

About the CTC:

- ☑ This Construction Task Catalog® (CTC) was developed and customized by The Gordian Group, Inc. specifically for **Humboldt State University**, priced locally using current labor, material and equipment costs, and published in October 2020.
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MasterFormat™

- ☑ The Tasks in this CTC are organized using CSI's *MasterFormat*.



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The Unit Prices Include:

LABOR COSTS:

- ☑ Labor costs include direct labor through the working foreperson level at straight-time prevailing wage rates including fringe benefits and an allowance for Social Security, Medicare taxes, worker's compensation, unemployment insurance, and employee benefits.
- ☑ Labor costs include unloading equipment, materials, and tools, and transporting the same up or down 2 stories and 125' to reach the project site; layout; measuring and cutting to fit; performing the Task;

disposal of excess material; and time for lunch and breaks.

EQUIPMENT COSTS:

- ☑ Equipment costs include all equipment required to accomplish the Task.
- ☑ Mobilization is included for all equipment except large equipment (e.g. cranes, bulldozers, excavators, backhoes, bobcats etc.), which exclude mobilization.
- ☑ Equipment costs include all operating expenses such as fuel, electricity, lubricants, etc.

MATERIAL COSTS:

- ☑ Material costs include the cost of the material, delivery, and all incidentals and accessories integral to the installation.
- ☑ Material costs include manufacturer's and/or fabricator's shop drawings.
- ☑ Material costs for roofing, drywall, VCT, carpet, wall covering, ceiling tile, pipe, conduit, concrete, etc. include an allowance for waste. This list is not intended to be all inclusive, but descriptive of the types of construction materials that are typically sold in standard lengths, sizes and weights.
- ☑ Material costs for imported materials (e.g. aggregate, sand, soil, etc.) include delivery up to 15 miles from the closest approved source.

The Adjustment Factors Include:

The Adjustment Factors include the following costs, unless specifically excluded by the terms of the Contract Documents:

BUSINESS COSTS:

- ☑ Office overhead, including, but not limited to, office space, office equipment, office and management personnel, office supplies, and employee transportation.

Using The Construction Task Catalog®

- Insurance and bonding.
- Profit.
- Job Order development services, Owner meetings, and other administrative services required by the Contract Documents.
- Subcontractor's overhead and profit.
- Cost of financing the work.
- Business risks such as the risk of a lower than expected volume of work, smaller than anticipated Job Orders, poor Subcontractor performance, and inflation or material cost fluctuations.

PROJECT RELATED COSTS:

- Project trailer, equipment and supplies, and portable toilets for Contractor's use.
- Project management and project supervision.
- Services required to complete project filings and obtain permits.
- Preparation and modification of sketches, drawings, submittals, as-built drawings, project photographs and other project records.
- Incidental engineering and architectural services.
- Gang boxes and storage containers for Contractor's tools, equipment and materials.
- Basic safety and warning signage, minor barricades (e.g., construction tape, etc.) and personnel safety equipment (e.g., hard hats, safety harnesses with lifeline or cabling, protective clothing, safety glasses, face shields, etc.).
- Meeting Owner's security requirements.
- All taxes for which a waiver is not available including material sales tax and equipment rental.
- Removing and returning Owner's furniture and furnishings (e.g. chairs, tables, pictures, etc. but excluding modular furniture, furnishings fastened to the wall or floor, safes and other furniture requiring disassembly).
- Sealing windows, doors and other openings with plastic to contain construction dust and debris within the work area, or to protect existing surfaces.

- Working in extreme temperatures (below or above normal) or adverse conditions such as rain, wind, sleet or snow.
- Costs resulting from inadequate supply of building materials, fuel, electricity, or skilled labor.
- Daily clean-up.
- Final professional clean-up.

PRICE VARIATIONS:

- Contractors may experience direct costs that are different than the unit prices set forth in the CTC. While diligent effort was made to provide accurate, unit prices, it is the Contractor's responsibility to review and analyze the unit prices, and to calculate, prior to bidding, the Adjustment Factors accordingly.

