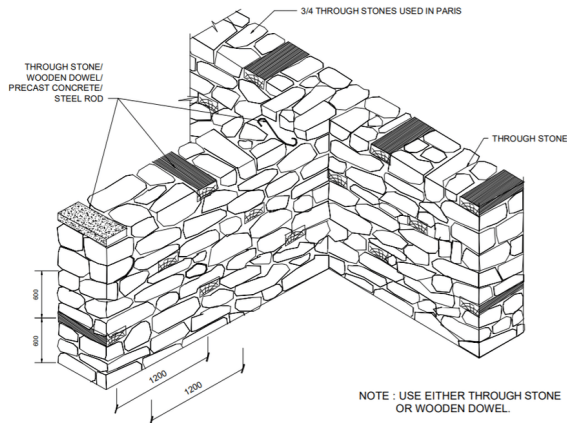


Unit 2 CONSTRUCTION PRACTICE - SUPER STRUCTURE

Topic 2 - Stone Masonry:

1. **Definition:** Stone masonry involves the construction of structures using stones bonded with mortar. It is one of the oldest forms of construction, known for its strength and durability.



2. Types of Stone Masonry:

a. Rubble Masonry:

- **Uncoursed Rubble Masonry:** Stones are laid without any definite courses. It's used in rural areas and for less formal construction.
- **Coursed Rubble Masonry:** Stones are arranged in layers or courses, offering more structural integrity than uncoursed rubble.
- **Dry Rubble Masonry:** Stones are laid without mortar. Typically used for small, temporary walls.
- **Square Rubble Masonry:** Stones are roughly shaped into squares and laid in courses.
- **Random Rubble Masonry:** Stones have irregular random shapes, often seen in old fort walls and monuments.

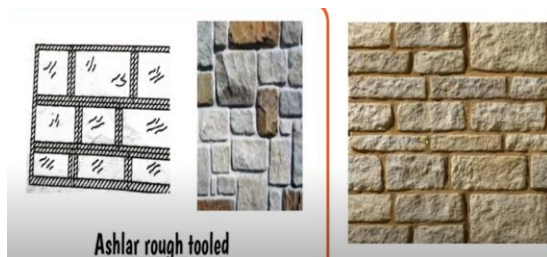


b. Ashlar Masonry:

- **Ashlar Fine Masonry:** Stones are dressed (cut and shaped) perfectly and laid with very fine joints (3mm thick or less).



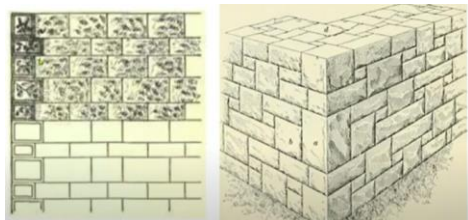
- **Ashlar Rough Tooled Masonry:** The faces of stones are roughly dressed, but the edges are smooth, allowing for thin mortar joints.



- **Ashlar Chamfered Masonry:** The edges of the stones are beveled or chamfered, creating a decorative appearance.



- **Ashlar Block-in-course Masonry:** Stones are rectangular but laid in regular courses, often for large structures like bridges and public buildings.



- **Ashlar Facing:** Ashlar is used as a veneer on the surface of a wall built with another material (e.g., concrete or brick) for decorative purposes.



3. Composite Masonry:

- Combines both rubble and ashlar masonry, often used for walls where a rough interior is combined with a finely finished outer face.

4. Dry Stone Masonry:

- Built without mortar, relying solely on the interlocking of stones. Commonly used in retaining walls or landscape features.

3. Materials Used:

- **Stones:** Granite, sandstone, limestone, marble, and slate are commonly used.
- **Mortar:** A mixture of lime or cement with sand and water is used to bond the stones.

4. Advantages:

- Extremely durable and weather-resistant.
- Provides excellent insulation from heat and cold.
- Visually appealing, offering a natural and timeless look.

5. Disadvantages:

- Labor-intensive and time-consuming.
- Requires skilled masons for proper execution.
- Heavyweight structure, increasing the cost of foundations.

6. Applications:

- Foundations, walls, arches, and retaining walls.
- Historical monuments and buildings.
- Landscaping elements such as garden walls and pathways.

Difference between Brick Masonry and Stone Masonry

Aspect	Brick Masonry	Stone Masonry
Material	Uses bricks made of clay or concrete	Uses natural stones like granite, sandstone, limestone
Strength	Generally less strong than stone masonry	Stronger and more durable due to the strength of stone
Durability	Moderate; bricks may erode over time	Highly durable and resistant to weathering
Cost	Cheaper due to mass production and easier handling	Expensive due to high material and labor costs
Labor	Requires less skilled labor	Requires skilled masons to shape and place stones
Appearance	Uniform and smooth finish, often painted or plastered	Natural, rough or dressed look, more aesthetic appeal
Construction Speed	Faster to build due to uniform size and shape of bricks	Slower, especially with irregular stones
Maintenance	Requires more maintenance, prone to efflorescence	Low maintenance, especially when built properly
Thermal Insulation	Moderate insulation	Better insulation due to thickness and density
Common Use	Residential buildings, walls, and small structures	Foundations, monuments, large structures, and landscaping
Weight	Lightweight, easier to transport and handle	Heavy, requiring stronger foundations