

	Report	<Technology> <Transmission>
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Title: **<Relevant Review> End-of-Phase Design Review Report for <Project>**

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1. INTRODUCTION

With reference to [1] Design Review Procedure, End-of-Phase Design Reviews are performed to approve design Baselines and to ensure the completeness, conformance and integrity of an integrated design. End-of-Phase reviews are performed at key milestones during a project's life cycle, normally at the end of a defined phase in the project.

Properly conducted design reviews will assist in avoiding re-work and will reduce the risk of adversely affecting project deliverables in terms of cost, quality, time, technical performance and scope.

2. SUPPORTING CLAUSES

2.1 SCOPE

The scope of design covers:

Scope of Design	Mark with "X"
Package/plant/system/asset confined to one CoE	
Package/plant/system/asset involve multiple CoE	

This report details the activities performed during the following End-of-Phase Design Review in the establishment of the associated Design Baseline:

End-of-Phase Design Review and associated Design Baseline		Mark with ("X")
Stakeholder Requirements Review	Stakeholder Requirements Baseline	
Concept Design Review	Concept Design Baseline	
Basic Design Review	Basic Design Baseline	
Pre-Enquiry Review	Acquisition Requirements Baseline	
Contract Award Review	Contract Award Baseline	
Design Freeze Review (Detail Design)	Design Freeze Baseline	
System Integrated Design Review (Detail Design)	Integrated Design Baseline	
Pre-Commissioning Review	As-Built Baseline	
Acceptance Testing Review	As-Commissioned Baseline	
Handover Review	Handover Baseline	

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2.1.1 Purpose

The purpose of this End-of-Phase Design Review Report is to capture the outcome established by the respective DRT / DRC with regards to the package/plant system/asset being reviewed. This report also provides the necessary assurance that the required checks have been performed prior to approval of the relevant design baseline.

2.1.2 Applicability

This document shall apply to <Project / BU etc.>.

2.2 NORMATIVE/INFORMATIVE REFERENCES

<Note: Related Design Baseline Documentation to be included in Appendix A, not section 2.2>

2.2.1 Normative

- [1] 240-53113685: Design Review Procedure (<https://hyperwave.eskom.co.za/240-53113685>)
- [2] <Insert additional normative references as required>

2.2.2 Informative

- [3] ISO 9001: Quality Management Systems – Requirements
- [4] <Insert additional informative references as required>

2.3 DEFINITIONS

Include all definitions applicable to this report.

Definition	Description

2.3.1 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

In the following table, list and describe all abbreviations used in the document, in alphabetical order.

Abbreviation	Description
CoE	Centre of Excellence
EDWL	Engineering Design Work Lead

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Abbreviation	Description

2.5 ROLES AND RESPONSIBILITIES

Refer to the 240-53113685 Design Review Procedure.

2.6 PROCESS FOR MONITORING

This report is governed by the 240-53113685 Design Review Procedure. Any changes to this document will be performed as per 240-53114026 Project Engineering Change Management.

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3. <INSERT RELEVANT> REVIEW

3.1 END-OF-PHASE DESIGN REVIEW DETAILS

In this section, provide details of the DRC / DRT meeting. Include reference to minutes of meeting in the appendices.

Date			
Venue			
Outcome of Design Review	Approved	Approved with comments	Rework (DRC to meet again)

3.2 <PACKAGE/PLANT SYSTEM/ASSET> DESCRIPTION / OVERVIEW

In this section provide an overview of the package/plant system/asset under review.

Provide any relevant background (context etc.) as well as a short description of package/plant system/asset scope.

3.3 DESIGN REVIEW CHECKLIST ITEMS

With reference to the 240-53113685 Design Review Procedure, the following checklist items for the specific End-of-Phase Design Review were identified and discussed:

Provide a brief explanation or refer to the applicable documentation to show how all checklist items (as identified in the approved design review checklist) were satisfied. Examples of checklists are provided in the last section of this template.

3.4 ISSUES AND RISKS IDENTIFIED DURING DESIGN REVIEW

List all issues and risks identified during the design review. The risk register can also be included in the appendices.

3.5 ACTION ITEMS RESOLUTION

List all action items identified during the design review and detail how they were resolved.

3.6 ADHERENCE TO ENGINEERING MANAGEMENT PLAN/STRATEGY

The DRC has to confirm that the review was conducted as per the requirements of the project Engineering Management Plan/Strategy.

