

Construction Estimating Class # 10- Interiors

1. Review major building systems discussed so far
 - "Lets take it out of the interiors" --doesn't work

2. Components of interiors
 - Demolition
 - Walls
 - Ceilings
 - Flooring
 - Doors, frames and hardware
 - Millwork and finish carpentry
 - Decorating (painting and VWC)
 - Miscellaneous
 - Window sills

3. Demolition
 - Entire building demo -- by specialty subs
 - Utility cut offs
 - Salvage
 - Noise and dust control
 - Work near adjacent structures—Alpsa Phi story
 - Safety !!
 - Basements—how to leave them?
 - Interior demo by GC or by demo sub
 - Selective demo vs total gut
 - Salvage
 - Light fixtures
 - Doors, hardware
 - Site visit important
 - Types of items to be demolished
 - Disconnection requirements
 - How to get rubbish out of building
 - Asbestos and other hazardous material
 - Quantity surveys
 - Flooring--carpet, tile, ceramic
 - Ceilings--plaster, drywall, acoustical
 - Walls--stud and drywall, block, clay tile
 - "Heavy demo"--concrete cutting
 - Specialized trade--BT story
 - Rubbish—double the quantity for CY in dumpsters
 - Unit pricing depends on materials to be demo'd
 - Metal stude and drywass vs concrete block

- Crew activities
 - knock down vs haul away
 - Haul distance
 - Access to elevators, dumpsters
 - Two shift operations
- Unit prices developed using crew sizes and labor rates
- Evaluate total costs using total crew size and duration
- Rubbish quantity in CY x \$5-6/CY
- Summary
 - Safety!!
 - Total crew cost vs unit prices
 - Rubbish removal
 - Hazardous material
 - Specialty demo--concrete
 - Like concrete trade in new construction--demo sets pace for renovation work--Hilton story

4. Interior Wall systems

- Interior masonry--expensive and time consuming
- Studs, plates and runners
 - Usually 25 gauge metal
 - Furring strips
 - Take off, spacing
- Drywall (sheet rock)
 - 4 x 8 sheets, but custom sizes possible
 - 1/4 "--1" in thickness, foil backed for vapor barrier
 - Screwed or nailed to studs
 - Edge finishes--beading--corner bead, "J" bead
 - Taped and sanded
- Plaster
 - Rock and metal lath
 - Scrath coat
 - Brown coat
 - White (or finish) coat
 - Dieing trade--wall has taken over
 - Plaster patching--portant item for renovation projects
- Good estimating practices
 - Layout of partitions
 - Read specs for req'ts
 - Verify quantities
 - Soffits, window details (returns)
 - Control joints for cracking

5. Ceiling systems

- Exposed ceilings
- Suspended ceilings

- Drywall! \$4-5/SF.
- Acoustical tile (Lay-In) \$.50—2.25/ SF
- Acoustical tile concealed spline (1×1)
- Framing systems
 - Hangers, threaded rod, unistrut
 - Joists (wood or metal)
 - Suspended grid (2×2, 2×4)
- Various grid and tile options
 - Exposed, concealed, fine line
 - Tegular, reveal edge, various patterns and textures
 - Read specifications
- Exterior ceilings and soffits
 - Plaster or waterproof drywall (green board)

6. Finish Flooring

- hard tile
 - Ceramic
 - Stone--rble, granite, limestone
 - Quarry tile
 - Terrazzo
- Soft tile
 - VCT
 - Vinyl tile
 - Sheet flooring--inoleum, no wax)
- Carpet
 - Carpet allowances
 - Padding and installation
- Preparation for flooring
 - Latex patching
 - Skim coat--Ardex
 - Transition areas at doors and thresholds

7. Frames, doors and hardware

- Hoolow metal frames
 - Usually 14 gauge
 - Set by carpenters
 - Coordination with finish hardware
 - Welded vs "knocked down"
- Wood frames (millwork)
 - Rough bucks
 - Jambs, heads, stops, casings
- Cased opening--o frme
 - Drywall returns
 - Pivot hinges
- Doors
 - Hollow metal
 - Wood
 - Species and size
 - Solid core, hollow core
 - Wood veneer
 - Aluminum and glass doors
 - Vestibules
 - "Herculite doors"--frameless with pivot hinges
- Finish hardware
 - Hardware schedule
 - Hardware allowance
 - Butts (hinges)
 - Locksets and latchsets
 - Closers, spring hinges
 - Panic hardware
 - Dead bolts
 - Door stops, wall bumpers
 - Keying

8. Painting and decorating

- Good painter can cover many sins
- How many coats?
 - Primer and finish coats
- Walls, ceilings
- Doors, frames
- Exposed structure
- Vinyl wall covering (VWC)
- Millwork
 - Stain and varnish
 - Home Federal story
- Exterior work
 - Backpriming
- Pitfalls
 - Bad taping job
 - Direct lighting--wall washers and uplights
 - High gloss finishes

CONSTRUCTION ESTIMATING CLASS # 13 MEP TRADES

1. Large percentage of most estimates
 - 25-40%
 - Large possibility for VE
 - Almost always subcontracted
 - Combination shops vs specialty shops
 - Coordination very important between trades

2. Plumbing
 - Water, waste and vent
 - Plumbers--building plus 5' outside
 - Main categories
 - ✓ --Roof drainage
 - Fixtures and piping
 - Pipe insulation
 - Equipment connections
 - Floor drainage
 - Roof drainage
 - Roof heads--interior
 - Fixtures
 - Water closets
 - Urinals
 - Sinks
 - Slop sinks
 - Shower stalls
 - Fixture trim--faucets, chrome fittings
 - Escutcheon plates
 - Piping
 - Rough-in
 - Trim out
 - Underground vs overhead
 - Types of pipe
 - Waste--cast iron, PVC
 - Water--galvanized steel, copper
 - Vent--cast iron, PVC
 - Valves
 - Access Panels
 - Pipe insulation
 - Usually subcontracted by plumber

- Hook up equipment
 - Kitchen
 - Laundry
 - Pool, fountains, etc.
- Floor drainage
 - Pitch to drain

3. HVAC

- Heating
 - Look for the source of energy--Gas, Electric
 - How is the energy turned into heat?
 - Wet heat vs dry heat
 - Boilers and hot water or steam
 - Furnace (Gas or electric) and ductwork distribution
- Ventilation
 - Natural vent--open the window!
 - Distribution of air
 - Equipment to move air
 - Air handling units (AHU)
 - Combination units
 - CFM
 - Air changes per hour
 - Ductwork
 - Priced by the pound
 - Lined vs insulated
 - Sheet metal, fiberglas
 - Coordination with other trades
 - Supply and return air
 - Return air ducted or return air plenum
 - Testing and and balancing
 - Air required at each register
 - Grilles and registers
 - Linear diffusers
- Air conditioning
 - Chilled water from refrigeration machine (chiller)
 - Pump chilled water to coil in AHU
- Temperature controls
 - Thermostats
 - Humidity controls
 - Energy management systems
- Piping and pipe insulation
 - Two pipe vs four pipe system
 - Hot water, steam
 - Chilled water
 - Return piping
- Misc. Equipment

- Pumps
- Heat exchangers
- Condensers
- Fan coil units

4. Electrical

- Major categories
 - Equipment--transformers, switchgear, panels, generator
 - Pipe and wire
 - Fixtures
 - Special systems
- Equipment
 - How to get power from "pole" to project