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MODULE 14

Economic Aspects of Commissioning

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Building commissioning programs can be expensive, which worries owners. However, benefits and costs must be considered. Uncommissioned system costs can be cut by 20% by commissioning. Commissioning costs 3-4% of mechanical and electrical system construction for large facilities. Commissioning method and system complexity affect these figures.

Learning Objectives

- Introduction
- Avoiding the Costs of Not Commissioning
- Costs of commissioning
- Budgeting for commissioning
- Conclusion

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INTRODUCTION

- To put the cost into perspective, it is necessary to compare the costs of commissioning to the benefits of commissioning.
- However, the vast disparity in mechanical systems construction costs between the two facilities justifies the use of the percentage of construction costs method for estimating commissioning costs.
- This is a weakness.
- Even though the estimate is based on a percentage of construction costs, it is not perfect, but it is the most accurate available predictor of commissioning costs.
- Therefore, the information regarding the cost of the commissioning The method described in this chapter is expressed as a percentage of the system's construction costs.

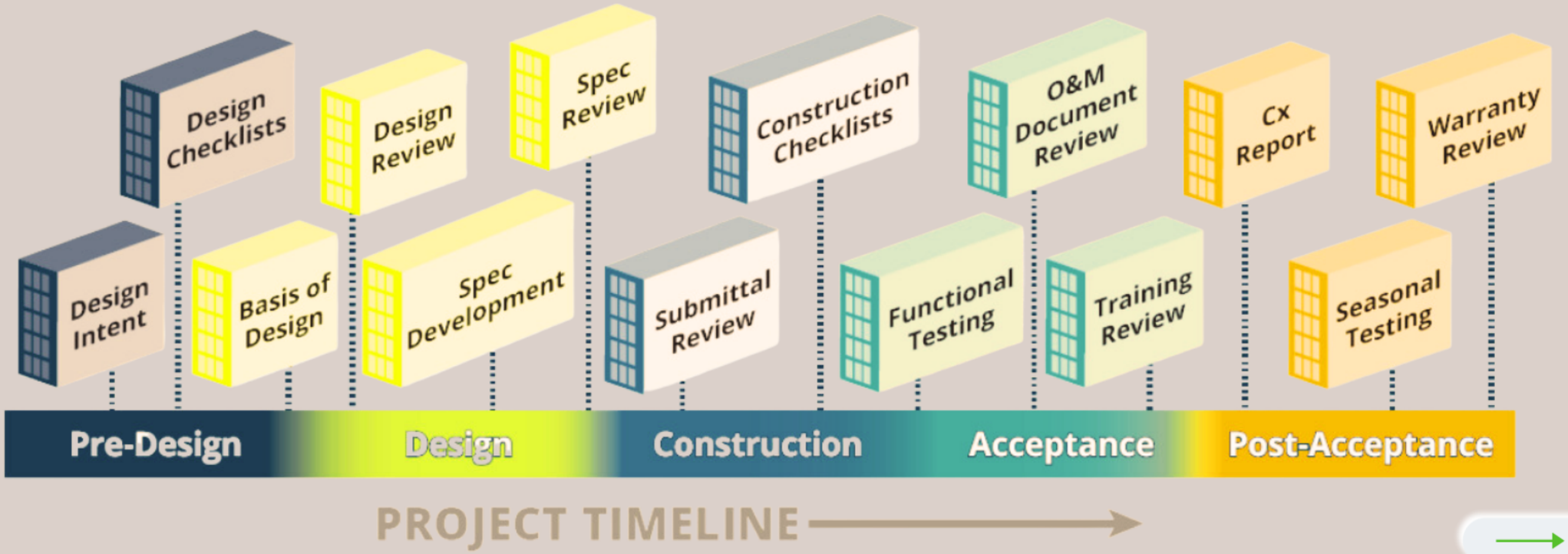
INTRODUCTION +

- Early emphasis on the energy-saving benefits of the commissioning process led to expressing the costs of commissioning in terms of dollars per estimated kilowatt-hour per year saved.
- Furthermore, the cost savings during construction alone result from a reduction in the number of change orders, requests for information, and delays that frequently exceed the costs of commissioning.
- Consequently, the information about the cost of the commissioning The process presented in this chapter is expressed in terms of percentages of the construction costs of the systems being commissioned.
- The costs listed include the cost of the CA's contract, the incremental increase in the design professional's fee, and the incremental increase in the amount of the construction contract.

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Commissioning Activities



AVOIDING THE COSTS OF NOT COMMISSIONING

- By understanding the costs of not commissioning, one can gain a measure of the benefits of commissioning.
- The costs of not commissioning are the expenses owners incur to correct design and construction deficiencies in order to make new or renovated facilities work as they are intended.
- Owners manage to work out most of the problems found in newly built facilities, even without formal building commissioning, but they do so at substantial cost over a period of several years after occupancy.





