Estimating Process

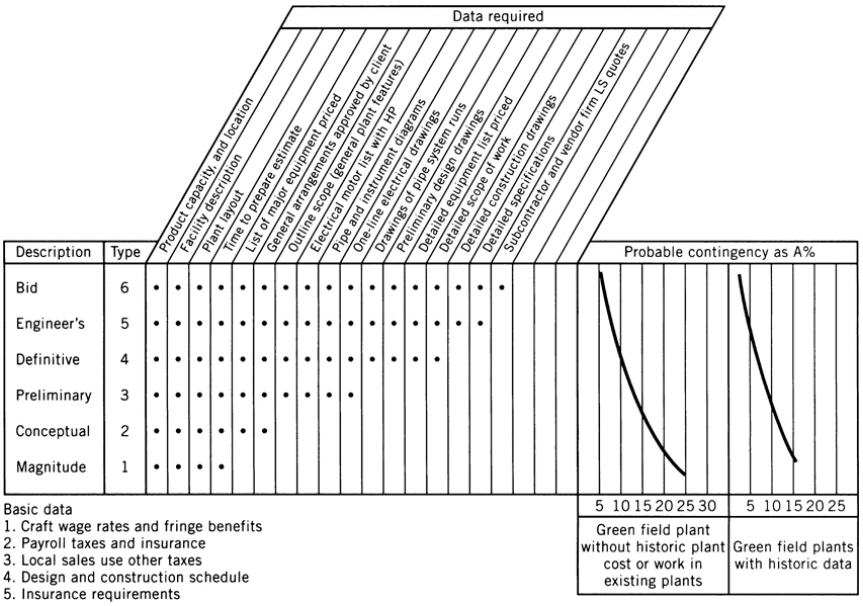
Agenda

- Definition of estimating
- What is estimating in construction?
- Cost variable in construction
- Types of estimates
- Conceptual estimate
- Detailed estimate
- Avoiding Errors in Estimates

ESTIMATING CONSTRUCTION COSTS

- The key to a good job and successful cost control is the development of a good estimate as the basis for bid submittal.
- Estimating is the process of looking into the future and trying to predict project costs and resource requirements.
- To minimize errors, a consistent procedure or set of steps for preparing an estimate is needed to minimize errors and achieve reliable results.

TYPES OF ESTIMATES



TYPES OF ESTIMATES

Type	When?	How?
Conceptual	Prior to the commencement of design	A representative unit is multiplied by a price per unit to obtain a gross estimate (± 10% accuracy) of the facility cost.
Preliminary	40% completion of the total design	By the architect or architect/engineer to reflect expected costs based on more definitive data.
Engineer	Detail design is accomplished	• Total job cost minus markup • Should achieve approximately ±3% accuracy.
Bid	Bidding phase	• On the basis of the bidding documents, • Include a markup for profit.

Building Cost Index History (1923-2005)

▸ HOW ENR BUILDS THE INDEX: **68.38 hours of skilled labor** at the 20-city average of bricklayers, carpenters and structural ironworkers rates, plus **25 cwt of standard structural steel shapes** at the mill price prior to 1996 and the fabricated 20-city price from 1996, plus **1.128 tons of portland cement** at the 20-city price, plus **1,088 board ft of 2x4 lumber** at the 20-city price.

ANNUAL AVERAGE														
1923	186	1946	262	1969	790									
1924	186	1947	313	1970	836									
1925	183	1948	341	1971	948									
1926	185	1949	352	1972	1048									
1927	186	1950	375	1973	1138									
1928	188	1951	401	1974	1205									
1929	191	1952	416	1975	1306									
1930	185	1953	431	1976	1425									
1931	168	1954	446	1977	1545									
1932	131	1955	469	1978	1674									
1933	148	1956	491	1979	1819									
1934	167	1957	509	1980	1941									
1935	166	1958	525	1981	2097									
1936	172	1959	548	1982	2234									
1937	196	1960	559	1983	2284									
1938	197	1961	568	1984	2417									
1939	197	1962	580	1985	2428									
1940	203	1963	594	1986	2483									
1941	211	1964	612	1987	2541									
1942	222	1965	627	1988	2598									
1943	229	1966	650											
1944	235	1967	676											
1945	239	1968	721											

