

Healthcare Facilities Management

Module 2: Planning, Design & Construction Student Workbook



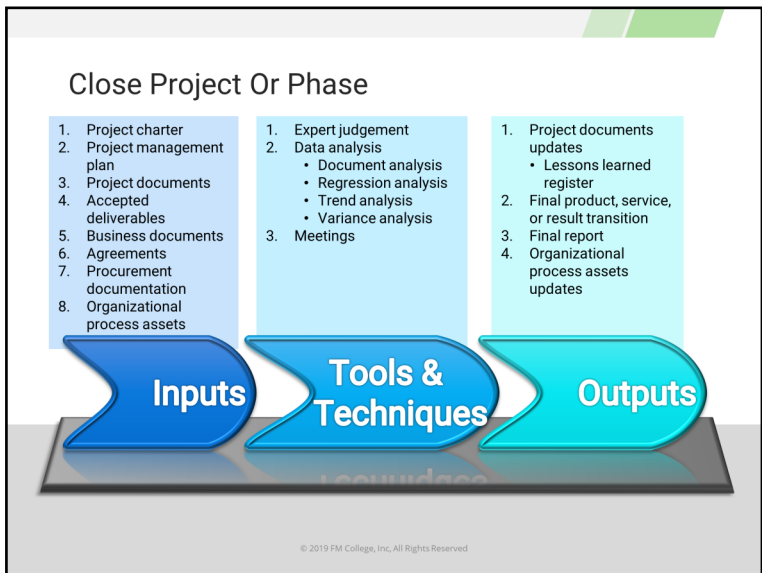
Lesson 8 ~ P D & C 5

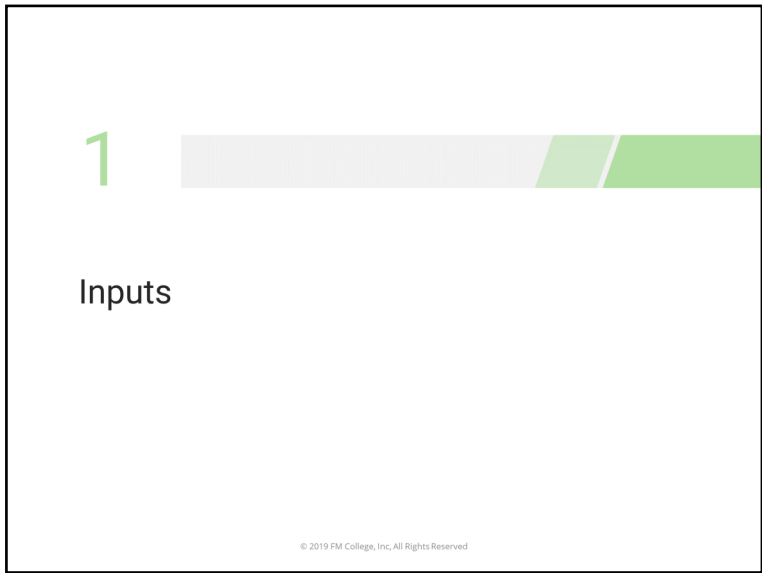


www.FM-College.com









Project Charter

- Project success criteria
- Approval requirements
- Who will sign off on the project

© 2019 FM College, Inc. All Rights Reserved

Project Management Plan

All components of the project management plan are input to this process

© 2019 FM College, Inc. All Rights Reserved

Project Documents

- Assumption log
- Basis of estimates
- Change log
- Issue log
- Lessons learned register
- Milestone list
- Project communications
- Quality control measurements
- Requirements documentation
- Risk register
- Risk report

© 2019 FM College, Inc. All Rights Reserved

Accepted Deliverables

May include:

- Approved product specifications
- Delivery receipts
- Work performance documents
- (Partial or interim deliverables may also be included for phased or canceled projects)

