



Construction Applied to Heritage



Erasmus+

Construction Applied to Heritage

3 ECTS

SH

Sustainable Heritage

EC

Elective Courses



Construction Applied to Heritage

SH

Sustainable Heritage

EC

Elective Courses

1. Foundations.
2. Retaining Works.
3. Drainage and Sewerage Systems.
- 4. The Porous Loadbearing System.**
5. The Porous Loadbearing System. Walls.
6. The Porous Loadbearing System. Grid Structures.
7. The Compact Loadbearing System.
8. The Porous and Mixed Horizontal Loadbearing System. Slabs.
9. The Porous and Mixed Horizontal Loadbearing System. Grid slabs.
10. Roofs.
11. Sloping Roofs.
12. Flat Roofs.
13. Façades. Porous System. Ventilated Façades.
14. Façades. The Compact System. Curtain Walls.
15. The Internal Partitioning Layout. Construction Process.

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3 ECTS



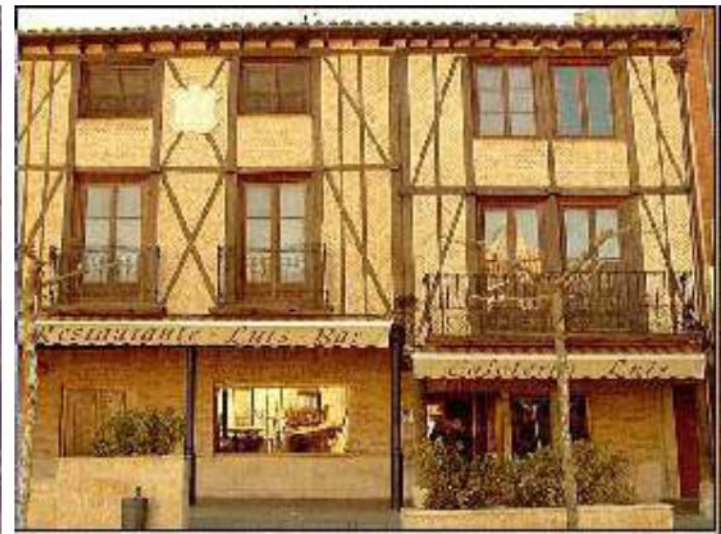
04 THE POROUS LOADBEARING SYSTEM

- Structural walls: load, containment and bracing.
- Homogeneous systems.
- Seen and hidden systems.
- Modular systems (grid structure).
- Mud, stone, brick masonry blocks.
- Reinforced concrete structures.
 - Fabricated on-site.
 - Pre-cast.
- Auxiliary structures for temporary use:
 - Workforms
 - Scaffolding

Execution process. Quality control.

STRUCTURAL WALLS

EARTH WALLS. Adobe (sun-dried brick)