SUMMARY:

- This list is not exhaustive and is intended to provide general examples of costs to be included in the Contractor's Adjustment Factors.
- The only compensation to be paid to the Contractor for Tasks will be:

Unit Price	X	Quantity	X	Adjustment Factor
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- No additional payments of any kind whatsoever will be made.
- All costs in excess of the unit prices, must be included in the Adjustment Factors.

General Rules:

- Unit prices are for complete and in-place construction and include all labor, equipment and material required to complete the Task as described in the CTC.
- All labor, material, equipment, spare parts, and documents required by a Technical Specification shall be considered included in the unit price, unless the Task description states otherwise.

- ☑ If the Contractor uses a crane or other lifting equipment (except a truck mounted boom lift or other equipment as part of the delivery process) to lift material onto a roof, even if that roof is less than 2 stories, the Contractor will be paid for such crane or lifting equipment as a separate Task.
- ☑ Unit prices include all fasteners such as anchor bolts, lag bolts, screws, adhesive, wedge anchors, expansion bolts, roofing clips (excluding hurricane clips) required. Fasteners listed separately in the CTC are for use with Owner furnished material and equipment or for relocating or reinstalling existing material and equipment.
- ☑ Unit prices exclude more substantial mounting material such as threaded rod or angle iron unless the Task description states otherwise.
- ☑ Unit prices for doors and windows, duct work, plumbing fixtures, seamless floors, countertops, roof flashing, pitch pockets, skylights, roof curbs, exterior trim, etc. include sealant and caulking.
- ☑ Unit prices include testing, calibrating, balancing, start-up services and the like required to ensure proper installation, construction and performance of the work (e.g. compaction test for backfill, balancing of heating ventilation and air conditioning, pneumatic or hydrostatic testing, soaping of joints, disinfection and flushing of water lines, etc.). Contractor may be paid for testing, calibrating, balancing, start-up services and the like for Owner supplied materials and equipment, or when working on or tying into existing materials and equipment.
- ☑ For the purpose of calculating the quantity of a Task, quantities are calculated on a per project basis. The quantity so determined shall be used for the Task and all appropriate modifiers, unless the Task states otherwise.
- ☑ Whenever there are alternative Tasks that may be selected to complete work, the Contractor shall select the most practical and economical Tasks available (e.g. rental of equipment by weeks or months rather than days, or painting by roller or spray rather than brush).

DEMOLITION:

- ☑ Unit prices for demolition include all labor, equipment and material required for the complete removal of the items; clean-up of the area; and transporting the demolished items up or down 2 stories into a truck, dumpster, or to an Owner designated area, located within 125' of the project site.
- ☑ Unit prices for demolition exclude costs for hauling (See 01741900), dump fees (See 01741900), dumpsters (See 01741900), and trash chutes (See 01741900).
- ☑ If the item being demolished is attached to another item being removed and can be removed as one item, then that item shall not be priced as a separate demolition Task, unless the component must be demolished separately to accomplish the work (e.g. demolition of pipe includes pipe fittings unless the fitting must be demolished separately to accomplish the work; demolition of a wood door includes hinges, hardware, closures, kick plates, etc.).
- ☑ The word "replace" includes removal of the existing item and installation of the new item.
- ☑ The words "remove and relocate" or "remove and reinstall" include removal, cleaning, and installation of the existing item in either the same location or another location.
- ☑ Salvageable materials are the property of the Owner and shall, if directed, be turned over to the Owner.

WORKING HEIGHT:

- ☑ Typical working height for work other than masonry is up to 14' above the finished floor or stationary working surface. The Contractor will not be paid for scaffolding, lifts, or similar equipment for work below 14'.
- ☑ Typical working height for masonry work is up to 4' above the finished floor or stationary working surface. The Contractor will not be paid for scaffolding, lifts, or similar equipment for masonry work below 4'.

FIELD ENGINEERING:

- ☑ Surveying Tasks shall be used only when the Owner requests the Contractor to perform topographic surveys, property line surveys or to establish horizontal and vertical control points. If the Owner provides horizontal and vertical control points within or adjacent to the project site, all other surveying required to complete the work shall be considered construction staking or layout, and the cost thereof is included in the appropriate Tasks.

ASSEMBLIES:

- ☑ Assembly Tasks take precedence over individual component Tasks.