© 2019 FM College, Inc. All Rights Reserved

Business Documents

Business case

- Business need
- Cost-benefit analysis that justifies the project

Benefits management plan

- Target benefits of project

© 2019 FM College, Inc. All Rights Reserved

Agreements

- Requirements for formal procurement closure are usually defined terms and conditions of the contracts
- They should be included in the procurement management plan
- A complex project may involve managing multiple contracts simultaneously or in sequence

© 2019 FM College, Inc. All Rights Reserved

Procurement Documentation

- To close the contract(s) all procurement documentation is:
 - collected
 - indexed
 - filed

- information on contract schedule, scope, quality and cost performance along with all contract change documentation payment records and inspection results are cataloged

- As-built plans/drawing(s) or other as-developed documents, manuals, troubleshooting, and other technical documentation should also be considered as part of the procurement documentation when closing a project.

© 2019 FM College, Inc. All Rights Reserved

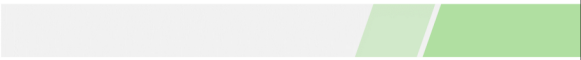
Organizational Process Assets

Organizational process assets that can influence the close project phase are (but not limited to):

- Project or phase closure guidelines or requirements
- Configuration management knowledge base containing diversions and baselines of all standards, policies, procedures, and any project documents

© 2019 FM College, Inc. All Rights Reserved

2



Tools & Techniques

© 2019 FM College, Inc. All Rights Reserved

Expert Judgment

Specialized knowledge or training the following topics:

- > Management control
- > Audit
- > Legal and procurement
- > Legislation and regulations

© 2019 FM College, Inc. All Rights Reserved

Data analysis

- Document analysis
- Regression analysis
- Trend analysis
- Variance analysis

© 2019 FM College, Inc. All Rights Reserved

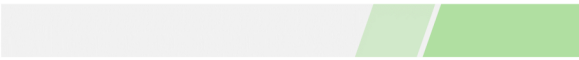
Meetings

Meetings are used to:

- Confirm that the deliverables been accepted
- Validate the exit criteria have been met
- Formalize the completion of contracts
- Evaluate the satisfaction of stakeholders
- Gather lessons learned
- Transfer knowledge and information from the project
- Celebrate success

© 2019 FM College, Inc. All Rights Reserved

3



Outputs

© 2019 FM College, Inc. All Rights Reserved

Project Documents Updates

- All project documents updated and marked as final versions
- Finalize lessons learned register
- The final lessons learned register may include:
 - Benefits management
 - Accuracy of the business case
 - Project and development lifecycles
 - Risk and issue management
 - Stakeholder engagement
 - Other project management processes

© 2019 FM College, Inc. All Rights Reserved

Final Product, Service, Or Result Transition

A product, service, or result, once delivered by the project, may be handed over to a different group or organization that will operate, maintain, and supported throughout its life cycle

Transition to occupancy or use, etc.

© 2019 FM College, Inc. All Rights Reserved

Final Report

Summary of project performance:

- Summary level description of the project or phase
- Scope objectives
- Quality objectives
- Cost objectives
- Summary of the validation information for the final product
- Schedule objectives and results achieved
- Summary of how the final product or service achieved the business needs identified in the business plan
- Summary of any risks or issues encountered and their resolution

© 2019 FM College, Inc. All Rights Reserved

Organizational Process Assets Updates

Include (but not limited to):

- Project documents
- Operational and support documents
- Project or phase closure documents
- Lessons learned repository

© 2019 FM College, Inc. All Rights Reserved



MODULE 03-K
TRANSITION TO OCCUPANCY/OPERATION

© 2019 FM College, Inc. All Rights Reserved

1

Complete Commissioning

© 2019 FM College, Inc. All Rights Reserved

Commission and accept projects

- Commissioning (starts in schematic design)
- Punch List & Defect List as deliverables
- Closeout and acceptance
 - Include Maintenance Team Leads
- Post-occupancy evaluation
 - Included in Commissioning Plan?
 - Different from M&V
- As-built drawings, OEMs and operational tests delivered promptly prior to occupancy

© 2019 FM College, Inc. All Rights Reserved

Staff Training

Cx Agent should manage the staff training plan

- Plan should include at least two training sessions for each activity, to allow for staff training
- Video record of training for future staff
- Consider factory training for key staff/equipment

Installing contractor performing PM during warranty period also allows your staff the chance to follow them and get “hands-on” training.

