

[1] Masonry

Now for our regularly-scheduled program:

Brick Masonry

History

Middle East: [2] Mesopotamia (Bricks)

[3] Egypt (Stone)

Mediterranean: [4] Greece (Stone)

[5] Rome (Brick)

What is a Masonry Wall?

[06] For the sake of simplicity, masonry construction consists of both masonry units -- ie, bricks, in this case -- and mortar. Let's talk about mortar first.

[07] Mortar Definition and typical chemistry;
Modern Mortar Types: M, S, N, O

[08] Brick Masonry: Definition -- Clay-based unit masonry

[09] Special Importance of Unit Masonry
and Coursing

[10] Molding of Bricks
Firing of Bricks

[11] Brick Sizes
Special Shapes

Choosing Bricks: Weathering, Color, Texture
Severe Weathering, Moderate W., Neglig. W.
Type FBX (High degree Perfection)
Type FBS (Range of Variability)
Type FBA (Nonuniform)

[12] Laying Bricks

Wythe

Stretchers

Headers

Rowlock

Soldier

Bond Types: Common bond, flemish bond,
English Bond

[13]

Procedures: Laying of Leads; Line between leads;
Next set of leads.

[14]

Mortar Joints: Variations and effect.
Cleaning: Muriatic Acid

Additional Considerations: Environment
(moisture and efflorescence;
temperature & workability)

[15] Considerations of Sustainability in Brick Masonry

Materials often found locally;	+
Energy Intensive;	-
Gathering Materials do disrupt habitats	-
Long lasting, and re-usable	+
No negative effect on indoor air quality	+
Thermal mass useful in energy systems	+
Relatively small waste in construction	+

[16] Spanning Openings:

Lintels (steel, conc., masonry)
Corbel
Arch

[17] Reinforced Brick Masonry

Masonry Accessories: Ties, truss-type reinforcing...

CSI Spec Divisions for Masonry:

04050 Basic Masonry Materials and Methods
04100 Mortar and Masonry Grout
04150 Masonry Accessories
04200 Masonry Units
04400 Stone
04500 Refractories
04600 Corrosion-Resistant Masonry
04700 Simulated Masonry
04800 Masonry Assemblies
04900 Masonry Restoration and Cleaning

Important Question: How Many Syllables are in the word “masonry”??? [18]

[19], Examples of Brick in Architecture [20], [21]

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[22]

Stone and Concrete Masonry

[23] Types of Stone

Igneous Rock -- Granite to Pumice or Tufa
(Stone that was created in a molten state)

Sedimentary Rock -- Limestone, sandstone
(rock that was deposited by action of wind or water)

Metamorphic Rock -- Marble, Slate
(Formerly igneous or sedimentary, but which
underwent a transformative process due
to heat and pressure.)

[24] Collection, Quarrying and Milling of Stone

[25] Laying of Stone: Rubble and Ashlar;
Random and Coursed Stone

Stone Masonry: Laid in Mortar or Mechanically Fastened

[26] But **not** slathered on...

[27] Concrete Masonry: Laid in Mortar
Manufacture, Sizes, Finishes, Textures
Laying of Concrete Blocks (like bricks)

Other Types of Masonry Units

[28] Glass Block; terracotta; Autoclaved Cellular Conc.

[29] Examples of Glass Block in architecture

Brick Exercises: ???

Additional Topics in Masonry Construction

Wall Assemblies (Next Week)

Special Problems of Masonry Construction

Expansion and Contraction

Efflorescence

Mortar Joint Deterioration

Moisture Penetration

Cold and Hot Weather Construction

Cavity walls: Gumming up the works

Masonry and Building Codes:

For structure, fireproof construction

Uniqueness of Masonry: Expressive Character.