



[Main](#)
[Home](#)
[People](#)
[Projects](#)
[Knowledge Base](#)
[Other Locations](#)
[Corporate](#)
[Site Search](#)

Corporate

Operations

- Building Systems
- Global Procurement
- Green Building
- PM Applications
- Procedures
- **Scheduling**
- Surveying
- Training

Common Construction Activity Durations

These common construction activities and duration "rules of thumb" can help you build your baseline project schedule. All durations are estimates and may vary from one project to another.

CSI Division 01: General

- Overall schedule duration estimate: 1 month per underground level of excavation, 2 weeks in the bottom of the hole, 1 month per underground level to come out of the hole, 1 month per level above ground, 2 months from structure completion to building watertight, 4 months from building watertight to substantial completion.
- Cranes: 1 month allowance after structure top off before taking down crane, 12,000 SF floor plate is the upper limit for one tower crane
- Critical schedule milestones: Design, Permits, Mobilization, First Work Items, Temporary power, Tower Crane Set Up, Start of Structure, Completion of Structure, Building Water Tight, Permanent Power, Commissioning, Occupancy - Inspections, Owner Specific Move-In.

CSI Division 02: Site construction

- Demolition: 28 M3 (1000 CF)/day, 8 person crew
- Excavation: 500 M3 (18000 CF) to 1000 M3 (35000 CF) /day
- Fine Grading: small areas 300-500 sy/hr, large areas 500-800 sy/hr
- Asphalt Paving: small areas 500-1000 tons/day, large areas 1500-2000 tons/day
- Concrete Paving: Small Areas 30 sy/hr Large areas 50 sy/hr
- Caissons: 2100mm bell X 5500mm deep = 4 piles / day using a 3 man crew
- Auger cast piles: 6 auger cast piles per day 18 inch diameter, 4' to 6' diameter caisson 50 feet deep in one day, 15-20 vertical feet/hr (holes up to 48" diameter)
- Driven piles: 7 piles/day, 18 M (60 FT) long, typical 4 man crew
- Shoring: 8 to 12 H piles per day drilled or pounded, 4 tie backs per day
- Storm sewer: RCP > 24 inches = 45 to 61 LM (150 to 200 FT) /day, RCP < 24 inches = 31 to 45 LM/day, 5 man crew
- Water distribution: 31 LM (100 FT) /day typical 5 man crew
- Landscaping

CSI Division 03: Concrete

- Tying Rebar: 100 to 250 lbs/manhour
- Concrete Placing: 10000 - 8000 SF / week / tower crane for a typical

- floor, 8000 - 6000 SF / week / tower crane if fly forms cannot be used,
4000 - 6000 SF / week / tower crane if heavily gridded with beams. 2.5
to 5 cy/mhr Large slab on grade or slab on metal deck concrete pours
- Formwork Erection and Stripping: 5 sf/mhr to 10 sf/mhr (this would be for handset type formwork not large gang forms that are crane set. Built in place formwork would be in the low end of this range.)
 - Lagging for Shored Excavations: 1 sy/mhr
 - Footings (pad): 1.564 M2 (17 SF)/man/hr to 4.283 M2 (150 SF)/man/hr, typical 5 man crew
 - Footings (continuous): 1.86 M2 (20 SF)/Man/hr, typical 5 man crew
 - Grade beams: 1 LM (3.3 FT)/manhour
 - Foundation walls: 2.1 M2 (22 SF)/man/hr
 - Foundation wall rebar: 7 to 10 manhours/tonne
 - Concrete finishing: 1200 - 1500 SF / DAY / cement finisher
 - Concrete Wall Cycle: 20 linear feet per day
 - Suspended slab rebar: 7 manhours/tonne
 - Slab On Metal Deck
 - Precast structural panels: 20 panels/day, 6 man crew
 - Precast spandrel panels: 30 to 40 panels/day, 6 man crew

CSI Division 04: Masonry

- Masonry block: 160 blocks/mason/day
- Masonry block (warehouse): 350 to 400 blocks/mason/day
- Masonry block (high storage): 500 blocks/mason/day
- Brick: 700 to 800 bricks/mason/day

CSI Division 05: Metals

- Structural steel erection: 35 tons/day or 35 pieces/day/hook, 5 man crew
- Metal Deck: 30000 SF/month
- Misc Metals
- Ornamental Metals & Handrails
- Expansion Joints
- Aluminum Ceiling & Assemblies

CSI Division 06: Wood & plastics

- Rough carpentry (backing and blocking)
- Finish carpentry: use 27% of contract value, typical crew size 5 to 10 men
- Architectural woodwork: use 27% of contract value, typical crew size 5 to 10 men

CSI Division 07: Thermal & moisture protection

- Waterproofing
- Water Repellant Coatings
- Exterior Insulation Finish System (EIFS): 100 SF/day/installer
- Exterior wall assemblies: 185 M2 (2000 SF)/day typical
- Metal Wall & Roof Panels
- Roofing: EPDM ballasted: 1000 M2 (10,000 SF)/day typical 8 man crew.
Built up roof: 175 M2 (1900 SF)/day typical 6 man crew. Standing seam roof: 50 M2/day typical 15 man crew

