and Tracking data is regularly reviewed to improve processes and performance.

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Assess the use of energy saving alternatives and options

Terms & concepts:

- Energy Saving
- Direct Digital Controls
- Quad
- Energy Committee
- Energy Management Program Phases
- Energy Database
- Energy Program Evaluation
- Time clock energy control system
- Computer usage in energy control
- Benchmarking in an energy plan
- Baseline Energy Audit
- Renovation projects qualified for a utility rebate
- Energy Star Program
- Energy Reports

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MODULE 04-F

TECHNOLOGY MANAGEMENT

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Manage engineering information systems

- Building automation system (BAS)
- Work order system (CMMS)
- CAFM/IWMS
- CAD/BIM
- GIS/RFID, etc.
- MBCx
- IoT

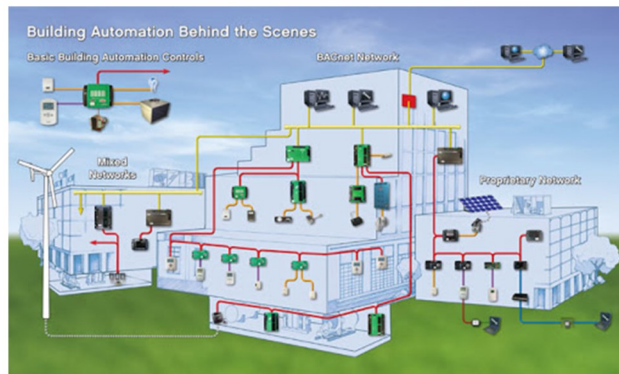
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1

BAS

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Building Automation Systems Design



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Source: KMC Controls

Building Automation Systems - Introduction

A Building Automation System, also referred to as BAS or Building Management System (BMS), is a combination of software and electronic, electric and mechanical devices, meant to automate the operation of a building.

At a very high level, it can be described as a system that:

- Collects information about the building status and the factors that affect it (like the weather),
- Processes it,
- Stores it,
- Informs the operators,
- Makes decisions (based on current, historical and forecasted information, plus the operators input), and
- Acts to control the building electromechanical equipment.

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What is controlled?

Generally, building automation begins with control of mechanical, electrical, and plumbing (MEP) systems. For instance, the heating, ventilation, and air-conditioning (HVAC) system is almost always controlled, including control of its various pieces of equipment such as:

- Chillers
- Boilers
- Air Handling Units (AHUs)
- Roof-top Units (RTUs)
- Fan Coil Units (FCUs)
- Heat Pump Units (HPUs)
- Variable Air Volume boxes (VAVs)

Lighting control is, likewise, low-hanging fruit for optimizing building performance.

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What is controlled?

Other systems that are often controlled and/or brought under a complete automation system include:

- Power monitoring
- Security
- Close circuit video (CCTV)
- Card and keypad access
- Fire alarm system
- Elevators/escalators
- Plumbing and water monitoring

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BAS Communication Protocols in common use

BACnet

- BACnet is a communications protocol for Building Automation and Control (BAC) network that leverages the ASHRAE, ANSI, and ISO 16484-5 standard protocol.

LonWorks

- LonWorks was a creation of Echelon Corporation in 1988 and was added as an ANSI standard (ANSI/CEA-709.1-B) in 1999. LonWorks is not the oldest of the three, but it is by far more robust and capable than the older Modbus protocol.

Modbus

- Modbus was developed in 1979 by a company which manufactured PLCs, Modicon. Modbus is the grand-daddy of the controls communication protocols. Even to this day new products are being manufactured that still can be used with the Modbus protocol.

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Protocol Converters/Platforms

The NiagaraAX Framework® is a software platform you can use to manage and control diverse systems and devices-regardless of manufacturer or protocol.

- Niagara Framework
- <https://www.niagara-central.com/>

Sedona Framework is a component-oriented programming language. Using Niagara Workbench or a Sedona tool components are assembled onto wire sheets creating applications. This language is ideally suited for graphical representation of control strategies.