STRUCTURAL WALLS

STONE WALLS



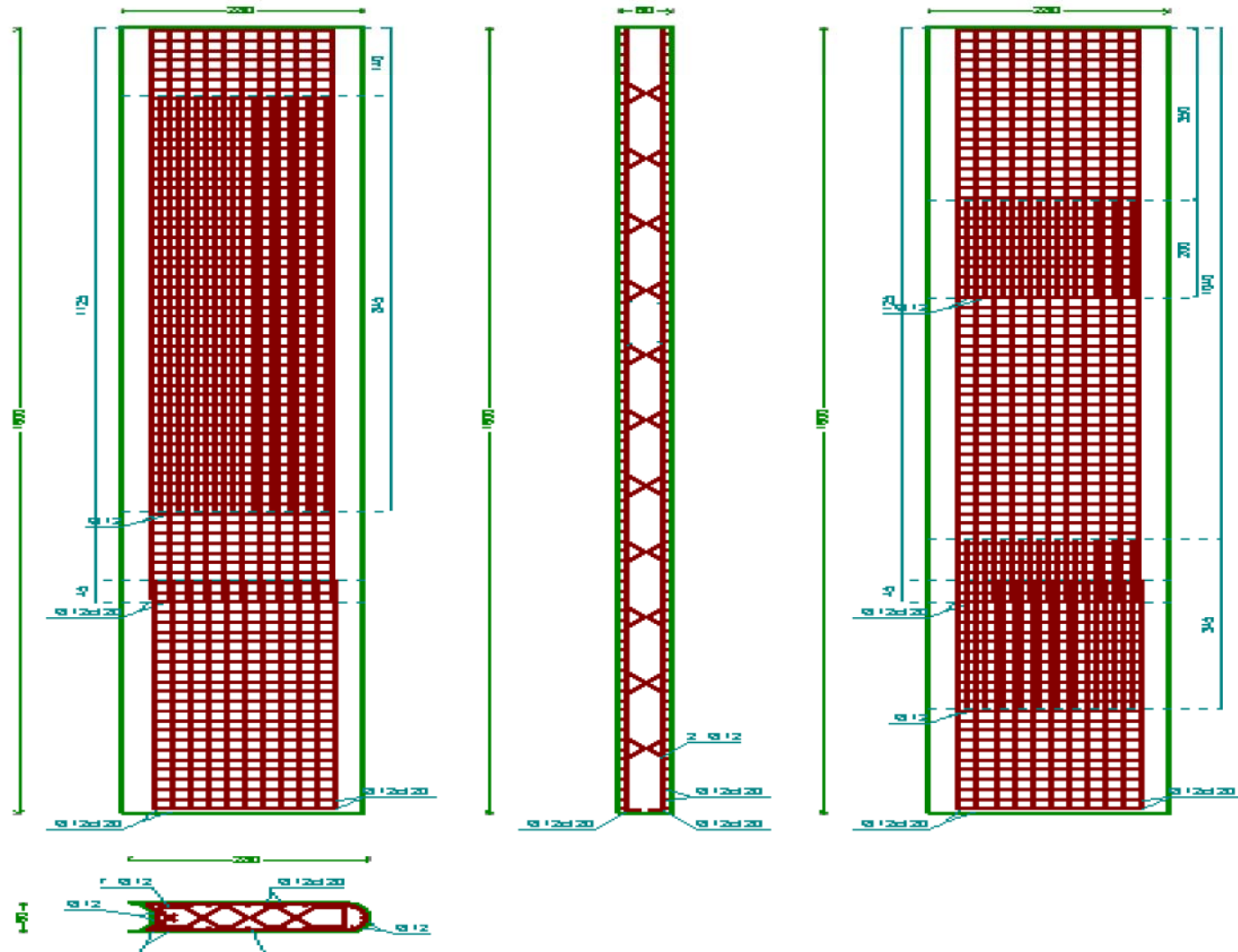
STRUCTURAL WALLS.
CERAMIC MASONRY BRICKWORK WALLS



STRUCTURAL WALLS

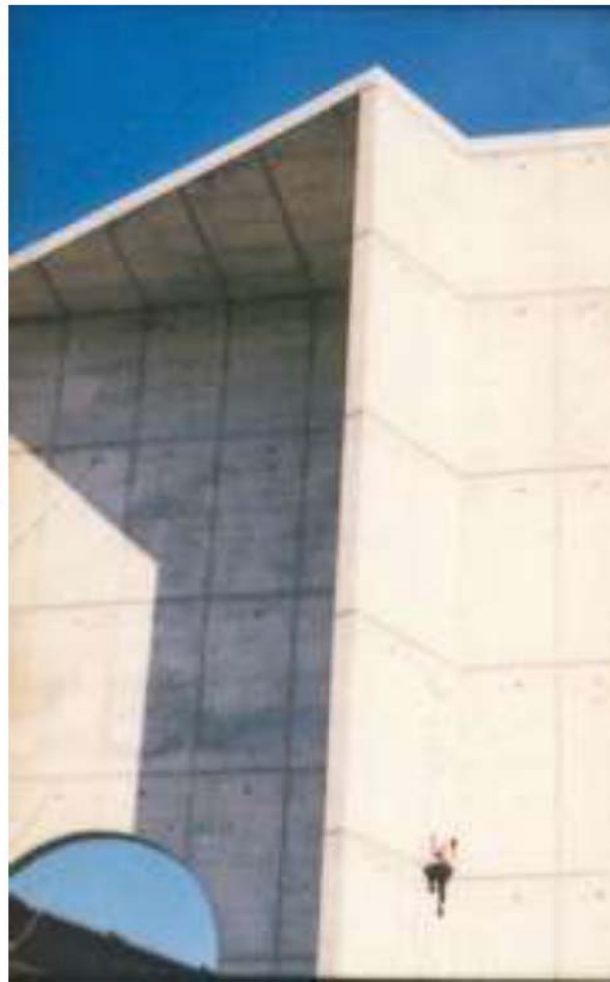
HOMOGENEOUS SYSTEM

REINFORCED CONCRETE WALLS



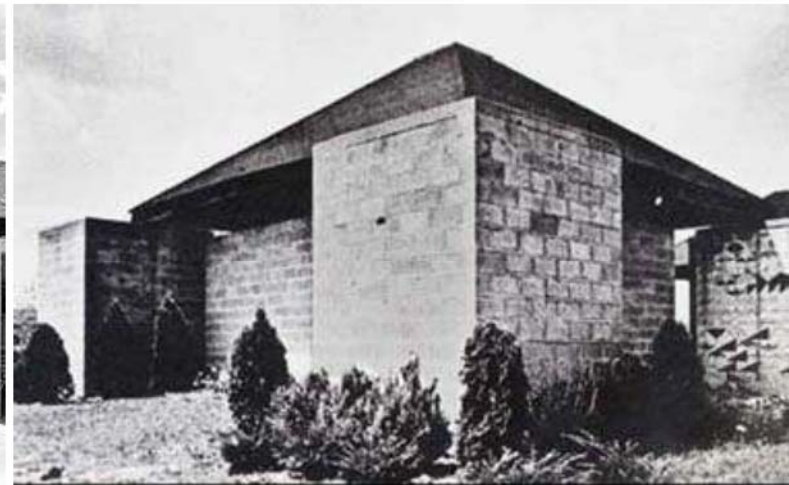
STRUCTURAL WALLS

FACING REINFORCED CONCRETE WALLS



STRUCTURAL WALLS

CONCRETE MASONRY BLOCKWORK WALLS



REINFORCED CONCRETE STRUCTURES

- MATERIAL

Compound material based on a hydraulic porous matrix reinforced with steel.

Analogous expansion coefficients between components.

Possible use of additives.

- VERTICAL ELEMENTS

- Piers or pillars.

- HORIZONTAL ELEMENTS

- Beams.

- JOINTS.

REINFORCED CONCRETE STRUCTURES

«ON-SITE» FABRICATED



They are active constructive elements from a mechanical point of view. Resistance and stability is required:

- Resistance in order to support their own weight and the vertical loads (compression and bending stresses).
- Stability for supporting horizontal loads and horizontal pressures from wind and seism.



GRID SYSTEMS

PRE-CAST CONCRETE STRUCTURES

- CHARACTERISTICS.
 - Each union of elements is a gasket.
- ADVANTAGES:
 - Economy of formwork pieces.
 - Concreting and factory curing.
 - Control of materials.
 - Quick assembly.
 - Quality control.
- DISADVANTAGES:
 - Transport difficulties (weight and dimensions)
 - Execution problems in unions and joints

