SOP CM-001: Constructability Reviews

CM-001 | v01

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1. Purpose and Scope

Purpose: This SOP establishes the process for conducting Constructability Reviews on capital projects. Constructability Reviews systematically identify and resolve construction-related constraints, inefficiencies, and risks during the design and planning phases, before they become costly problems during execution.

Scope: Applies to all Faolan project controls engagements involving capital construction from pre-FEED through detailed design and pre-mobilisation. Covers process plant, mining infrastructure, civil, structural, and mechanical construction projects.

Applicability: Project Managers, Construction Managers, Lead Engineers, Planners, Estimators, and Commissioning leads involved in capital project delivery.

2. Definitions and Abbreviations

Term / Abbreviation	Definition
Constructability Review	A structured process of reviewing engineering documents and plans to identify and resolve construction-related issues before construction commences
CR	Constructability Review
CRI	Constructability Review Item (individual finding)
FEED	Front-End Engineering Design
IFC	Issued for Construction (document status)
IFR	Issued for Review (document status)
WBS	Work Breakdown Structure
CEP	Construction Execution Plan
PoC	Path of Construction
MTO	Material Take-Off
QTO	Quantity Take-Off
Buildability	The ease with which a design can be physically constructed given site conditions, available labour, equipment, and sequence constraints
Construction Champion	Senior construction professional (typically Construction Manager or Senior Foreman) who leads the constructability review process

3. Roles and Responsibilities (RACI)

Activity	Project Manager	Construction Manager	Lead Engineer	Planner	Estimator	Commissioning Lead
Initiate and schedule Constructability Reviews	A	R	C	C	C	I
Lead review sessions	I	R	C	C	C	C
Provide design documents for review	I	C	R	I	I	I
Record and track CRIs	I	A	C	R	I	I
Resolve CRIs (engineering changes)	I	C	R	I	I	I
Resolve CRIs (sequence/method changes)	I	R	C	R	I	C
Verify CRI close-out	A	R	C	I	I	I
Approve review report	A	R	I	I	I	I

Legend: R = Responsible, A = Accountable, C = Consulted, I = Informed

4. Procedure

4.1 Review Scheduling

1. The Project Manager and Construction Manager agree on a Constructability Review schedule at project initiation. Reviews are mandatory at the following gates:

- Gate 1: Pre-FEED (concept validation)
- Gate 2: FEED completion (before proceeding to detailed design)
- Gate 3: 30% Detailed Design (early constructability check)
- Gate 4: 60% Detailed Design (intermediate check)
- Gate 5: 90% Detailed Design (pre-IFC check)
- Gate 6: Pre-mobilisation (final check before site establishment)

2. Additional reviews may be triggered by major scope changes, design revisions, or emerging site constraints.

3. Schedule review sessions with minimum 10 working days notice to allow document distribution.

4.2 Document Preparation

1. The Lead Engineer distributes design documents to review participants at least 5 working days before each session. Minimum document package:

- Latest general arrangement and layout drawings
- Plot plans and 3D model extracts (where available)
- Piping and instrument diagrams (P&IDs;) for process areas
- Structural and civil drawings relevant to the review gate
- Specifications and material schedules
- Current project schedule (baseline or latest revision)

2. The Planner prepares the current Path of Construction and construction schedule for review.
3. The Construction Manager prepares a site logistics and access plan.

4.3 Review Session Facilitation

1. The Construction Manager chairs the review session.
2. Review sequence follows the physical build sequence (site preparation, civil foundations, structural, mechanical, piping, electrical/instrumentation, commissioning interfaces).
3. For each discipline and area, the team assesses:

- Can this be built as drawn? (Buildability)
- What is the correct physical construction sequence?
- Are there access, clearance, or lifting constraints?
- Are there temporary works requirements (formwork, scaffolding, crane hardstands)?
- Are material deliveries and laydown areas adequate?
- Are interfaces between disciplines managed?
- Are there health, safety, or environmental constraints on the method?
- Are there commissioning sequence constraints that affect the construction sequence?

4. The Planner records every issue raised as a Constructability Review Item (CRI) using the CRI log (see Section 6, T-02).

4.4 CRI Logging and Classification

1. Each CRI is logged with:

- Unique CRI number (format: CR{Gate}-{NNN}, e.g. CR3-007)
- Date raised
- Discipline and area
- Description of the issue
- Impact if unresolved (schedule, cost, safety, quality)
- Priority: Critical (resolution required before IFC), High (resolution required before mobilisation), Medium (resolution preferred before mobilisation), Low (resolution at Construction Manager's discretion)
- Responsible party for resolution
- Target close-out date

2. Decision point: Is the CRI a design issue or a method/sequence issue?

- Design issue: Assign to Lead Engineer for resolution. Track via document revision.