- Sedona Framework
- <http://www.sedonadev.org/index.html>

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Primary BAS Controls Manufacturers

- Alerton : <http://www.alerton.com/>
- Automated Logic : <http://www.automatedlogic.com/>
- Delta : <http://www.deltacontrols.com/>
- Honeywell : <http://www.honeywell.com/acs/>
- Johnson Controls : <http://www.johnsoncontrols.com/>
- Siemens :
<http://www.buildingtechnologies.siemens.com/bt/global/en/Pages/home.aspx>
- Trane : <http://www.trane.com/Index.aspx>
- Tridium : <http://www.tridium.com/>

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CMMS

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Computerized Maintenance Management Systems (CMMS)

- Maintenance history and machine history
- Maintenance Work order
- Implementation

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Computerized Maint. Mgmt. System: (CMMS)

What it is:

- Equipment data management
- Preventive Maintenance
- Labor
- Work order system
- Scheduling/Planning
- Vendor Management
- Inventory Control
- Purchasing
- Budgeting
- Asset Tracking



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CMMS: Implementation

Planned Maintenance

- Asset Inventory
- Task List
- Schedules
- Parts Inventory

Reactive Maintenance (customer requests)

- Priority & Response Time
- Parts & Approvals

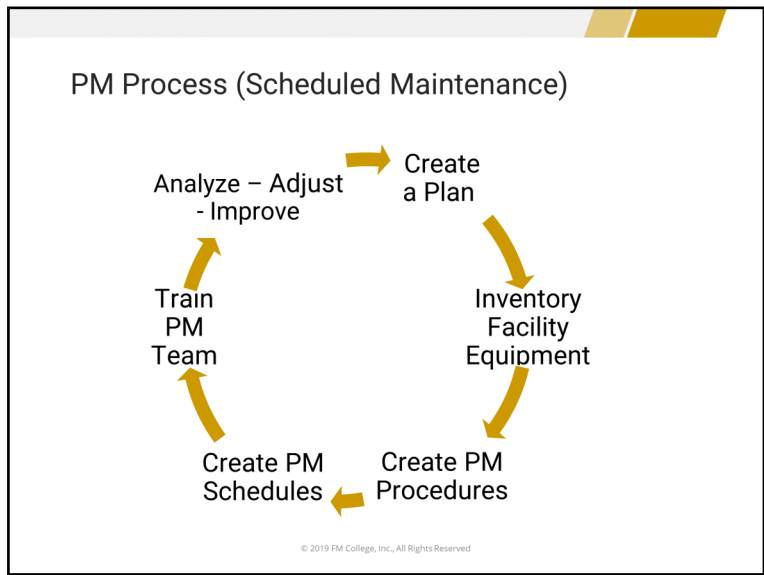
Staffing

- Availability
- Schedules
- Assignments

Other Considerations

- Criticality
- Risk
- Staffing
- Technology
- Communication
- Reports/Data

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PM Process: Sorting/Evaluation/KPIs

Sorting <ul style="list-style-type: none">➤ Criticality➤ Regulatory➤ Seasonality➤ Frequency<ul style="list-style-type: none">• Day• Week• Month• Quarter• Year• Multiple Years	Evaluation / KPIs <ul style="list-style-type: none">➤ Regulatory in performance window➤ % PM Completed on time – critical equipment➤ % PM completed on time all equipment➤ Actual time on task vs scheduled time (evaluate performance of staff and validate pm task)
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Developing an Effective PM

Task Groups in a PM Procedure

- Shut down authorization
- Safety (Lock Out/Tag Out, etc.)
- Operational checks prior to shutdown
- Gauge Readings
- Condition Assessment
- Maintenance Tasks
- Lubrication
- Cleaning
- Re-start authorization
- Un-lock/Tag
- Verify Operation
- Document all work, time, findings, etc.

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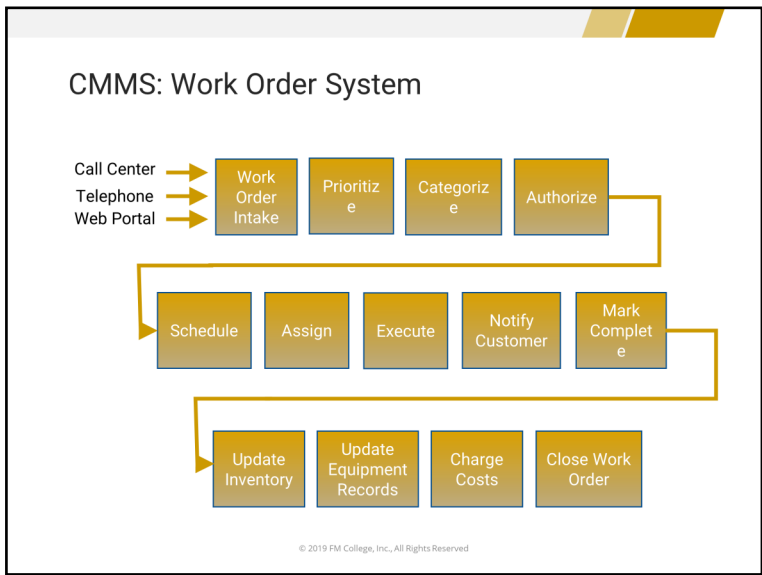
Developing an Effective PM