- Spray Fireproofing: 3000 to 5000 SF/day
- Caulking & Sealants

CSI Division 08: Doors & windows

- Windows: 1200 SF/day
- Curtainwall: Panelized system: 2500 SF/day, typical crew size 7 men.
Stick built: 750 to 1250 SF/day, typical crew size 7 men
- Hollow metal door frames: 2 manhours/frame, 8 frames installed per day, 2 man crew
- Hollow metal door and hardware: 4 manhours/door, 1 man crew
- Overhead doors: 1 door/day, 2 man crew
- Door hardware

CSI Division 09: Finishes

Interior finishes follows structure 6 to 8 floors behind, due to need for reshoring, eye brow of fly forms preventing drifting of loads underneath, and the need for a rain barrier between the top concrete deck and finishing floors. The status of elevators will dictate the completion of interior finishes. One month after elevators are complete is usually enough time to complete interior finishes.

- Metal Studs: 45 M2 (500 SF)/day, 1 man crew
- Drywall hang, tape, finish: 140 M2 (1500 SF)/day, 5 man crew, 5/8" drywall
- Drywall ceilings: 900 SF/day
- Tape and Finish Gypsum Board
- Ceramic and Quarry Tile: 250-300 SF/day/2 man crew
- Grouting tile: 500-600 SF/day/2 man crew
- Terrazzo: 130 SF/day/2 man crew
- Acoustical Ceiling Grid: 2000 SF/day
- Acoustical Ceiling Tile: 2000 SF/day
- Carpet: 1500 SF/day
- Resilient Flooring, Rubber Base
- Painting, Vinyl Wall Coverings
- Special Flooring

CSI Division 10: Specialties

- Toilet Partitions: 5 to 10 stalls/day/installer
- Toilet Accessories
- Louvers and Vents

CSI Division 11: Equipment

- Audio/Video equipment
- Security equipment
- Maintenance equipment
- Parking Control Equipment
- Detention Equipment
- Water Softening Equipment
- Building Maintenance Fall Arrest Equipment

CSI Division 12: Furnishings

- Artwork
- Casework
- Furnishings

CSI Division 13: Special construction

- Swimming pools
- Security cameras
- Solar panels

CSI Division 14: Conveying systems

- Elevators: Hydro: 4 weeks/elevator, 2 man crew, Traction: 18 weeks/elevator, 2 man crew. 4 to 5 months to build elevators after dry in of machine room, 2 months before the first car becomes available after dry in of machine room, 1 month to refurbish the car used during construction and put it in control group.
- Hoists: Hoists will be needed for structures with a roof height 65 feet or more above ground, Hoists will be needed until the first elevator can be used during construction, 2 months to close in hoist bay after removal.
- Escalators: 6 weeks/escalator, 3 man crew

CSI Division 15: Mechanical

Use 45% of contract value for labor divided by \$65/hour to calculate total manhours

- Underground Storm pipe
- Sanitary sewer pipe: 50 LF / day
- Pipe laying: 2 to 3 joints per hour (storm drain pipe up to 48" diameter with excavation less than 10' deep and open cut)
- Rough in Fire Protection Lines
- Fire Protection Trim
- Rough in Plumbing
- Plumbing Fixtures
- Rough in Mech Piping
- Mech Equipment
- Rough in Ductwork & Equipment
- HVAC Trim
- Mech Start-up & Commissioning
- Air Handling Units
- Heat Exchangers
- Pumps
- Cooling Towers
- Centrifugal Chillers
- Steam Boilers
- Supply and return fans
- Variable Frequency Drives
- Terminal Units VAV boxes

CSI Division 16: Electrical

Use 45% of contract value for labor divided by \$65/hour to calculate total manhours

- Underground Electrical Rough-In
- Rough-In Elect Conduit & Panel Boards
- Electrical Pull Wire & Terminate
- Electrical Switchgear & UPS Equip
- Electrical Light Fixtures
- Electrical Trim & Test
- Rough-In Elect Fire Alarm
- Temperature Controls Wire & Trim
- Security System Wire & Trim
- Switchgear
- Transformers
- Generators
- Distribution Panels
- UPS System
- Fire Alarm Panels

CSI Division 17: Close out

- First Cleaning
- Contract Work Completed
- Trade Damage Repair
- Final Painting and Touch Up
- PCL Punchlist and Correction
- Second Cleaning
- Owner Punch List identification
- Owner Punch List Correction
- Final Cleaning
- Owner Acceptance
- Owner Install Fixtures, furnishings, and equipment

Send questions or comments to: Mike Haponiuk **Target Audience:** PCL family of companies

Publication Date: 10/04/2004

Publisher: Mike Haponiuk

Printer Friendly Version