

Constructability Guidelines - Projects

CD – Quality-I-00

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These guidelines are used for chairing constructability meeting(s). As works may vary these guidelines may be varied depending on the works and the associated complexity. It is assumed for highly complex assignments multiple constructability meetings may be conducted to better manage the delivery risk.

Note the following script is stated by the facilitator at the start of every Constructability meeting:

The more “constructable” a project is the more economical it will be. With this in mind the Control Direction design aim is to facilitate installation ease and implementation efficiency. This Constructability meeting is used to identify obstacles before a project is actually built to reduce or prevent errors, delays, and cost overruns.

In this Constructability meeting the team must reflect on the quality of the design documents. A difficult design to understand will be difficult to field-build. The team will also assess the knowledge, planning, company resources and necessary steps for field operations to complete the works in a timely, economic manner.

To complete a constructability meeting the following roles are likely to be required.

Participant	Role
Host	Someone experienced in Constructability but not directly involved in the design.
Sales Engineer	To explain project scope, contract and client expectations.
Design Engineer	To explain any design details or provide further information
Operations Manager	To consider design in the field and question its effectiveness.
(possibly specialists)	Someone with relevant technical knowledge.
(if required)	Someone concerned with maintenance and operation of the equipment.

Guiding Constructability Principles:

1. Project Introduction

Host will facilitate review of:

- i. The project objectives.
- ii. The current design status in terms of completeness.
- iii. All required documents for this meeting. Minimum is project and job definition.

2. Job Specifications & The Construction Methodology* (refer to Guide Words Table)

Host will:

- i. Discuss with the team the job specifications.
- ii. Facilitate the team in comparing the job specifications with the design and document any gaps/actions.
- iii. Discuss and document with the team the construction steps.
- iv. Discuss and document necessary site safety and environmental steps.
- v. Minute and gaps and actions required to resolve problems.

3. Team Skills & Resource Levels

Host will:

- i. Facilitate discussion on field skills needed to complete the project.
- ii. Minute any gaps and actions to resolve them.

4. The Schedule

Host will:

- i. Review schedule with the team.
Ask:
- ii. Do we know enough about it?
- iii. Is it achievable?
- iv. Minute any gaps and actions required to resolve problems

5. External and Client Factors

Host will:

- Facilitate discussion on requirements and process for:
- i. Client interaction.
 - ii. Subcontractor interaction.
 - iii. Supplier interaction.
 - iv. Minute any gaps and actions required to resolve problems

6. Options to Innovate

Host will:

- i. Discuss and document with the team innovation opportunities.

7. Meeting Feedback and Minuted Next Steps

Host will:

- i. Review gaps and requirements/actions to resolve them.
- ii. Determine if redesign is required.
- iii. Discuss each team members opinion on go/no-go to field install stage.
- iv. Obtain team agreement on next steps

Useful Guide Words that may be used to facilitate & document Constructability sessions:

Parameter / Guide Word	Design	Installable	Simplify	Errors	Delays	Innovation
Cable						
Earthing						
Cabinet						
Marshalling						
Terminals						
Tag list						
Schematics						
Loop drawings						
Wiring diagrams						
240VAC & Above						
24VDC						
Contract						
Training						
Schedule						
Workplans						
Quality documents						
Labels						
IP Rating						
Comms Cables						
DCS/PLC						
Modbus & other comms						
Cabinet fixing						
Cabinet door						
GA Drawings						
Tray						
Ladder						
Cable way						
Cable Fixing						
Cable snake						
Unistrut						
Bolts						
Instrument Selection						
Instrument Location						
Instrument stand						
Tooling						
BoM						
Power-up						
Commissioning						
Environment						
Safety						

Definitions

Project – an assignment, complex in nature that is typically of high value. Projects will require design effort or significant effort to deliver.

Note: Service works are not Projects.

Constructability – workshop style meeting where the completed design is used as reference material to establish practical installation steps and requirements. This is not a design meeting. The meeting objective is to identify obstacles before the project is actually installed to reduce or prevent errors, delays, and cost overruns.

Internal Practical Completion – is reached when the Field Installation Manager, Lead Engineer and Sales Engineer agree the client contract/purchase order requirements have been met.