



OWNER'S PROJECT
REQUIREMENTS
and
BASIS OF DESIGN



Getting It Right From the Start

Owner's Project Requirements and Basis of Design

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Defining Commissioning

- Commissioning Process is a quality-focused process for enhancing the delivery of a project. The process focuses upon verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, tested, operated and maintained to meet the Owner's Project Requirements.

Owner's Project Requirements



- A written document that details the functional requirements of a project and the expectations of how it will be used and operated. These include project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.
- Has been called Design Intent and Project Program



Owner's Project Requirements

- The OPR forms the basis from which all design, construction acceptance and operational decisions are made.
- Commissioning Project Phases
 - Pre-design
 - Design
 - Construction
 - Occupancy and Operations
- The OPR will change and evolve.



OWNER EMPHASIS

- Setting the Project Tone
 - Budget and Schedules
 - Requirements - Project Physical Criteria
 - People - Form the Commissioning Team
 - Process - Commissioning Plan, Testing, Acceptance
 - Documentation - Construction Documents, Systems Manuals, Reports
 - Training - Scope and Requirements
 - Operations - Use and Maintenance



Owner's Project Requirements

- Information Gathering
- OPR Workshop
 - Owner/Representatives
 - User Groups
 - Commissioning Authority
 - Maintenance and Operations
 - Design Professionals
 - Construction

Owner' Project Requirements



- Project Budgets & Schedule
- Commissioning Scope & Budget
- Owner Directives
- Restrictions & Limitations
- Codes and Standards
- Use Requirements
- Occupancy Requirements
- Equipment and Systems
- Energy Efficiency
- Community
- Sustainability
- Constructibility
- Environmental
- Communications
- Indoor Environment
- Acoustical
- Vibration
- Seismic
- Accessibility
- Security
- Health and Hygiene
- Aesthetics
- Adaptability
- Quality and Tolerances



Owner's Project Requirements- Continued

- Control and Monitor Systems
- Benchmarking
- Operation and Maintenance Criteria
- Systems Integration
- Documentation
- Training Requirements
- Warranty Requirements

Owner's Project Requirements - Workshop Process

FACILITY _____

LOCATION/ADDRESS _____

:

PAGE

1. OBJECTIVES FOR THE FACILITY: *USE, FUNCTION, IMAGE, FLEXIBILITY, ETC*

2. INDOOR ENVIRONMENT REQUIREMENTS: *IN GENERAL DEFINE COMFORT, HVAC REQUIREMENTS, AIR QUALITY, LIGHTING, NOISE, VIBRATION, POLLUTANT*

GENERATORS/EXHAUST, ETC.

3. SUSTAINABILITY OBJECTIVES: *MATERIALS, LIFE CYCLE ISSUES, CONSERVATION OF RESOURCES, ETC.*

4. MAINTAINABILITY AND EQUIPMENT ACCESS; *MATERIALS AND LOCATION REQUIREMENTS*

5. EFFICIENCY OBJECTIVES: *ELECTRIC ENERGY, NATURAL GAS, WATER, EQUIPMENT EFFICIENCIES, GENERAL BENCHMARK REQMTS.*

6. PROJECT DOCUMENTATION: *CONSTRUCTION DOCUMENTS, COMMISSIONING, OPERATIONS, SYSTEMS MANUALS, TESTING, TRAINING, FORMATS & MEDIA, ETC.*

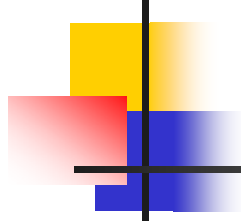
7. TRAINING: *SCOPE, DURATION, FORMAT, VIDEO RECORDINGS, ETC.*

8. SPECIAL STANDARDS AND CODES: *NON-CONSTRUCTION CODE REQUIREMENTS*

9. PROBLEMS FOR PREVIOUS PROJECTS: *ISSUES TO AVOID*

10. DEFINE A SUCCESSFUL PROJECT:

Owner's Project Requirements - Workshop Process



SPACE OCCUPANCY SCHEDULE

ROOM/SPACE &
USE:

EXAMPL
E

PAGE

DAY OF WEEK	STATE	MORNING WARM UP	OCCUPIED TIME	NUMBER OCCUPANTS-- MIN/MAX	UNOCCUPIED TIME	SPECIAL EVENTS	NUMBER OCCUPANTS-- MIN/MAX
MONDAY THRU	ON	6:00AM	7:00AM	6/50	6:00PM	6:00PM	6/80
FRIDAY	OFF	7:AM	6:00PM	-----	6:00AM	10:00PM	-----
SATURDAY	ON	N/A	9:00AM	0/20	1:00PM	1:00PM	0/100
	OFF	N/A	1:00PM	-----	6:00AM	MIDNIGHT	-----
SUNDAY	ON	N/A	N/A	-----	ALL	1:00PM	0/100
	OFF	N/A	N/A	-----	ALL	MIDNIGHT	-----
HOLIDAY	ON	N/A	N/A	-----	ALL	ALL	-----
	OFF	N/A	N/A	-----	ALL	ALL	-----

HIGHER EXHAUST AND OUTSIDE AIR REQUIREMENTS FOR LUNCH TIME AND SPECIAL EVENTS

SPECIAL CONDITIONS:



Owner's Project Requirements - Workshop Process

OWNER'S BUDGET AND SCHEDULE REQUIREMENTS:

PAGE

BUDGET REQUIREMENTS:

SCHEDULE REQUIREMENTS:



Owner's Project Requirements - Workshop Process

1. What areas are required for a functional facility?
2. List conditions important to your comfort in the ideal building.
3. What activities generate pollutants in this building?
4. How do we make this facility more sustainable?



Owner's Project Requirements - Workshop Process

- 5. How do you define energy efficiency?
- 6. How will you benchmark system operations?
- 7. What documentation is required to properly operate and maintain the facility?



Owner's Project Requirements - Workshop Process

- 8. What are your training requirements?
- 9. What problems with previous projects should be avoided?
- 10. What must be accomplished for a successful project?



OPR Document

- Introduction
- Key Owner's Project Requirements
- General Project Description
- Objectives
- Functional Uses
- Occupancy Requirements
- Budget Considerations and Limitations



OPR Document

- Performance Criteria
 - General
 - Economic
 - User Requirements
 - Construction Process
 - Operations
 - Systems
 - Assemblies



Basis of Design

- A document that records the concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

Contents

Basis of Design

1. List of specific codes, standards and guidelines being used for the building.
2. Information on ambient conditions used both inside and outside.
3. Assumptions on the use of the facility
4. Expectations for system operation and maintenance.

Contents

Basis of Design

- 5. Performance criteria that the systems were designed to meet in the OPR.
- 6. Specific design methods, techniques, software used in the design.
- 7. Narrative description of the HVAC systems design.

Contents

Basis of Design

- 8. Narrative of the operation of the systems.
- 9. List of major pieces of equipment along manufacturer utilized in the design plan.



Project Documentation Flow

Owner's Project Requirements



Basis of Design



Construction Documents



Constructed Facility



Documentation



Training and Operations

Questions

