

METALS

Types, Properties, Uses in Building Construction

Class: B.Sc. H.Sc. 6th Semester (IDRM)

Subject: BMCT-II

Teacher: Ms. Akshata Verma

INTRODUCTION

- Frequently applied in building industry because of their:
 - durability
 - strength
 - resistance to weather and corrosion
- Most common metals used in construction industry are:
 - Carbon steel
 - Aluminum
 - Copper
 - Stainless steel
- These metals form everything from door frames and highways, to pipes and staircases.

CARBON STEEL

- An alloy obtained by mixing carbon & iron, also called mild steel
- Material of choice due to its properties:
 - High tensile strength, hardness & wear resistance
 - Good formability & weld ability
- Uses:
 - beams for structural framework
 - gears, shafts, nails, pipelines, couplings, cutting tools, blades, punches, springs, wires
 - rectangular tubing for welded frames, trailer beds, bridges



STAINLESS STEEL

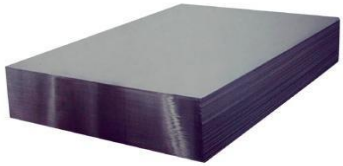
- A steel alloy that contains a minimum of 10.5% chromium and levels of nickel, molybdenum & niobium
- amount of several different metals can be adjusted to create different grades of stainless steel with different properties
- Most common grade is 301- ductile, easily welded
- Properties:
 - Corrosion and stain resistant
- Uses:
 - roofing, drainage components
 - handrails, balustrading
 - architectural cladding, structural applications
- Famous architectural structures- Chrysler Building in New York City



Chrysler Building



STAINLESS STEEL



Stainless Steel Sheet



Stainless Steel
Pipes



Stainless Steel Sheet
and Coil

- Sheet and Coil
 - Hot rolled
 - Cold rolled
 - Special finishes
- Bars-Hot & Cold Rolled
 - Rounds
 - Squares
 - Hexagons
 - Flats
 - Ground & polished
- Strip
 - Hot rolled
 - Cold rolled
- Tubing
 - Seamless
 - Welded
 - Sanitary
- Pipe
 - Seamless
 - Welded
 - Hollow Bar

ALUMINUM

- Commonly used metal is processed into sheets, tubes and castings
- Properties:
 - resistant to corrosion
 - highly conductive and ductile
 - resistant to harsh weather
- Used in:
 - Windows, doors, ceilings, roof covers, HVAC ducts
 - handles, wires, outdoor signage, street lights



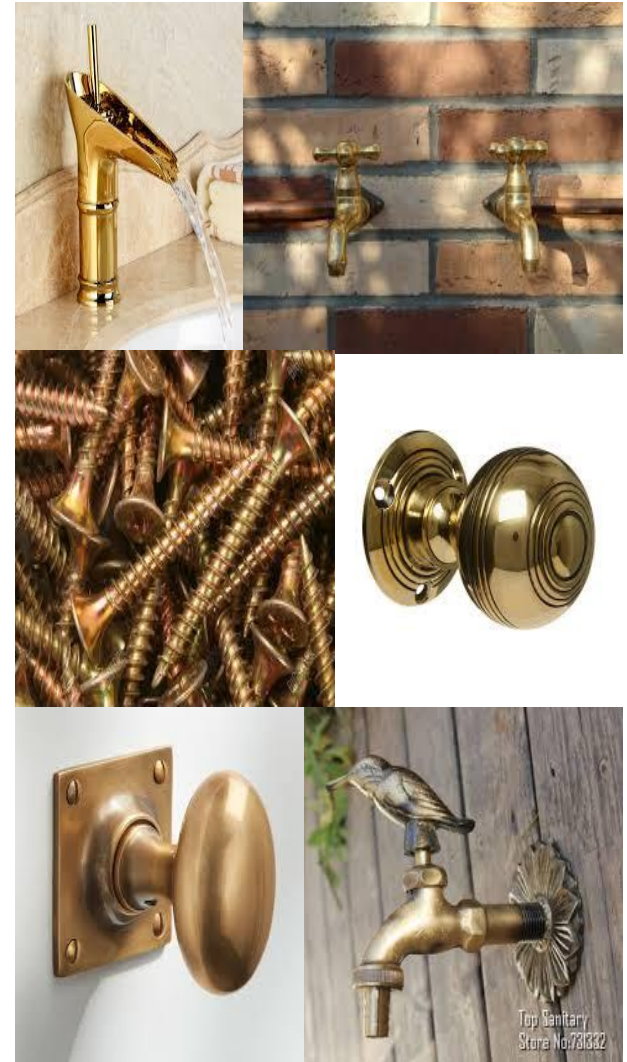
COPPER



- Soft metal popular in building industry mainly as chief component of pipes
- Properties:
 - ductile, malleable, electrically conductive metal
 - resistant to corrosion from water and soil
- Uses:
 - ideal for hot and cold water outlets
 - Ideal for heating, ventilation and air conditioning applications

BRASS

- An alloy of copper and zinc has number of applications in construction industry
- Exclusively used for its stunning gold-like decorative look in building areas where there is a low friction requirement- locks, door knobs
- Special corrosion resistant brass is suited where water temp. is high or contamination is present in water





**Copper belfry of St.
Laurentius Church**



**Eiffel Tower in Paris,
wrought iron**



**Burj Khalifa in Dubai,
Iron**



**Swallow's Nest Cultural Centre in
Taiwan, Steel**



**Disney Concert Hall, Los Angeles,
Stainless Steel**



CrossCards