

Cosci 254 Exam 2 Review

BOOK NOTES (Pg. 248-255)

Sustainability and MasterFormat Division 5 (Metals):

Applicable MasterFormat™ Sections

The following *MasterFormat™ 2010 Update* Level 2 sections are applicable to this chapter.

05 12 00	Structural Steel Framing	05 34 00	Acoustical Metal Decking	05 51 00	Metal Stairs
05 14 00	Structural Aluminum Framing	05 35 00	Raceway Decking Assemblies	05 52 00	Metal Railings
05 21 00	Steel Joist Framing	05 36 00	Composite Metal Decking	05 53 00	Metal Gratings
05 31 00	Steel Decking	05 41 00	Structural Metal Stud Framing	05 54 00	Metal Floor Plates
05 33 00	Aluminum Decking	05 42 00	Cold-Formed Metal Joist Framing	05 55 00	Metal Stair Treads and Nosings
		05 44 00	Cold-Formed Metal Trusses	05 56 00	Metal Castings
		05 45 00	Metal Support Assemblies	05 58 00	Formed Metal Fabrications
				05 59 00	Metal Specialties

- The first known metals were those found in nature, such as gold and silver. Later, other metals probably discovered accidentally, were obtained by melting ores.

- The first relatively hard metals produced were mostly copper alloys, such as brass and bronze.

-Copper: (used in roofing, flashing, piping, wiring, and in the manufacture of equipment)

-Copper alloys: (used to manufacture doors and their frames, windows, door and window hardware, cladding panels, plumbing fixtures, and for many decorative purposes)

-In modern construction, it is impossible to construct a building using no metal products. Products made from iron, steel, aluminum, copper, bronze, lead, alloys of these metals, and other metals are contained in a large number of building components, ranging from those forming the underlying structure to those in the shell.

-Masonry structures: contain metal reinforcements, anchors, and fasteners.

-Concrete structures: are reinforced with steel

-Wood framing: is held together with metal nails, lag bolts, and screws.

-Finishes: are hung on metal furring and framing.

-In addition to the use of steel and iron in structural systems, ferrous metals are used in many other building products

-For example: Ferrous metal components: (are used in roofing, siding, cladding, and flashing)

-Both structural and nonstructural Ferrous standing seam metal roofing have a long history of use in several styles. These products offer a broad choice of finishes and coatings for durability, texture and color.

Aluminum:

-Aluminum which was not produced until the nineteenth century, is another common metal in most of today's buildings.

-Aluminum: used to make (cladding panels, storefronts, curtain walls, doors and their frames, windows, siding, roofing, flashing, wiring, piping, railings, hardware, and many other products)

Both steel and aluminum siding, in traditional clapboard designs as well as vertical and other patterns, are increasingly, popular products.

-Wall panel systems (cladding): often in combination with lightweight steel framing, are used in many types of buildings today.

-Stainless steel is used for flashing, and carbon steel sheets are used in composite flashing.

Many types and styles of metal exterior and interior doors are available. Steel doors provide fire safety, security, durability, and dimensional stability. Modern exterior swinging steel doors contain an insulating core surrounded by steel skins and sides. Designs range from smooth flush faces to variations with glazing, moldings, textured surfaces, and vinyl laminations.

-Metal windows offer a complete range of designs for residential, commercial, and institutional uses.

-Steel products used in interior finishes include non-load-bearing studs and furring components, as well as acoustical ceilings and wall panels. Non-load-bearing studs and furring members provide non-combustible dimensionally stable framing and furring for gypsum wallboard, plaster, and other interior surfaces.

-Steel acoustical ceilings are found in many types of buildings, sometimes as an integral part of a steel deck floor and ceiling system.

-Metals are used to make ornamental building components, such as railings and handrails, panels, and ornamentation.

The following are a few of the many other steel products used in buildings:

- Steel pan (concrete filled) stairs
- Spiral stairs
- Fixed ladders
- Prefabricated fireplaces and flues
- Laboratory, kitchen, and other cabinets
- Unit kitchens
- Roof accessories (skylights, stacks, ventilators, roof hatches, etc.)
- Loose lintels

Aluminum and steel are also used in the following products:

- Gratings and stair treads
- Rainwear (flashing, gutters, and downspouts)
- Roof accessories (skylights, stacks, ventilators, roof hatches, etc.)
- Gratings
- Floor plates
- Sidewalk hatches
- Access doors
- Loose lintels
- Various castings

-Iron/steel (extensively used in): plumbing fixtures and piping; hot water and steam piping; radiators, valves, and accessories; and in heating and cooling ductwork.

-Plumbing ware includes both cast iron and sheet steel products, such as tubs, shower and tub enclosures, toilets, bidets, and sinks. These are often finished in porcelain enamel.