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL AVG.
1989	2615	2608	2612	2615	2616	2623	2627	2637	2660	2662	2665	2669	2634
1990	2664	2668	2673	2676	2691	2715	2716	2716	2730	2728	2730	2720	2702
1991	2720	2716	2715	2709	2723	2733	2757	2792	2785	2786	2791	2784	2751
1992	2784	2775	2799	2809	2828	2838	2845	2854	2857	2867	2873	2875	2834
1993	2886	2886	2915	2976	3071	3066	3038	3014	3009	3016	3029	3046	2996
1994	3071	3106	3116	3127	3125	3115	3107	3109	3116	3116	3109	3110	3111
1995	3112	3111	3103	3100	3096	3095	3114	3121	3109	3117	3131	3128	3111
1996	3127	3131	3135	3148	3161	3178	3190	3223	3246	3284	3304	3311	3203
1997	3332	3333	3323	3364	3377	3396	3392	3385	3378	3372	3350	3370	3364
1998	3363	3372	3368	3375	3374	3379	3382	3391	3414	3423	3424	3419	3391
1999	3425	3417	3411	3421	3422	3433	3460	3474	3504	3505	3498	3497	3456
2000	3503	3523	3536	3534	3558	3553	3545	3546	3539	3547	3541	3548	3539
2001	3545	3536	3541	3541	3547	3572	3625	3605	3597	3602	3596	3577	3574
2002	3581	3581	3597	3583	3612	3624	3652	3648	3655	3651	3654	3640	3623
2003	3648	3655	3649	3652	3660	3677	3684	3712	3717	3745	3766	3758	3694
2004	3767	3802	3859	3908	3955	3996	4013	4027	4103	4129	4128	4123	3984
2005	4112	4116	4127										

BASE: 1913=100.

Construction Cost Index History (1918-2005)

► HOW ENR BUILDS THE INDEX: **200 hours of common labor** at the 20-city average of common labor rates, plus **25 cwt of standard structural steel shapes** at the mill price prior to 1996 and the fabricated 20-city price from 1996, plus **1.128 tons of portland cement** at the 20-city price, plus **1,088 board ft of 2x4 lumber** at the 20-city price.

ANNUAL AVERAGE					
1918	189	1942	276	1966	1019
1919	198	1943	290	1967	1074
1920	251	1944	299	1968	1155
1921	202	1945	308	1969	1269
1922	174	1946	346	1970	1381
1923	214	1947	413	1971	1581
1924	215	1948	461	1972	1753
1925	207	1949	477	1973	1895
1926	208	1950	510	1974	2020
1927	206	1951	543	1975	2212
1928	207	1952	569	1976	2401
1929	207	1953	600	1977	2576
1930	203	1954	628	1978	2776
1931	181	1955	660	1979	3003
1932	157	1956	692	1980	3237
1933	170	1957	724	1981	3535
1934	198	1958	759	1982	3825
1935	196	1959	797	1983	4066
1936	206	1960	824	1984	4066
1937	235	1961	847	1985	4066
1938	236	1962	872	1986	4201
1939	236	1963	901	1987	4406
1940	242	1964	936	1988	4519
1941	258	1965	971		

BASE: 1913=100.

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL AVG.
1989	4580	4573	4574	4577	4578	4599	4608	4618	4658	4658	4668	4685	4615
1990	4680	4685	4691	4693	4707	4732	4734	4752	4774	4771	4787	4777	4732
1991	4777	4773	4772	4766	4801	4818	4854	4892	4891	4892	4896	4889	4835
1992	4888	4884	4927	4946	4965	4973	4992	5032	5042	5052	5058	5059	4985
1993	5071	5070	5106	5167	5262	5260	5252	5230	5255	5264	5278	5310	5210
1994	5336	5371	5381	5405	5405	5408	5409	5424	5437	5437	5439	5439	5408
1995	5443	5444	5435	5432	5433	5432	5484	5506	5491	5511	5519	5524	5471
1996	5523	5532	5537	5550	5572	5597	5617	5652	5683	5719	5740	5744	5620
1997	5765	5769	5759	5799	5837	5860	5863	5854	5851	5848	5838	5858	5826
1998	5852	5874	5875	5883	5881	5895	5921	5929	5963	5986	5995	5991	5920
1999	6000	5992	5986	6008	6006	6039	6076	6091	6128	6134	6127	6127	6059
2000	6130	6160	6202	6201	6233	6238	6225	6233	6224	6259	6266	6263	6221
2001	6281	6272	6279	6286	6285	6318	6404	6389	6391	6397	6410	6390	6334
2002	6462	6462	6502	6480	6512	6532	6605	6592	6589	6579	6578	6563	6538
2003	6581	6640	6627	6635	6642	6694	6696	6733	6741	6771	6794	6782	6695
2004	6825	6861	6957	7017	7064	7109	7126	7188	7298	7314	7312	7308	7115
2005	7297	7298	7309										