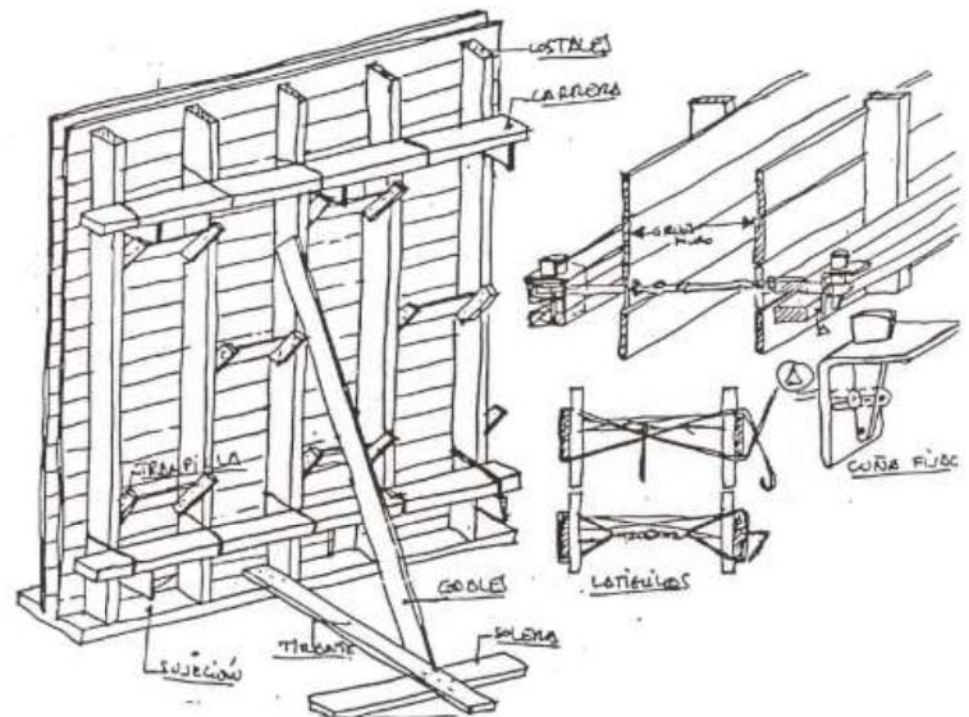
REINFORCED CONCRETE STRUCTURES

AUXILIARY STRUCTURES FOR TEMPORARY USE

- MAIN TYPES
 - Formworks
 - Props and scaffolding
- PROPERTIES
 - Removable.
 - Light weight
 - Loading process
 - Long-term risk of over temperature
 - Inspection

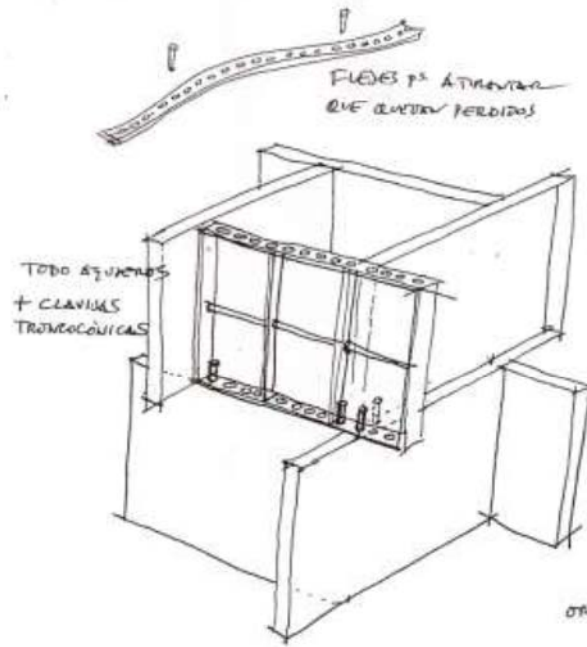
AUXILIARY STRUCTURES

FORMWORK: Mould formed with boards or metal plates in which the concrete is poured until it forges. After that, the mould is disassembled.

