



**EVERYTHING INFRASTRUCTURE &
CONSTRUCTION. BUILDING THE NEW EGYPT.**





2 - 4 SEPTEMBER 2019 , 11:00 - 19:00 DAILY | EGYPT INTERNATIONAL EXHIBITION CENTER

Importance of Standards and Specifications in the Construction Industry

AHMED SALMAN,
HEAD OF ARCHITECTURE
PINNACLE CONSTRUCTION PROJECTS (PCP)

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Outline



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What is
Specifications and Standards.

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Purpose of
specifications in construction.

Types of
specifications in construction.

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Liability for
Specifications.

Code VS Standard VS
Specification.

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**Specifications VS Cost, quality and
Time.**

**Specifications feasibility and
constructability.**

7

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**Specifications Role in value
management.**

What is Specifications

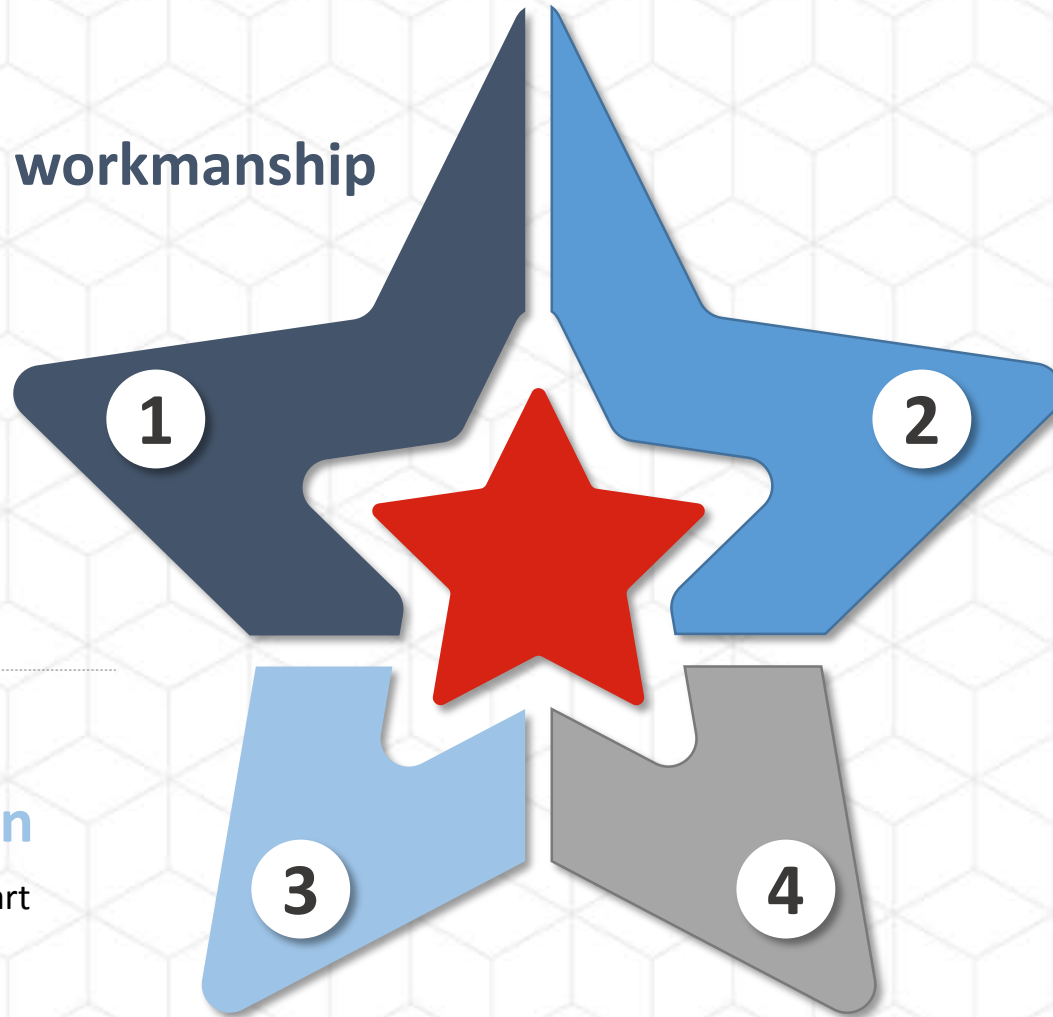


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Materials and workmanship

Specifications describe the materials and workmanship required for a development.



Quality

Specification cover everything the establishment of the site, contract, performance criteria, quality systems, which standards are applicable and How, products to be used. According to project requirements.



Documentation





Required during the design stage, part of the contract documentation.

Specs VS Dwgs

A specification is the document that describes, in words, what cannot be visualized or explained on a drawing or in a model.

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What are Standards



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1



Standards are published documents that establish specifications and procedures designed to ensure the reliability of the materials, products, methods.

2



Address a range of issues, including but not limited to various protocols that help ensure Achieving project requirements.





3



ASTM has more than 12000 standards they cover almost everything.