RESTRICTED AND CONFINED SPACES:

- ☑ Restricted Working Space is defined as any area with less than 3' vertical or horizontal clearance and includes areas such as crawl spaces, ceiling plenums where the grid is not removed, narrow piping tunnels, and equipment rooms where the space to install the new work is congested as a result of equipment and piping placement that meet these dimensional restrictions. A Restricted Working Space modifier is available for certain mechanical piping and piping accessories Tasks and for certain electrical conduit and conduit accessories Tasks. Only those Tasks with a modifier for Restricted Working Space are eligible for a price adjustment, and then only if the modifier applies to the contemplated Tasks. A Non-Prepriced Task will not be allowed because of Restricted Working Space for any Task.
- ☑ The Code of Federal Regulations (29 CFR part 1926, Subpart AA) define confined spaces and permit-required confined spaces for construction and set forth requirements, procedures and safety precautions for working in such spaces. If the Contractor must work in a confined space or a permit-required confined space and must provide ventilation equipment, air monitoring equipment and services, entry attendants, entry supervisors, site-specific training for workers, or other equipment and

services required by the regulations, then the Contractor shall be paid for such equipment, services and training. Those costs shall not be included in the Adjustment Factors.

Or Equals:

- ☑ Whenever material, products, or equipment is identified in the CTC, or in the Technical Specifications, by reference to a manufacturer's name, make or model number, the identification is intended to establish a standard. Any material, product, or equipment of another manufacturer may be considered an or-equal provided that, in the opinion of the Owner, the material, product, or equipment so proposed is of equal quality, substance and function to the named item. The Contractor shall not install any proposed material, product, or equipment without the prior written approval of the Owner. The burden of proof, and all costs related thereto, concerning whether the proposed material, product, or equipment is an or-equal, shall be borne by the Contractor.

Useful Information:

UNIT OF MEASURE DEFINITIONS:

ACR – Acre, **BAG** – Bag, **BBL** – Barrel, **BCY** - Bank (In-place) Cubic Yards, **BF** - Board Foot, **BOX** - Box (each), **BTU** - British Thermal Unit, **C** - One Hundred, **CCF** - One Hundred Cubic Feet, **CCY** - Compacted Cubic Yards, **CF** - Cubic Foot, **CFM** - Cubic Feet Per Minute, **CI** – Cubic Inch, **CLF** - One Hundred Linear Feet, **CSF** - One Hundred Square Feet, **CSY** - Hundred Square Yards, **CWT** - Hundred Weight, **CY** - Cubic Yard, **CYM** - Cubic Yard Mile, **DAY** – Day, **DRM** - Drum (each), **EA** – Each, **FLR** - Floor (Per Floor), **FT** – Foot, **GAL** – Gallon, **GSF** - Ground Square Foot, **HR** – Hour, **HWT** - Hundred Carton Weight, **HYR** – Half Year, **IN** – Inch, **JOB** – Job, **LAN** – Lane, **LB** – Pound, **LCY** - Loose (Excavated) Cubic Yards, **LF** - Linear Foot, **LFD**

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- Linear Feet Per Day, **LIT** – Liter, **LOT** – Lot, **MBF** - One Thousand Board Feet, **MBH** - One Thousand British Thermal Units, **MCF** – One Thousand Cubic Feet, **MF3** - One Thousand Cubic Feet Per Minute, **MGL** – One Thousand Gallons, **MI** – Mile, **MLF** - One Thousand Linear Feet, **MO** – Month, **MSF** - One Thousand Square Feet, **MSY** - One Thousand Square Yards, **MT** – Metric Ton, **MTK** – Metric Ton Kilometer, **M2** – Square Meter, **M3K** – Cubic Meter Kilometer, **NTE** – Note, **OPN** – Opening, **OUT** - Outlet or Output (each), **OZ** – Ounce, **PKG** – Package, **PNT** – Point, **PR** – Pair, **QT** – Quart, **ROL** - Roll (each), **ROM** – Room, **ROW** – Row, **RSR** - Riser (Per Rise), **SEA** – Seat, **SET** – Set, **SF** - Square Foot, **SHT** – Sheet, **SI** - Square Inch, **STP** - Stop (each), **SQ** - Square or One Hundred Square Feet, **SY** - Square Yard, **SYI** – Inches per Square Yard, **TNM** - Tons per Mile, **TON** – Ton, **TRK** – Truck Load, **UI** - United Inch, **UNT** – Unit, **VLf** - Vertical Linear Foot, **WK** – Week, **YD** – Yard, **YR** – Year

Clay	3220	2150	3570
Gneiss	4550	2720	3180

BULK FACTORS FOR DEMOLITION:

The following bulk factors shall be used to calculate the volume of demolished material to be transported from the project site.