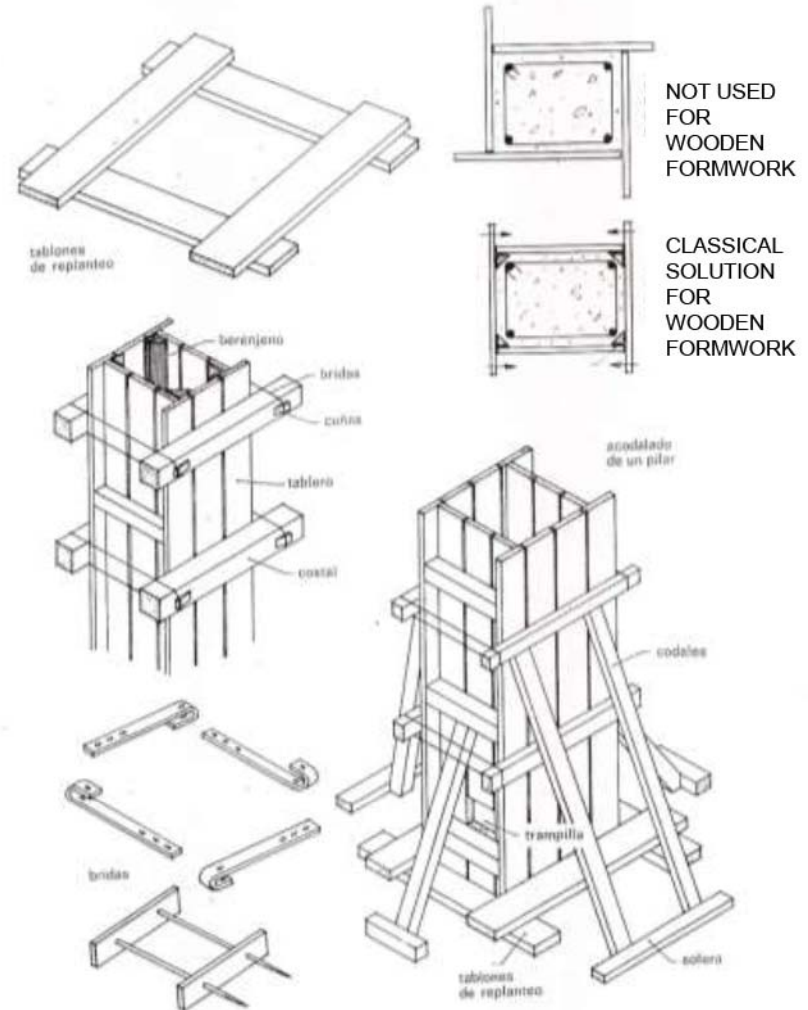
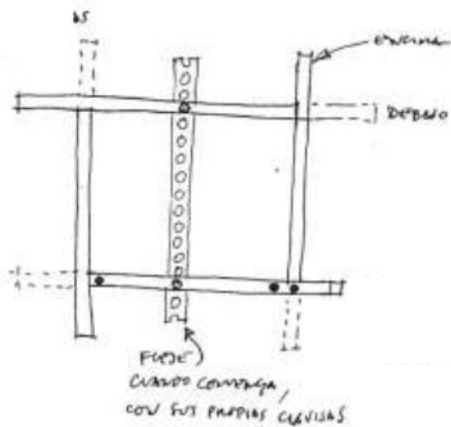
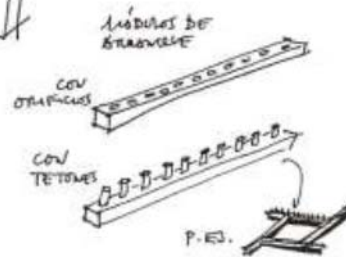


