

Specifications

- A specification is an explicit set of requirements to be satisfied by a material, product, or service.
- Specifications are written instructions to be used in conjunction with drawings so that together they fully describe and define the work that is to be accomplished along with the method and quality that will be required.
- They supplement the Drawings and show information that cannot be easily shown in graphic form.

- Specifications provide information regarding:
 - Quality of materials
 - Quality of workmanship
 - Erection and installation methods
 - Test and Inspections
- In the events of conflicts between specification and drawings, the specification governs

Types of Specifications

- Generally:
 - Manufacturer's specification
 - Guide Specification
 - Standard Specification
 - Contract (Project) Specification

Project Specification

- 1.General Requirements
- 2.Excavation and Earthwork
- 3.Concrete work
- 4.Masonry work
- 5.Water and Damp proofing
- 6.Roofs and wall cladding
- 7.Carpentry and Joinery.....

General Specification

- Administrative and Procedural Requirements
- Scope, definitions
- Reference organizations and Standards
- Project description, site facilities
- Submittals and quality assurance
- Delivery, storage and handling
- Project records
- Insurances
- Other general requirements

Contract Documents

- Complete set of drawings
- Specification
- General conditions (GCC)
- Special conditions (SCC)
- Addenda

Who prepares specs

- The Design Firm
- While one person or department is responsible for their preparation, the specifications are ultimately done by all those involved in the project.

Types of Specifications

Measurement;

- Performance (End-result) Specifications
- Design (Prescriptive) Specifications

Acceptance;

- Closed Specifications
- Open Specifications

Performance specifications

- Describe in detail the required performance or service characteristics of the finished product or system.
- Methods used to achieve desired results are left to the discretion of the Contractor but must be guaranteed.
- Methods of testing and measurement, to evaluate the results, should be spelled out in the specifications.

Prescriptive specifications

- Specifications describe in detail:
 - The methods to be used
 - The procedures to be followed
- A Specifications writer assumes more responsibility
- Used when outside appearances will not necessarily disclose defects.

Performance vs. Prescriptive

Advantages of performance Spec.

- provides wide competition among products and systems.
- Contractor improves its experience and knowledge in its specialized field.
- Specs writer does not need to have an extensive knowledge of products and systems as would be required under prescriptive specs.

Performance vs. Prescriptive

- Disadvantages of performance spec.
 - Devising adequate testing / measuring systems by which results can be evaluated is difficult.
 - Usually used in connection with equipment and machinery requirements only

Open vs. Closed specifications

- Open Specs
 - Open to all qualified bidders
 - Encourages competition among firms/manufacturers
 - A must for publicly funded projects
- Closed Specs
 - Available to only one firm
 - The use of only one product brand

Purposes of Specifications

- Guide the bidders in estimating cost for their proposals
- Guide the Contractor during the:
 - Construction Phase
 - Erections and Installations
 - Ordering of materials
 - Performance of work
- Serve for the manufacturers of construction materials, equipment, tools etc. to grade, classify, and improve qualities of their produces.

Specification writing

- Visualizing
 - Have clear picture of the system
- Research
- Clear thinking
- Organizing
 - Information into specifications
 - use formats

Specification writing (contd.)

- Be able to professionally read drawings
 - Architectural- AR
 - Structural - ST
- Mechanical, Electrical and Plumbing – MEP
 - *Sanitary - SN*
 - *Electrical - EL*

Specification Writing

- Specs writing requires tremendous amount of
 - Knowledge
 - Information
- Specification writer should have:
 - An extensive personal library
 - All time ready access to reference informationRemembering where to get information and the information sources

Specification Writing (Contd.)

- Spec writer should have
 - Specification standards by Professional and industry associations
 - Recommended specifications by
 - Materials manufactures
 - Guide specifications by
 - Government agencies
 - Municipalities
 - County, States, and Cities

Specification Writing (Contd.)

- Codes as References
 - Codes exist in cities
 - Building Codes (eg. EBCS)
 - Plumbing Codes
 - Electrical Codes
 - Construction shall conform with applicable codes and ordinances.
 - There may be occasions when codes overlap. In such cases, highest or most demanding will prevail.

Specification Writing (Contd.)

- Four important Cs for specification writing
 - Be Clear: Avoid ambiguity, use proper grammar and chose precise words to convey the message.
 - Be Correct: Present information accurately and precisely using proper terminology.
 - Be Complete: Do not leave out important or necessary information.
 - Be Concise: Eliminate unnecessary words but not at the expense of clarity, correctness, completeness or grammar.

Construction Specification Institute (CSI) Master format

- Division 1: General Requirements
- Division 2: Existing Conditions
- Division 3: Concrete
- Division 4: Masonry
- Division 5: Metals
- Division 6: Wood, Plastics and Composites
- Division 7: Thermal and Moisture Protection
- Division 8: Openings
- Division 9: Finishes (interior finishes)
- Division 10: Specialties (for example, signs, toilet accessories)
- Division 11: Equipment (for example, kitchen equipment)
- Division 12: Furnishings
- Division 13: Special Construction (for example, greenhouses)
- Division 14: Conveying Equipment (elevators, escalators, lifts)
- Division 21: Fire Suppression
- Division 22: Plumbing
- Division 23: Heating, Ventilating and Air Conditioning
- Division 26: Electrical
- Division 27: Communications
- Division 28: Electronic Safety and Security
- Division 31: Earthwork

BATCODA Technical specifications and method of measurements

1. General Requirements
2. Excavation and Earthwork
3. Concrete work
4. Masonry work
5. Water and Damp proofing
6. Roofs and wall cladding
7. Carpentry and Joinery
8. Hardware (Ironmongery)
9. Structural Steelwork
10. Metal work
11. Plaster and pointing
12. Painting
13. Glazing
14. Sanitary installations
15. Electrical installations
16. External works and services

ARCHITECTURAL DRAWINGS

1. General Requirements
2. Excavation and Earthwork
3. Concrete work
4. Masonry work
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6. Roofs and wall cladding
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16. External works and services

STRUCTURAL DRAWINGS

1. General Requirements
2. Excavation and Earthwork
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MEP DRAWINGS

1. General Requirements
2. Excavation and Earthwork
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8. Hardware (Ironmongery)
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- 14. Sanitary installations**
- 15. Electrical installations**
- 16. External works and services**