- Method/sequence issue: Assign to Construction Manager. Update PoC and/or CEP.

4.5 CRI Resolution and Close-out

1. Responsible parties resolve CRIs within the agreed target date.
2. Resolution is documented in the CRI log with:

- Resolution description

- Reference to revised drawing, document, or procedure

- Date closed

- Verified by (Construction Manager or delegate)

3. Critical CRIs must be closed before documents are issued at IFC status.
4. High CRIs must be closed before site mobilisation.
5. The Construction Manager reviews all CRIs at the start of each subsequent review gate to confirm closure and identify any recurrence.

4.6 Review Report

1. After each review gate, the Construction Manager issues a Constructability Review Report (see Section 6, T-03) within 5 working days.
2. Report contents:

- Review gate, date, and attendees

- CRI log summary (open, closed, critical)

- Key findings and recommendations

- Actions required before next gate

- Overall constructability assessment (Satisfactory, Conditionally Satisfactory, Unsatisfactory)

3. The Project Manager approves the report and distributes to all project stakeholders.

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5. Inputs and Outputs

#	Input / Output	Description	Owner
IN-1	Design drawings and documents	IFR-status or latest available design package per gate	Lead Engineer
IN-2	Project schedule (baseline/current)	Current planned sequence and durations	Planner
IN-3	Path of Construction	Planned physical construction sequence	Planner
IN-4	Site logistics plan	Access routes, laydown areas, crane positions	Construction Manager
IN-5	Commissioning plan (where available)	System boundaries and commissioning sequence	Commissioning Lead
IN-6	Previous CRI log	Open items from prior review gates	Planner

#	Input / Output	Description	Owner
OUT-1	CRI Log (updated)	Record of all constructability issues raised and their status	Planner
OUT-2	Constructability Review Report	Gate report with findings, CRI summary, and actions	Construction Manager
OUT-3	Revised design documents	Engineering changes arising from design CRIs	Lead Engineer
OUT-4	Updated Path of Construction	Sequence revisions arising from method/sequence CRIs	Planner

6. Tools and Templates

#	Tool / Template	Purpose	Location
T-01	Constructability Review Schedule Template	Gate-by-gate review schedule with document requirements	05_Templates/CM/
T-02	CRI Log	Excel log for recording and tracking constructability issues	05_Templates/CM/
T-03	Constructability Review Report Template	Standardised gate report structure	05_Templates/CM/
T-04	Review Checklist (by discipline)	Prompt lists covering civil, structural, mechanical, piping, E&I;	05_Templates/CM/
T-05	Site Logistics Plan Template	Laydown, access, crane hardstand planning	05_Templates/CM/

7. References

1. AACE International Recommended Practice No. 30R-03 -- Implementing Project Constructability (Association for the Advancement of Cost Engineering, 2007)
2. Barrick CPS4 CO PD 10101 -- Construction Management Procedure (Barrick Capital Projects Standard, 4th edition)
3. Glencore Constructability Review Procedure (Glencore CMF Document 030)
4. Construction Industry Institute (CII) -- Constructability: A Primer (Publication 3-1)
5. SOP CM-002: Path of Construction Development (Faolan)
6. SOP CM-004: Construction Execution Plan (Faolan)
7. SOP RM-002: Risk Identification and Analysis (Faolan) -- for CRI risk classification

8. Quality Criteria and Checklist

- [ ] Constructability Review schedule established and agreed at project initiation
- [ ] Reviews conducted at all mandatory gates (pre-FEED, FEED, 30%, 60%, 90% design, pre-mobilisation)
- [ ] Document package distributed minimum 5 working days before each session
- [ ] All CRIs logged with unique ID, priority, responsible party, and target date

- [ ] Critical CRIs closed before IFC issue
- [ ] High CRIs closed before site mobilisation
- [ ] Review Report issued within 5 working days of each session
- [ ] Project Manager approves each Review Report
- [ ] CRI log updated at each subsequent gate to confirm prior close-outs
- [ ] Construction sequence and PoC updated where method/sequence CRIs are raised

Minimum pass criteria: All Critical CRIs closed before IFC. Review Reports issued and approved at each gate.

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9. Revision History

Version	Date	Author	Change Description
v01	2026-04-03	Site (#32)	Initial draft