3.7 <ADDITIONAL SUBSECTIONS (AS REQUIRED)>

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4. BASELINE APPROVAL

This <specify> baseline has been approved by:

(Insert all DRT / DRC panel member names)

Name and Surname	Designation	Signature

5. REVISIONS

Date	Rev.	Compiler	Remarks
Month 20xx	xxx	Insert initials and surname	Specify reasons for compiling of document

6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- <Insert development team member names(s) here>

7. ACKNOWLEDGEMENTS

As applicable.

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The following documentation are baselined with sign-off of this report:

[illegible]

APPENDIX B: REQUIREMENTS TRACEABILITY MATRIX

Insert a screen shot of the requirements traceability matrix.

APPENDIX C: DESIGN REVIEW PRESENTATION

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APPENDIX D: DESIGN REVIEW MINUTES OF MEETING

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Additional Information:

The following are examples of checklist items for design reviews. As per the Design Review Procedure, it is the responsibility of the EDWL to develop the checklist items for the design review. This section can be deleted when the design review report is developed.

Stakeholder Requirements Review checklist item examples:

	Checklist item	✓
1	Signed Stakeholder Requirement documentation	
2	Review and establish the need and objectives for the project	
3	Scope of work defined	
4	Identify and resolve conflicting requirements	
5	Legal and regulatory constraints identified	
6	System Operability and maintainability targets identified	
7	System Performance Requirements identified	
8	Establish complete and agreed functional URS baseline	
9	Constraints or limitations to the project identified	
10	Define site characteristics available vs required	
11	Dismantling and demolition requirements	
12	Key dates identified	
13	State assumptions	

Concept Design Review checklist item examples:

	Checklist item	✓
1	Stakeholder requirements (SRD) – signed	
2	SRD compliance/deviations	
3	Identify and resolve conflicting requirements	
4	Legal and regulatory constraints considered	
5	Operability and performance targets met	
6	Safety, plant availability / reliability aspects addressed	
7	Design deficiencies of the past addressed in the new design	
8	Conceptual RAM Assessments and preliminary RAM analysis report	
9	Execution / build feasibility and Risks (site selection)	
10	Operational concept specifications	
11	Process flow conceptualised	
12	Documentation and IM Requirements identified	

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13	Conceptual design analysis (Risk, Trade – off, Feasibility, Viability)	
14	Environmental Assessment	
15	Technology maturity and market availability assessed	
16	CAPEX cost estimation	

Basic Design Review checklist item examples:

	Checklist item	✓
1	Stakeholder requirements (SRD) – signed	
2	Process design complete	
3	Preliminary (physical) design complete	
4	Operability and performance requirements met	
5	Energy conversion & cycle net efficiency	
6	Maintainability & logistic support catered for	
7	Replaceability & upgradeability considered	
8	Protection, recording, alarming, indication, condition monitoring (C&I) considered	
9	Compliance to specifications & other mandatory requirements	
10	RAM Assessment	
11	Environmental impact and compliance	
12	Execution plan, constructability and market identification	
13	Validation against Concept Design Review / Concept Baseline	
14	Project design criteria (PDM)	
15	Expected project life cycle	
16	Dismantling and demolition requirements	
17	Risk assessment and risk mitigation evaluated	
18	Levelized Life Cycle Costs	
19	TCO evaluation including Obsolescence Management considered	

Pre-Enquiry Review checklist item examples:

	Checklist item	✓
1	Ensure technical integration between work packages (Interfaces between various work packages, contractors, or contracts)	
2	Re-enforce and agree on works information requirements	
3	Identify and resolve all responsibility/works clashes (roles and responsibilities)	
4	Compliance with design basis	

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5	Scope and deliverables defined for each system	
6	Means of compliance determined	
7	Design execution process defined	
8	Quality control measures defined	
9	Interfaces defined including technology	
10	Design methodologies	
11	Establish an agreed works information baseline	
12	Environmental assessments done (if applicable)	
13	Configuration Management Requirements defined	
14	Documentation requirements <ul style="list-style-type: none"> • Works Information • Vendor Document Submittal Schedule (VDSS) • Limit of Supply and Services (LOSS) • Layout drawings • Electrical Reticulation • Acceptance Criteria including Gatekeepers • Tender returnables • Risk Register • Project/Engineering Schedule 	

Contract Award Review checklist item examples:

	Checklist item	✓
1	Compliance with Works information	
2	Evaluated Waivers and Exceptions	
3	Documentation Requirements <ul style="list-style-type: none"> • Assessment of Compliance with Works information + Codes & Standards • Assessment of contractor's waivers + exceptions • Assessment of interfaces between systems identified and clarified • Applicable Technical Evaluation Reports + Clarification Meeting Minutes • Equipment qualification, verification & validation and test plan • Constructability checks (Tolerances, interfaces, signal flows, etc) • Confirm operability and human factors • OTS and O&M manuals • Documentation Works information submittal programme 	