FORMWORKS

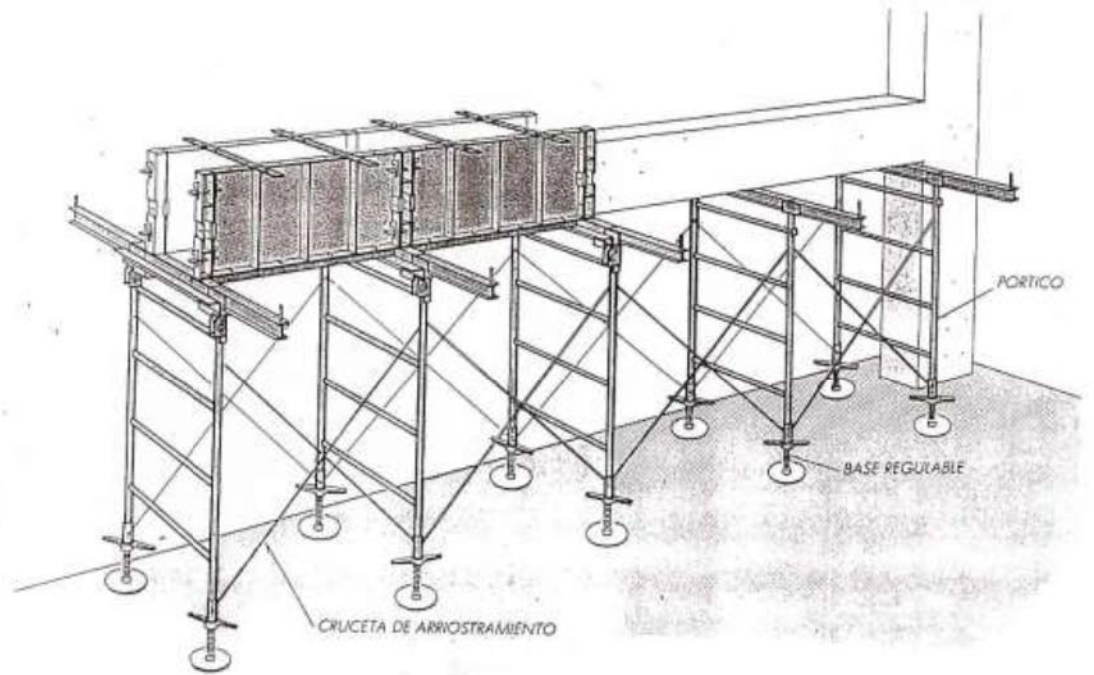
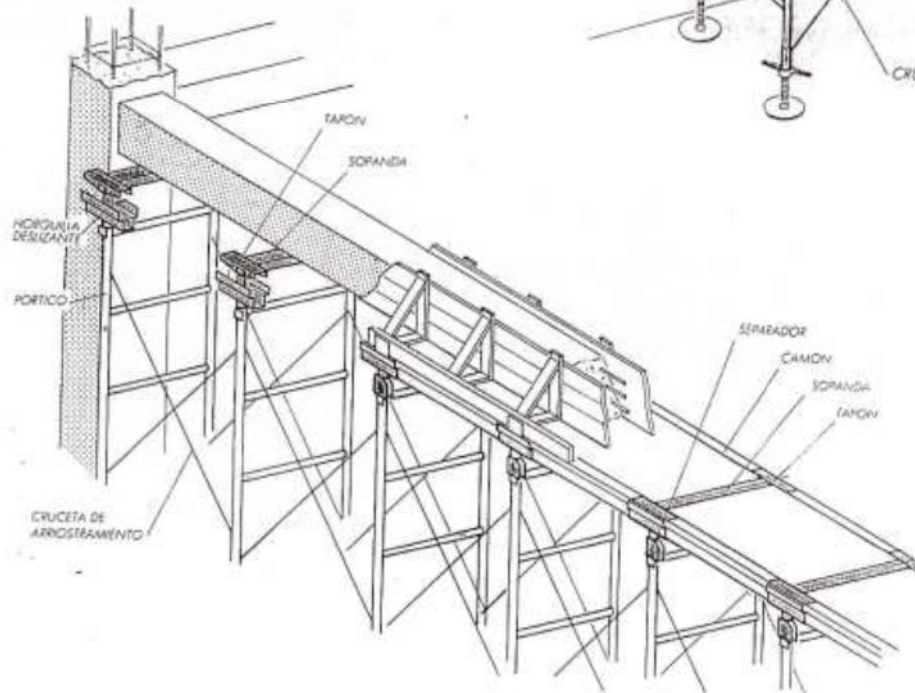
PIERS



CLASSICAL
SOLUTION FOR
METAL
FORMWORK



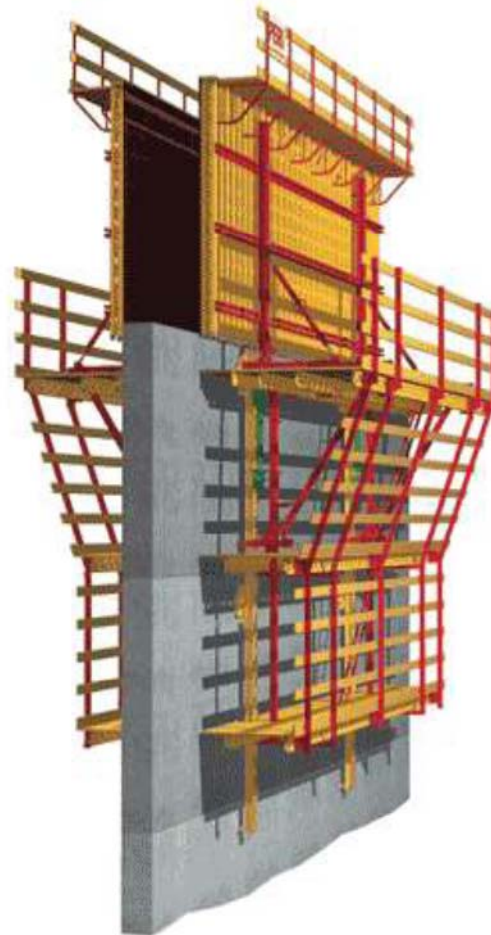
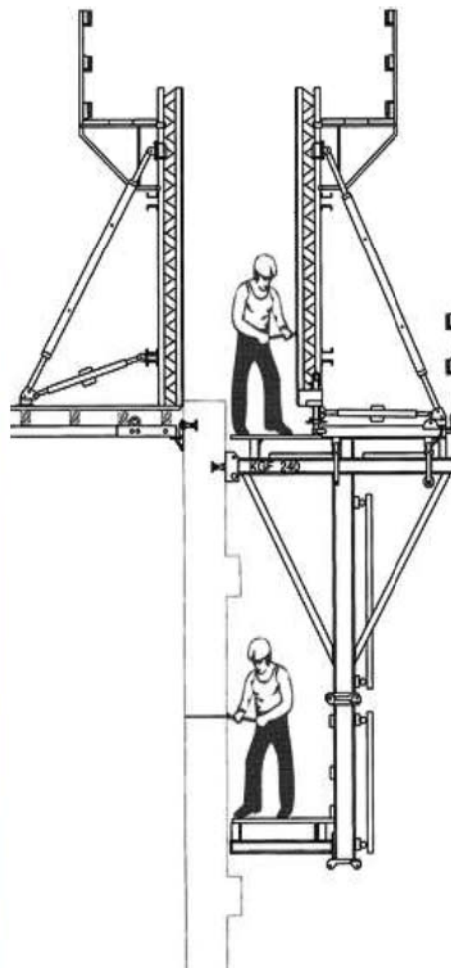
FORMWORKS