AVOIDING THE COSTS OF NOT COMMISSIONING+

The costs of not commissioning a project include staff time to fix the issues, additional equipment or materials, lost occupant time and productivity, health and safety issues, excess energy consumption, central plant utilities, legal fees, and the intangible "hassle factor."

BUDGETING FOR COMMISSIONING

- During the predesign phase of the project, the owner must establish a budget for the entire project.
- In order to include commissioning in the budget, the owner needs a budgeting rule of thumb.
- Based on the preceding discussion and a great deal of field experience, it is recommended that the initial commissioning budget be determined by using 3 to 4 percent of the estimated cost of the mechanical subcontract plus 3 to 4 percent of the estimated cost of the electrical subcontract to arrive at a reasonable budget amount for the quality assurance building commissioning program.





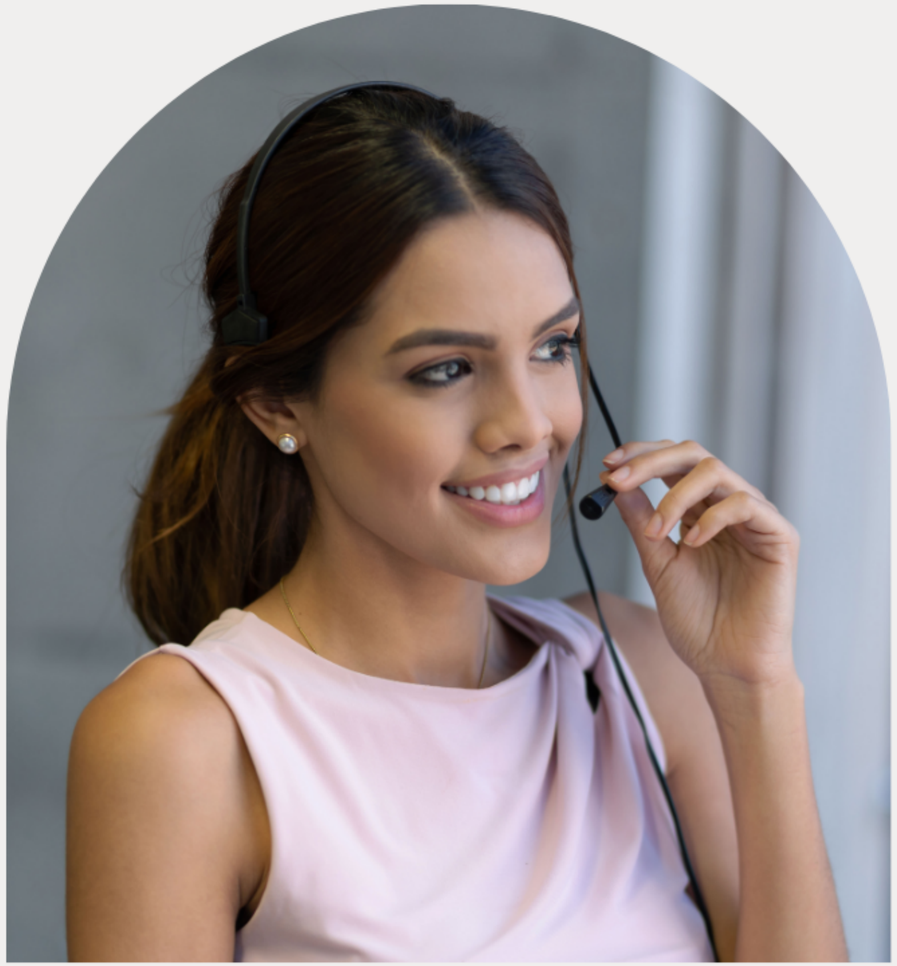
BUDGETING FOR COMMISSIONING+

- In general, however, the cost of commissioning general construction systems is lower than the margin of error that exists in estimating the commissioning costs of mechanical and electrical systems.
- Experience shows that, even though using a percentage of the construction cost is generally a reliable method for estimating commissioning costs, under some conditions, commissioning costs will exceed the 3 to 4 percent ranges suggested above.

IN SUMMARY

- In summary, it is clear that the costs of commissioning are less than the costs of not commissioning.
- It is best to estimate commissioning costs on the basis of the construction costs of the commissioned systems, figuring out 3 to 4 percent of mechanical construction costs and 3 to 4 percent of other system costs.
- The cost of commissioning depends on the commissioning approach used.
- There are significant intangible costs involved in not commissioning a construction project.
- Ensuring new facilities work as they were intended is a requirement of responsible facility management.

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