Example 1: A 5M GPD desalinization plant was constructed in 1995 at a cost of 20M. What would be the cost of 15M GPD in 2005, if the cost capacity factor is 0.37, and Desalinization Index DI_{2005}=107, and DI_{1995}=99.

Cost-Capacity formula is of the form : $\frac{C_1}{C_2} = \left(\frac{Q_1}{Q_2}\right)^x$, *where* $x = \cos t - capacity\ \ factor\ (<1)$

$$C_2 = C_1\left(\frac{Q_2}{Q_1}\right)^x = 20\left(\frac{15}{5}\right)^{0.37} = 20 \bullet 3^{0.37} = 30M$$

*C_2(now) = 30*107/99 = 32.4M*

Example 2: You are required to submit an estimate for 6m high, 3000 m² warehouse construction. You looked up your cost file and found that you had built an 8m high, 2500 m² for 2.5M, 7 years ago when the cost index was 120. If the cost index is now 165, what is your cost estimate per cubic meter?

*Cost/m³(-7) = 2,500,000/(8*2,500) = 125*

*Cost/m³ (Now) = 125*165/120 = 171.88*

*Estimate = 171.88*6*3000 = 3,093,840*

DETAILEDESTIMATE DEVELOPING STEPS

1. Break the project into cost centers.

2. Estimate the quantities required for cost centers that represent physical end items (e.g., cubic yards of earth, lineal feet of pipe, etc.). For physical systems this pro-cedure is commonly called *quantity takeoff.* For those cost centers that relate to nonphysical items, determine an appropriate parameter for cost calculation (e.g., the level of builder's risk insurance required by the contract or the amounts of the required bonds).

ESTIMATE DEVELOPING STEPS (Cont'd)

3. Price out the quantities determined in step 2 using historical data, vendor quotations, supplier catalogs, and other pricing information. Price development for physical work items may require an analysis of the production rates to be achieved based on resource analysis. If this analysis is used, the estimator must:
   a. Assume work team composition to include number of workers (skilled and un-skilled) and equipment required.
   b. On the basis of team composition, estimate an hourly production rate based on the technology being used.
   c. Make an estimate of the efficiency to be achieved on this job, considering site conditions and other factors.
   d. Calculate the effective unit price.
4. Calculate the total price for each cost center.

Typical Estimate Summary Sheet

Jefferson Starship Contractors, Inc.
ESTIMATE SUMMARY
Estimate No. 6692 By: DWH Date: 1 August 2xxx
Owner: NASA Project: Admin Building