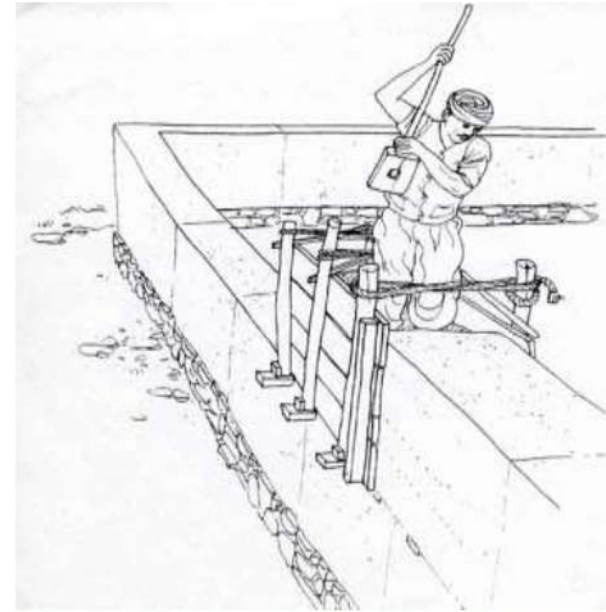
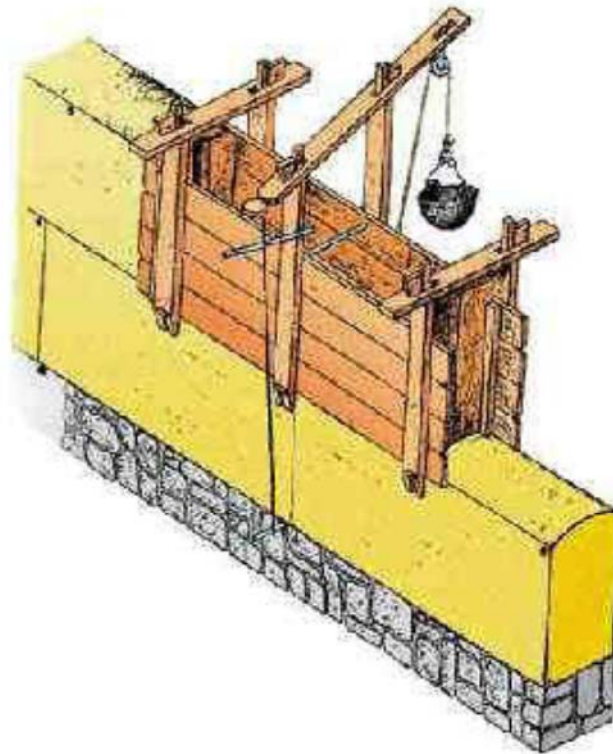
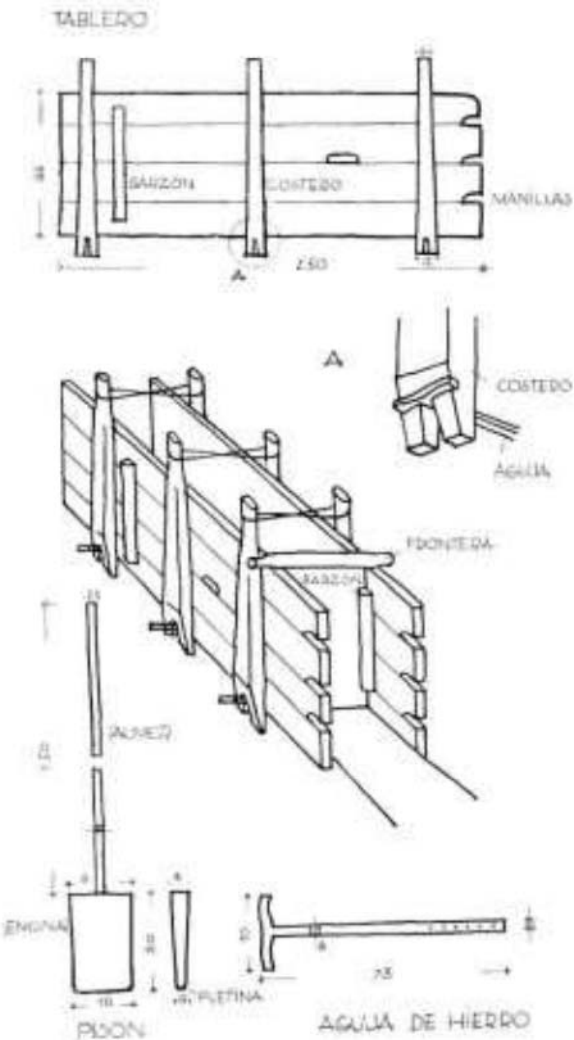
AUXILIARY STRUCTURES FOR TEMPORARY USE:
REINFORCED CONCRETE WALLS. FORMWORK