© 2019 FM College, Inc. All Rights Reserved

O&M Manuals, Data, Specifications

- Hard Copy
- Electronic copy
- Reviewed by:
 - Chief Engineer, or his delegate
 - Commissioning Agent

© 2019 FM College, Inc. All Rights Reserved

M&V After Occupancy?

- LEED Requirement?
- Also good idea to verify performance prior to end of warranty period
- Some equipment may require a full year weather cycle to be fully tuned.

© 2019 FM College, Inc. All Rights Reserved

2

Warranty

© 2019 FM College, Inc. All Rights Reserved

PM during Warranty

- If PM is not completed, could void warranty
- Consider hiring installing contractor of critical and mechanical systems during warranty to do PM
 - May be willing to extend warranty also
 - Better training period for staff
 - Single point of accountability

© 2019 FM College, Inc. All Rights Reserved

3

Connect Project Data to CMMS

© 2019 FM College, Inc. All Rights Reserved

Cobie

© 2019 FM College, Inc. All Rights Reserved

Provide Input Spreadsheets To Project Manager

- Providing Excel spreadsheets to be filled out has helped significantly on past projects.
- Also consider working directly (or through Cx) with critical equipment OEMs to get early electronic documents of PM tasking. Ideally formatted directly for upload into the CMMS.

© 2019 FM College, Inc. All Rights Reserved

OEM Maintenance Schedules During Warranty

- Records from initial occupancy forward must be 100% complete.
- Schedules ideally established prior to occupancy
- Difficulty is in timely delivery of the information electronically from the builder, and through the Cx agent.

- Transition to AEM later?

© 2019 FM College, Inc. All Rights Reserved

4

Regulatory Records

© 2019 FM College, Inc. All Rights Reserved

TJC/JCI Records

- Policies from similar facilities as template for new facility
- Template a Statement of Conditions (SOC/eSOC) from a similar facility (ideally as a spreadsheet) for development during final construction. (Good turn-over tool also)
- Establish the SOC/eSOC formally at occupancy

© 2019 FM College, Inc. All Rights Reserved

ICRA/ILSM

Once Occupancy accepted this is your responsibility also!

Do not fail to consider and document for warranty repairs, etc.!

© 2019 FM College, Inc. All Rights Reserved

1 Year Damper Tests

Inspection of fire dampers, smoke dampers and combination fire/smoke dampers **1 year after installation for all facilities**, every 4 years thereafter in non-healthcare facilities, every 6 years in hospitals

NFPA 80

© 2019 FM College, Inc. All Rights Reserved

5

Warranty or Defect?

© 2019 FM College, Inc. All Rights Reserved

Defect Log and Punchlist

- Defect log from construction file tells us the history of the problems) with installed equipment
- Punchlist may add additional detail.

- If an item has already been repaired multiple times prior to occupancy, require replacement instead of repair.
- Need the Defect Log & Punchlist to prove it.

© 2019 FM College, Inc. All Rights Reserved

6

Repair versus Change Requests

© 2019 FM College, Inc. All Rights Reserved

Corrective Work-Orders on new construction

Policy should be in place for review of work orders prior to assignment during first six months (approx.) after Occupancy.

- Installation change requests should not be done as corrective maintenance.
- Installation change requests should not be funded out of M&O budget

© 2019 FM College, Inc. All Rights Reserved

7

Post- Occupancy Evaluation

© 2019 FM College, Inc. All Rights Reserved

Post-Occupancy Evaluation

Not M&V

6-12 months after Occupancy (once “dust settles”) consider a post-occupancy study to review project result:

- to original business case
- To end users’ expectations

Based on results, consider:

- Follow on project to address concerns
- lupdate to Lessons learned register for project.

© 2019 FM College, Inc. All Rights Reserved