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Importance of Standards







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Standards form the fundamental building blocks for project development by establishing consistent protocols that can be universally understood and adopted.



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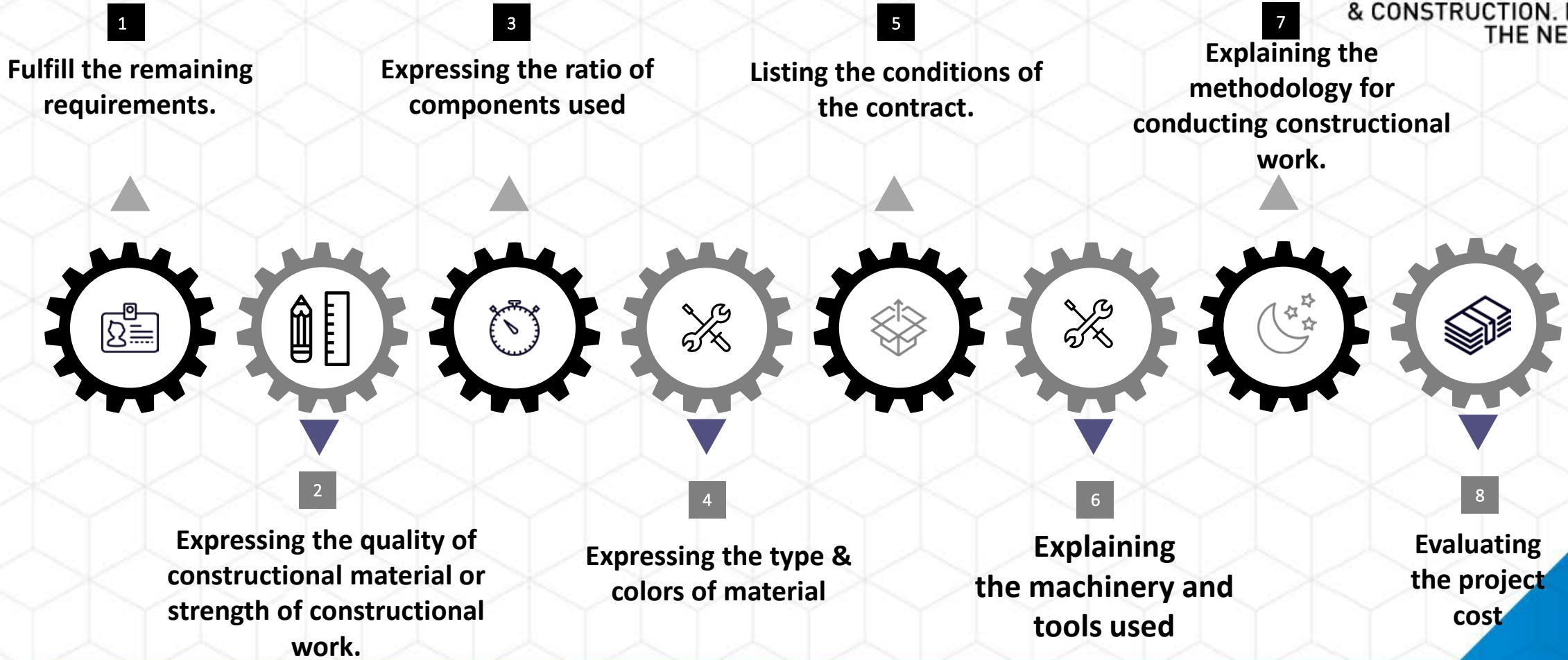
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Purpose of Specification



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Types of Specifications



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Types of Specifications

General (Brief) Specifications:

Show aspect, standard, and type of constructional work.

Detailed Specifications:

Shows detailed description, characteristics, quantity, ratio and formation method of the material used in construction work.

Standard Specifications

Special Specifications

Liability for Specifications



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- The party who will ultimately be held liable depends on what type of specification the sub was working from.

Liability for Specifications

Prescriptive Specifications:

Allocate liability to the party who issued the specifications.

Performance Specifications:

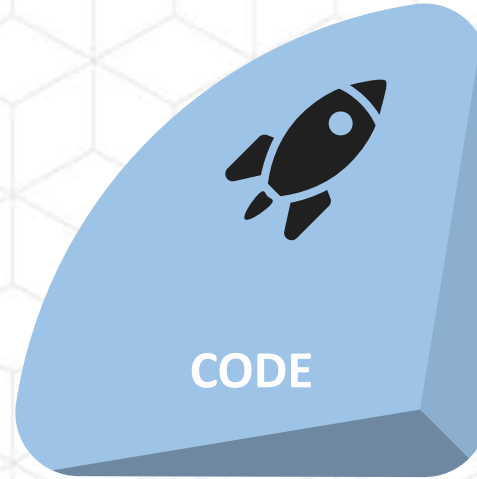
Allocate liability to the party performing the work.