AUXILIARY STRUCTURES FOR TEMPORARY USE: REINFORCED CONCRETE WALLS. FORMWORK



EXECUTION PROCESS OF GROUND WALLS



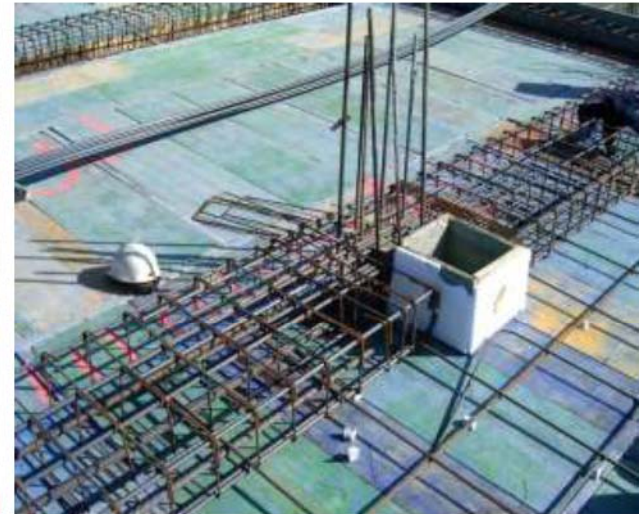
EXECUTION PROCESS OF CONCRETE BLOCKS WALLS



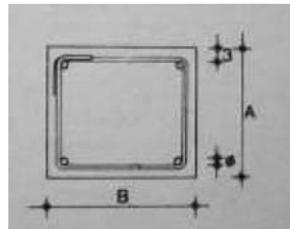
EXECUTION PROCESS OF REINFORCED CONCRETE CONTINUOUS WALLS.



EXECUTION PROCESS OF REINFORCED CONCRETE BEAMS



EXECUTION PROCESS OF REINFORCED CONCRETE GRID STRUCTURES





**Project "SURE - Sustainable Urban Rehabilitation in Europe"
implemented in frames of Erasmus+ Programme
Key Action 2: Strategic Partnership Projects
Agreement n° 2016-1-PL01-KA203-026232**

This publication has been funded within support from the European Commission.

Free copy.

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**Co-funded by the
Erasmus+ Programme
of the European Union**