- **Asphalt** = 1.25
- **Concrete** = 1.40

CONVERSIONS:

1 Acre = 43,560 Square Feet = 4046.8 Square Meters

1 Board Foot = 12" x 12" x 1" = 144 Cubic Inches

1 Centimeter = 0.3937 Inches = 0.0328 Feet

1 Cubic Foot = 0.03704 Cubic Yards = 0.02832 Cubic Meters

1 Cubic Meter = 1.3080 Cubic Yards = 35.3147 Cubic Feet

1 Cubic Yard = 27 Cubic Feet = 0.7646 Cubic Meters

1 Foot = 12 Inches = 0.3048 Meters

1 Inch = 2.54 Centimeters = 0.0254 Meters

1 Kilogram = 2.2046 Pounds

1 Kilometer = 0.6214 Miles = 3280 Feet

1 Meter = 100 Centimeters = 3.2808 Feet

1 Mile = 5280 Feet = 1.6093 Kilometers

1 Pound = 0.4536 Kilograms

1 Square Foot = 144 Square Inches = .0929 Square Meters

1 Square Meter = 1.1960 Square Yards = 10.7639 Square Feet

1 Square Yard = 9 Square Feet = 0.8361 Square Meters

MATERIAL WEIGHTS:

EARTHEN MATERIAL

The following engineering values for establishing shrink/swell factors shall be used unless otherwise directed by the Owner.

Material	Material Weight (Lbs Per CY)		
	In-place (Bank)	Loose (Excavated Materials)	Compacted
Earth, Common (Average)	3170	2536	3520
Sand	2880	2590	3240
Earth, Rock Mix. (75% E/ 25% R)	3380	2370	3720
Earth, Rock Mix. (50% E/50% R)	3750	2710	4000
Earth, Rock Mix. (25% E/ 75% R)	4120	3140	3680
Gravel (Average)	3280	2730	3570
Limestone	4380	2690	3220
Riprap Rock (Average)	4500	2610	3150
Granite	4540	2640	3170
Basalt	4950	3020	3640

1 Ton = 2000 Pounds = 907.185 Kilograms

1 Yard = 3 Feet = 0.9144 Meters

TRADEMARKS

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Sheet Metal Thickness (inches)				
Gage No.	Steel Sheet	Galvanized Steel Sheet	Stainless Steel Sheet	Aluminum Sheet
10	.135	.138	.141	
11	.120	.123	.125	
12	.105	.108	.109	
13	.090	.093	.094	.072
14	.075	.079	.078	.064
15	.067	.071	.070	.057
16	.060	.064	.063	.051
17	.054	.058	.056	.045
18	.048	.052	.050	.040
19	.042	.046	.044	.036
20	.036	.040	.038	.032
21	.033	.037	.034	.028
22	.030	.034	.031	.025
23	.027	.031	.028	.023
24	.024	.028	.025	.020
25	.021	.025	.022	.018
26	.018	.022	.019	.017

STANDARD GEOMETRY:

Circle

- Circumference = $2 \pi \text{ radius} = \pi \text{ diameter}$
- Area = $\pi \text{ radius}^2 = \pi (\text{diameter}^2 / 4)$

Cylinder

- Volume = $(\pi \text{ radius}^2) \text{ height}$
- Surface Area = $2 \pi \text{ radius}^2 + (2 \pi \text{ radius}) \text{ height}$

Sphere

- Volume = $(4 \pi \text{ radius}^3) / 3$
- Surface Area = $4 \pi \text{ radius}^2$

$\pi = 3.14159$

United Inch

- The industry standard for measuring windows is the United Inch or UI. The UI is determined by adding the width and the height in inches.