Block approach

- Monthly tasks
- Add block for quarterly
- Add block for semi-annual or Annual

Longer period PM tasks add to the PM procedure instead of replacing shorter period PM tasks

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CMMS: Data Analysis

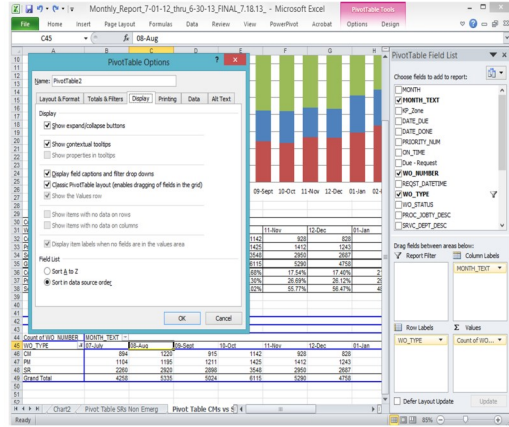
CMMS Reports

- Tenant Request
 - Volume
 - Response
 - Labor
 - Revenue/cost
- Preventative Maintenance
 - Volume
 - Labor
 - On time performance
- Corrective Maintenance
 - Volume
 - Labor
 - On time performance

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CMMS: Data Analysis

Pivot
Table
Settings



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3

CAFM / IWMS

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FM Software Systems: CAFM & IWMS

(CAFM) Computer-aided facilities management

- Used primarily for managing space and assets. Facility managers can store floor plans within the system, visualize their space and view space utilization. They can also store details about their organization's assets and track asset utilization. This enables them to plan moves, make better use of their existing space and keep track of asset maintenance.

(IWMS) integrated workplace management system

- Has the same core functionalities as CAFM software but with additional modules that have traditionally included some combination of these elements:
 - Real estate and lease management
 - Facilities and space management
 - Asset and maintenance management
 - Project management
 - Energy/Environmental management
 - Other functionality includes facility management metrics, mailroom management, inventory management and visitor management.

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FM Software Systems: CAFM & IWMS

CAFM and IWMS solutions are really the same thing at different stages in the evolution of facilities management, with IWMS being the more advanced technology that has replaced CAFM in the workplace today.

Think of IWMS as enhanced CAFM.

While CAFM solutions were the first solution to incorporate CAD drawings in a facilities management database, IWMS took things a step further by integrating with more data, systems, technologies, and a deeper workflow framework that makes IWMS a more useful communication platform for all stakeholders, from the Chief Financial Officer to maintenance staff using a tablet in the field.

Whereas CAFM focused on optimizing maintenance, operations, and space planning, IWMS software expanded from simply reducing costs to also enhancing productivity by optimizing facilities around the missions that they support. IWMS solutions accomplish this in three primary ways:

- Deeper Integration
- Top-Down Planning
- Agile, Role-Based Workflow

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FM Software Systems: CAFM & IWMS

Deeper Integration

- Integration with ERP systems, IoT sensors, and other systems means deeper and more detailed data on everything. Integration with more advanced technologies like 3D BIM and GIS means a more sophisticated visual interface.

Top-Down Planning

- IWMS tools funnel all data into performance metrics, so that managers can easily generate reports, track trends, investigate workflow, measure results of initiatives, and simulate different scenarios.

Agile, Role-Based Workflow

- An agile workflow framework allows organizations to define user roles for every level of their organization, controlling security access while connecting even contractor's in the field with mobile apps and cloud systems.

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FM Software Systems: CAFM & IWMS

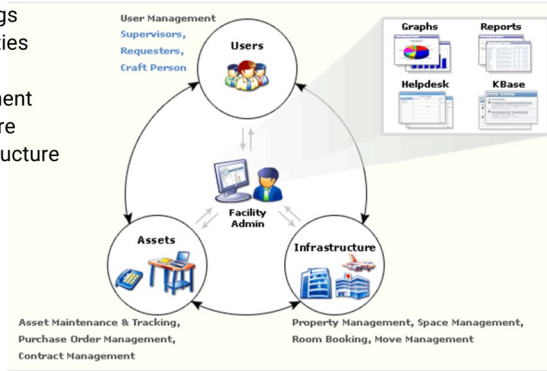


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FM Software Systems: CAFM & IWMS

What Kinds of Assets Does a CAFM or IWMS Manage?