Design Freeze Review checklist item examples:

	Checklist item	✓
1	Subsystem interface issues resolved	

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2	Interdisciplinary design clashes rectified	
3	TCO evaluation including Obsolescence Management	
4	RAM / HAZOP / FMECA Assessment compliance	
5	Assess need to implement Engineering Change Proposal Procedure	
6	Discipline scope of work	
7	Define interface points	
8	Documentation Requirements <ul style="list-style-type: none"> • All documents on Project Master Document List in “approved” status • Applicable LOSS register • Applicable Terminal Point Register • Assessment report confirming that criteria to have human safety in building, operating and maintenance of plant (e.g. HAZOP and FMECA) has been met. • Compliance with PMP (Project Master Plan) • Assessment report confirming that plant will operate safely within specified design margins • Assessment report confirmation that required design, manufacturing and installation methods have been complied with. 	

System Integrated (Detail) Design Review checklist item examples:

	Checklist item	✓
1	Compliance with Works Information	
2	Conformance with specifications, code and standards,	
3	Interfaces between systems identified and clarified	
4	Equipment qualification, verification & validation and test plan	
5	Constructability checks (tolerances, interfaces, signal flows etc.)	
6	Confirm operability and human factors	
7	O&M manuals	
8	IM Requirements	
9	Acceptance criteria	
10	Verify and validate that design specifications are met	
11	Social issues	
12	Control and testing philosophy	
13	Construction analysis	
14	Dismantling and demolition of existing systems	
15	Documentation Requirements <ul style="list-style-type: none"> • Execution Plan • Works packages integration plan 	

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	<ul style="list-style-type: none"> Assessment report on compliance with URS Interface Register IM requirements assessment QA Plan (testing and QC + construction and QCP's) 	
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Acceptance Testing Review checklist items examples:

	Checklist item	✓
1	Verification that physical architecture i.e. actual configuration,	
2	conforms to the "built-to-specification"	
3	Qualification tests and quality control	
4	Verification that plant performance and functions meet contractual requirements	
5	Final process optimisation	
6	Protection settings	
7	Dynamic control settings	
8	Validate assumptions made during the design phases	
9	Initial "snap-shot" plant & process data recorded & documented	
10	Final RAM optimization to of actual configuration	
11	Verification that HAZOP and FMECA issues have been considered	
12	Site information for new projects	
13	Safety considerations	
14	Documentation Requirements: <ul style="list-style-type: none"> Commissioning Report Acceptance Testing Report Qualification Documentation / Records Verification that physical architecture i.e. actual configuration 	

Pre-Commissioning Review checklist item examples:

	Checklist item	✓
1	Subsystem interface issues resolved	
2	Interdisciplinary design clashes resolved	
3	Detailed RAM/FMECA/HAZOP analysis	
4	Need to implement ECP procedure	
5	Quality control measures defined	
6	Compliance with design basis	
7	Plant codification	

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8	Maintenance requirements defined	
9	Accessibility requirements defined	
10	Constructability requirements defined	
11	Risk Register	
12	Records of Decisions (RODs)	
13	<p>Documentation Requirements:</p> <ul style="list-style-type: none"> • Limit of Supply and Services (LOSS) • SRD Deviation Schedule • Vendor Document Submittal Schedule (VDSS) • Master Document List (MDL) • Terminal Point List (TPL) • Process and Instrumentation Diagrams (P&IDs) • Process flow diagrams • Design Drawings - Eskom drawing numbers, Plant Codification, etc. • Equipment list • General arrangement drawings • Isometric drawings • Electrical Reticulation - Single line diagrams • Load schedules • Cable schedules • Wiring Diagrams • Functional/Logic diagrams • Material specification • Welding specification • Commissioning procedure • Compliance to statutory requirements • FAT/SAT methodology • Design calculations • Operating Manuals • Training manuals • Maintenance manuals/Schedules • Design standards • Design specifications • Data sheets • RAM/FMECA/HAZOP Reports • Quality documentation; QCP's, ITP's • Spares Requirements • ECP Reports, Position Papers • Warrantees/Guarantees 	

Handover Review checklist item examples:

	Checklist item	✓
1	Review 'As Built' and "As Commissioned" Documentation	
2	Documentation Requirements	

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	<ul style="list-style-type: none">• Documentation system ready for handover (check list of items required)• Test and inspection plan• Maintenance plan	
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