Code VS Standard VS Specification



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CODE



STANDARD




SPECIFICATION



DRAWINGS

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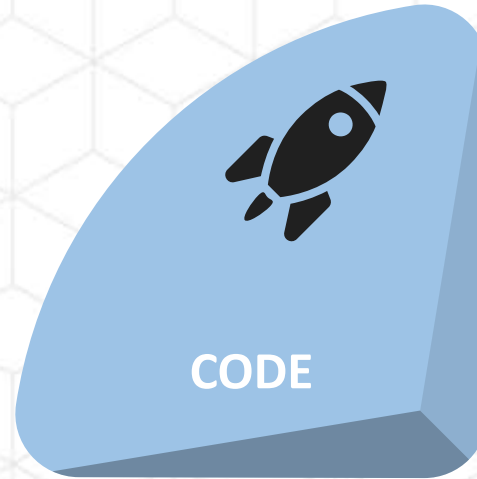
Code VS Standard VS Specification



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CODE

- Enforceable by Law or by contract.
- Written by government or government approved body.
- Guidelines for design, fabrication, construction and installation.



STANDARD






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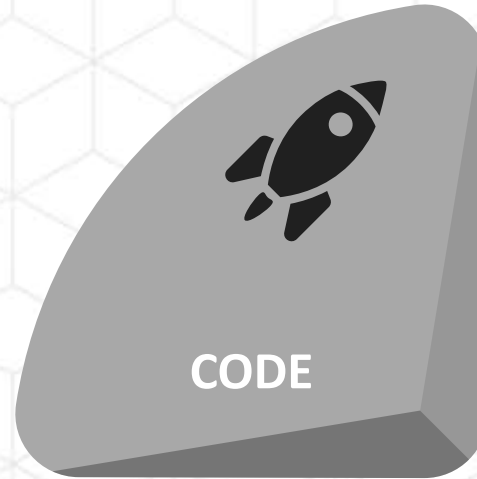
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Code VS Standard VS Specification



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STANDARD

- Globally accepted “how to instruction”.
- Written by public organization or by government body.
- Set of technical definitions and guidelines for manufacturing.




SPECIFICATION



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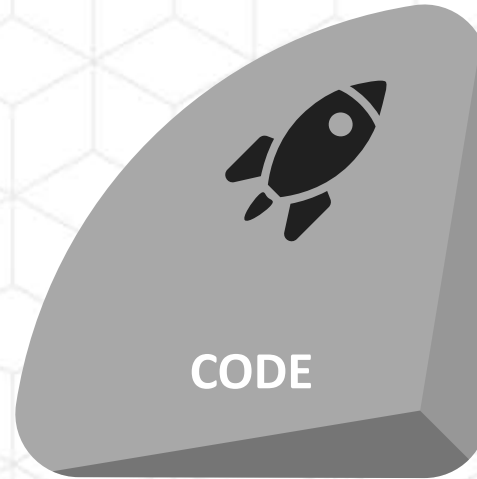
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CODE



CODE



STANDARD

STANDARD

SPECIFICATION

- Must meet requirements by Contracts
- Written by private companies
- Additional requirements, beyond code & standard



SPECIFICATION



Drawings

DRAWINGS

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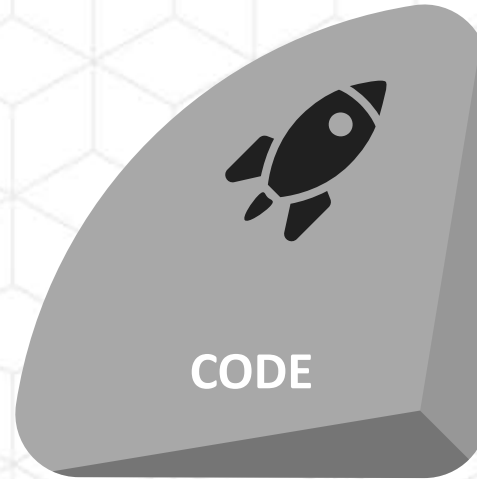
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DRAWINGS

- Show quantities of work to be done.
- The most developed document through project different phases.
- Reflects all standards and specs. for the project.

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Specifications VS Cost, quality and Time



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- **Specifications** indicate the quality of work to be performed (Barrie and Paulson 1992).



- **Drawings** indicate the quantity of work to be performed.

Specifications VS Cost, quality and Time



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- Project drawings and specifications play the most significant role in the preparation of bid estimate by the contractor.

Type of Estimate	Construction Development	Expected Cost Variance
Conceptual	Programming and schematic design	± 10 – 20 %
Semi detailed	Design Development	± 5 -10 %
Detailed	Plans and Specification	± 2 – 4 %

Specifications feasibility and constructability



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- The greatest benefit and resource savings are typically achieved early in development during the conceptual stages so, alternative ways may be identified and considered.
- Construction projects could benefit by identifying improvements for various project phases:
 1. Concept development
 2. Preliminary design
 3. Final design
 4. Procurement
 5. Construction

Specifications Role in value management







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THANKS

Any questions?





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Sources







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- IEEE standards association.
- Library of Congress.
- American Society for Testing and Materials
- Professional construction management by Donald S. Barrie, Boyd C. Paulson.

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