- Buildings
- Properties
- Space
- Equipment
- Furniture
- Infrastructure



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FM Software Systems: CAFM & IWMS

What Asset Data Does a CAFM/IWMS Track?

- Today, modern IWMS systems compile all kinds of data to incorporate operational and financial perspectives.
- Different staff roles are interested in different types of asset data.
 - A workman may want to know about previous maintenance work on an asset,
 - A staff member may want to know who was the last person responsible for an asset,
 - A CFO may be curious about how much it costs to replace an asset, or the total cost of ownership (TCO).

Types of Data That Can Be Attached to an Asset and Tracked:

- Leases
- Energy
- Compliance
- Chain of custody
- People
- Maintenance history
- Cost
- Condition
- Usage
- Security
- And more!

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FM Software Systems: CAFM & IWMS

Benefits

- Centralized and Validated Data
 - Centralize all facilities data on one platform, with standardized processes to ensure accuracy and long-term system integrity.
- Reporting
 - Inform plans and strategy with hard data. Create consensus with defensible data that demonstrates needs and results.
- CAD
 - Use AutoCad to incorporate 2D and 3D drawings into your system. Manage facilities from a visual, strategic view.

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FM Software Systems: IWMS Example

Condition Assessment

Assessment Scoreboard

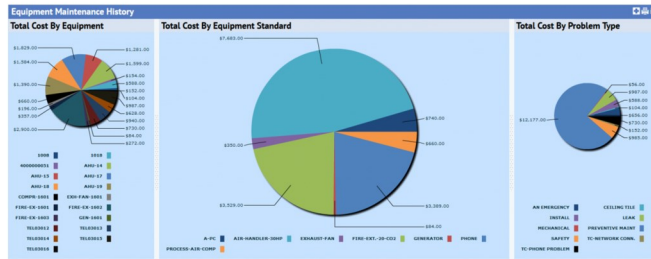
Generated at: 5/16/2018 11:05

Condition Priority	Estimated Budget	Condition Value					Not Entered
		Total	Unacceptable	Poor	Good	Very Good	
Total	188,820	24,350	44,275	38,250	1,875	0	80
Count	411	18	15	63	6	0	329
Life Safety	1,148	548	1,920	-	-	-	-
Count	6	2	0	4	-	-	-
Code Compliance	11,079	2,476	10,000	-	-	-	-
Count	11	3	2	-	-	-	-
Facility Loss	41,755	8,000	-	38,755	-	-	-
Count	10	2	-	8	-	-	-
Bedroom Code	0	-	-	-	-	-	-
Count	0	-	-	-	-	-	-
Helium Support	25,935	3,350	4,000	5,375	1,200	-	-
Count	24	1	1	14	2	-	-
Delayed Priority	17,000	-	-	15,000	-	-	-
Count	1	-	-	1	-	-	-
Cost Effective	42,200	-	42,200	-	-	-	-
Count	2	-	2	-	-	-	-
Def. Remediation	31,400	-	2,800	28,600	600	-	-
Count	9	-	2	6	1	-	-
Company Image	7,545	4,000	2,075	1,470	-	-	-
Count	15	2	5	8	-	-	-
Helium	4,100	-	1,000	3,075	75	-	-
Count	24	-	1	20	3	-	-
Not Entered	80	-	-	-	-	-	80
Count	329	-	-	-	-	-	329

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FM Software Systems: IWMS Example

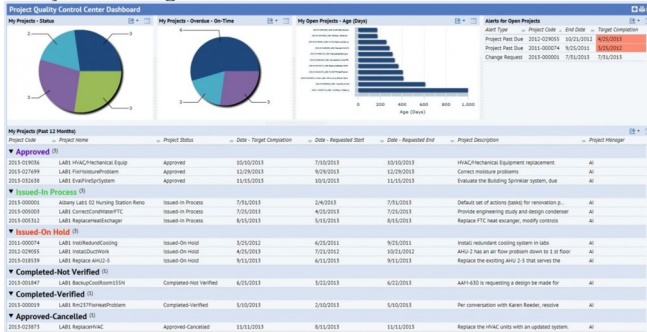
Equipment Maintenance History



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FM Software Systems: IWMS Example

Project Management



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THANK YOU

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