

The Brick



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Brief History

- One of the oldest building materials
- Mud bricks 10,000 – 8,000 BC
- Molded bricks 5,000 BC in Mesopotamia
- Fired Brick 3,500 BC
 - Allowed for permanent structures
- Changes in shape
 - Standardized size
 - Holes in middle to save on materials
 - Grooves on side to promote bonding
 - Various molds for corners and decoration to eliminate cutting waste

Manufacturing

- Four steps for proper brick molding (hand or machine)
 - Grinding – crushing mined rocks
 - Screening – sifting the materials to eliminate unwanted materials
 - Washing – mixing the materials with water
 - Working – molding the clay into bricks
- Drying processes
 - Sun dried
 - Kiln firing (approx 2000°F)
- Three types of forming
 - Soft mud – clay into molds then dried
 - Stiff mud – machine lays columns of clay, cut then dried
 - Dry press – relatively dry clay under pressure molds, then dried

What It's Made Of

- Aluminosilic acid (pure clay)
- Free silica (quartz)
- Decomposed rock
 - Different types of rock such as granite and pegmatite usually found in water deposits
 - The different types of rock gives the brick a different burn color

Where It Comes From

- Brick is manufactured all across the country
 - Leads to low energy and transportation costs
- Two brick manufacturers are close to ND
 - Boral Bricks (230 mi) and Medora Brick (219 mi)
- Some brick for the older buildings came from clay found at the bottom of the lakes on campus (Main Building, St. Ed's)

How It's Used

- Can be used for structural walls
- Modern adaptation of decorative facades
- Used with
 - Mortar – bonds brick courses together
 - Masonry ties – bond brick façade to structural wall such as CMU
 - Expansion joint – used to negate detrimental effects of expansion and compression
 - Rope/Weep hole mesh – allows for water to escape cavities created by brick facades
- Why?
 - Fire/water resistant
 - Good compressive strength
 - Durability
 - Beautiful
 - Cheap and energy efficient

References

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