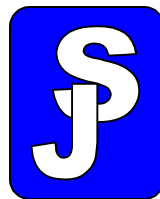


Design Intent from the Design Team's Perspective

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Design Intent what is it?

“a detailed explanation of the ideas, concepts, and criteria that are defined by the Owner to be important”

ASHRAE Guideline 1 -1996, The HVAC Commissioning Process



Design Intent

- Written by Engineer
- Defines what Owner thinks is important
- Typically included
 - System requirements
 - Design conditions
 - System limitations



Design Intent Redefined

- Owner's Project Requirements
 - Developed by the Owner
 - From owner/users perspective
 - Defines engineer's scope of work
- Basis of Design
 - Developed by the Engineer
 - Responds to the Owner's Project Requirements
 - Engineer's interpretation of Owner's Project Requirements



Owner's Project Requirements (OPR)

- Developed by the Owner in conjunction with the Engineer.
- Requires dialogue with the Owner and end users in the early stages of the project.
- Owner takes a pro-active role in design decisions, not reacting to submittals.
- Performed at planning stage or earlier
- Sets Scope of Work for project



Owner's Project Requirements (cont'd)

- Intended use and operation of facility
- Maintenance issues
- Indoor air quality objectives
- Specific equipment/design requirements
- Defines how successful project will be judged



Owner's Project Requirements (cont)

- Allows Owner to prioritize design objectives instead of Engineer or Architect
 - Budget versus individual temperature control
 - Life cycle cost versus first cost



Is an OPR Beneficial to an Engineer?

- Does early communication with the Owner and Users benefit you?
- Does a written scope defining the objectives of the facility help?
- Does knowing how the Owner will judge the success of the project help with design decisions?
- Can you provide a better design for the Owner?
- Can you provide additional services?
 - Energy studies
 - Life cycle cost analysis



Basis of Design

- Design Narrative
- Design Criteria



Design Narrative

- Description of systems selected and how they meet the OPR
- Includes reasons for not using specific systems
- Conflict resolution of OPR
- Responds to OPR



Design Narrative

- Why do we need this?
 - Documents decisions
 - Answers those questions that come up when the contractor “value engineers” the design with a cheaper system.
 - “As you can see in the Design Narrative, we considered that system but it did not meet the following Owner’s objectives”
 - Defines limits on the design
 - Provides Engineer’s interpretation of OPR
 - Provides Owner with decision making information early



Design Criteria

- Project specific information
- Assumptions
- Calculation methodology
- Calculations
- Limitations
- Safety factors



Design Criteria (cont'd)

- Defines limitations of the system
 - Temperatures
 - Occupancy
 - References
 - Codes
 - Indoor air quality



Design Criteria

- Is Documented Design Criteria Beneficial?
 - Provides all pertinent information for design in one document
 - Allows early review of assumptions by Owner
 - Communicates to the design team members the information



Basis of Design

- What does it provide for the Engineer?
 - Shows standard of care
 - Documents Owner's involvement
 - Communicates system limitations
 - Communication tool with design team
 - Communication tool with Owner, maintenance staff, end users



Liabilities

- Are we occurring additional liability by document the design intent?
 - Owner already thought we were designing to his objectives, not ours or our perception of his objectives
 - Owner provides written documentation of his objectives
 - Still have to meet Standard of Care
 - Documented system limitations



Benefits

- Clear scope of work early in project
- Critical design decisions made up front
 - Saves on redesign or recalculation
- Additional services
 - Energy study if important
 - Life Cycle Cost Analysis
- Documentation for use during Construction



Commissioning Authority

- Is one needed?
 - Depends on Owner's requirements
 - Provides independent third party to oversee process
 - Depends on Engineer's or Owner's in-house expertise
- Design Intents can be created with or without Commissioning.
 - Good practice
 - Not re-inventing the wheel



Questions

Thank you for your time today.