

**DEFINITION AND SCOPE OF
BASIC DESIGN****JGS 210-120-1-01E**

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1. GENERAL

This standard practice covers the definition and scope of Basic Design.

2. DEFINITION OF BASIC DESIGN

Basic Design is defined as the design work correlating with the basic features of the plant and the basic information for usage in the related detailed design.

Process engineer has responsibility for most of Basic Design.

Basic Design consists of the following.

- (1) Execution of Conceptual Design
- (2) Preparation of Design Specification
- (3) Execution of Process Design
- (4) Execution of Basic Design (except Process Design)
- (5) Review and Issue of Basic Design

The related Engineering is defined as follows:

Front End Engineering means mainly the Basic Design Execution by ETF (Engineering Task Force) and sometimes engineering work of FEED preparation.

Plant Engineering means the combined technology responsible for the following products.

PRODUCT	RESPONSIBILITY
(1) BEDD	Engineering manager
(2) P&ID	Process & Control (P/C) engineer
(3) UFD	P/C or Mechanical engineer
(4) PLOT	Mechanical or Facility engineer
(5) LAYOUT	Mechanical or Facility engineer

2.1 Execution of Conceptual Design

The following may be necessary to decide the job framework if required.

- (1) Feasibility study, cost optimization
- (2) Process evaluation, synthesis and conceptual material balance
- (3) Preliminary energy consumption estimation
- (4) Preliminary equipment sizing, type selection
- (5) Safety and environment assessment

2.2 Preparation of Design Specification

This means the following preparation work of design base data, procedure and guideline based on Conceptual Design to smoothly execute the successive design work.

- (1) BEDD
- (2) Design basis
- (3) Design philosophy
- (4) Engineering execution procedure (eg. Verification procedure etc.)
- (5) Process performance guarantee

2.3 Execution of Process Design

This means the following process design work based on the design input given mainly by the client or licensor. The following may be concentrated into Process Design Package if requested.

- (1) Material balance
- (2) Heat and weight balance
- (3) Process description
- (4) Process flow diagram (Block flow diagram)
- (5) P&ID, Process operation diagram
- (6) Utility summary, Utility Block flow
- (7) Effluent summary

- (8) Hydraulic calculation
- (9) Determination of design conditions
- (10) Material selection
- (11) Pump and compressor datasheet preparation
- (12) Equipment (Tray, Drum, H/E etc.) sizing
- (13) Equipment datasheet preparation
- (14) Instrument datasheet preparation
- (15) Pressure relieving load calculation
- (16) Flare and depressuring calculation
- (17) Cause and effect chart
- (18) Other documents required by client (eg. Safeguarding memoranda)
- (19) Operability and flexibility study
- (20) Operation manual, operation guide

2.4 Execution of Basic Design (except Process Design)

This means the succeeding design work executed chiefly by plant engineer of related discipline and project engineer, based on Process Design products.

- (1) Draft plot and layout
- (2) Equipment list
- (3) LC & LG arrangement
- (4) Line index
- (5) Vendor selection
- (6) Civil engineering (early stage)
- (7) Development of data sheet and P&ID

Details should be referred to JGS No. 220-130-1-01E "Basic Engineering Procedure".

2.5 Review and Issue of Basic Design

- (1) Issue of Basic Design package

Basic design work should be concentrated into Basic Design Package and/or such similar totalized information.

Details and contents should be referred to JGS 210-120-1-03E "Basic Design Package".

- (2) Hazop

Hazop can be conducted for checking the products of Basic Design if required in Contract.

3. SCOPE OF BASIC DESIGN

3.1 Scope of Work

The scope of work of the departments responsible for the completion of the basic design engineering is specified in JGS No. 220-130-1-01E "Basic Engineering Procedure".

3.2 Handling of Licensed Processes

The manner of handling licensed processes is generally specified by process licensors. In this case, it may be necessary for JGC to carry out Process Design Work together with Client to reflect the Client's intention in the basic design.

The basic engineering work shall be executed based on the information given in the licensor's package. Should there be any deviation from the licensor's information, the concession requirements shall be issued both to Client and licensor for approval at the earliest stage of basic design.