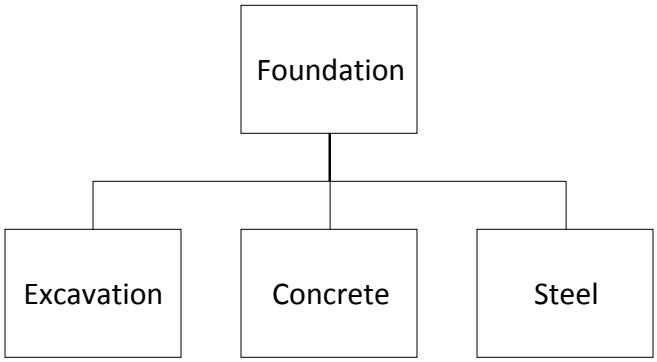
Code	Description	MH	Labor	Material	Sub	Owner	Total
01	Site improvements						
02	Demolition						
03	Earthwork						
04	Concrete						
05	Structural steel	1,653	18,768	15,133			33,901
06	Piling						
07	Brick & masonry						
08	Buildings						
09	Major equipment	2,248	26,059	1,794			27,853
10	Piping	2,953	34,518	57,417	1,500	34,541	127,976
11	Instrumentation				33,000		33,000
12	Electrical				126,542		126,542
13	Painting				14,034		14,034
14	Insulation				4,230		4,230
15	Fireproofing			530	1,110		1,640
16	Chemical cleaning						
17	Testing						
18	Const. equipment					35,666	35,666
19	Misc. directs	1,008	10,608	2,050		2,000	14,658
20	Field extra work						
Sub Total Direct Cost		7,862	89,953	76,924	180,416	72,207	419,500
21	Con. tools/sup.			7,361			7,361
22	Field payroll/burden					16,580	16,580
23	Start-up asst.						
24	Ins. & taxes					5,268	5,268
25	Field sprvsn.	480	7,200			2,038	9,238
26	Home off. exp.					2,454	2,454
27	Field emp. ben					10,395	10,395
Sub Total Indirect Cost		480	7,200	7,361		36,735	51,296
Adjustment Sheets							
Total Field Cost		8,342	97,153	84,285	180,416	108,942	470,796
28	Escalation						
29	Overhead & profit		8,342	5,057	9,021	10,190	32,610
30	Contingency						18,076
31	Total Project Cost						521,482

QUANTITY TAKEOFF (SURVEYING)

- The development of the quantities of work to be placed in appropriate units (e.g., square feet, cubic yards, etc.).
- The procedures employed by the estimator to calculate these quantities should incorporate steps to minimize errors.
- Five of the most common errors experienced during quantity takeoff are:

1. Arithmetic: Errors in addition, subtraction, and multiplication
2. Transposition: Mistakes in copying or transferring figures, dimensions, or quantities
3. Errors of omission: Overlooking items called for or required to accomplish the work
4. Poor reference: Scaling drawings rather than using the dimensions indicated
5. Unrealistic waste or loss factor.

Work Breakdown Structure WBS



Work packages

- *A work* package *is a well-defined scope of work that usually terminates in a deliverable product.*
- *Each package may vary in size but must be a measurable and controllable unit of work to be perform.*
- *It also must be identifiable in a numerical accounting system in order to permit capture of both budgeted and actual performance information.*
- *A work package is a cost center.*

CSI MasterFormat 95™ Titles for Divisions 1-16

1. GENERAL REQUIREMENTS
2. SITE CONSTRUCTION
3. CONCRETE
4. MASONRY
5. METALS
6. WOOD AND PLASTICS
7. THERMAL AND MOISTURE PROTECTION
8. DOORS AND WINDOWS
9. FINISHES
10. SPECIALTIES
11. EQUIPMENT
12. FURNISHINGS
13. SPECIAL CONSTRUCTION
14. CONVEYING SYSTEMS
15. MECHANICAL
16. ELECTRICAL

Division Numbers and Titles

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

Division 00	Procurement and Contracting Requirements

SPECIFICATIONS GROUP

GENERAL REQUIREMENTS SUBGROUP

Division 01	General Requirements

FACILITY CONSTRUCTION SUBGROUP

Division 02	Existing Conditions
Division 03	Concrete
Division 04	Masonry
Division 05	Metals
Division 06	Wood, Plastics, and Composites
Division 07	Thermal and Moisture Protection
Division 08	Openings
Division 09	Finishes
Division 10	Specialties
Division 11	Equipment
Division 12	Furnishings
Division 13	Special Construction
Division 14	Conveying Equipment
Division 15	*Reserved*
Division 16	*Reserved*
Division 17	*Reserved*
Division 18	*Reserved*
Division 19	*Reserved*

FACILITY SERVICES SUBGROUP

Division 20	*Reserved*
Division 21	Fire Suppression
Division 22	Plumbing
Division 23	Heating, Ventilating, and Air Conditioning
Division 24	*Reserved*
Division 25	Integrated Automation
Division 26	Electrical
Division 27	Communications
Division 28	Electronic Safety and Security
Division 29	*Reserved*

SITE AND INFRASTRUCTURE SUBGROUP

Division 30	*Reserved*
Division 31	Earthwork
Division 32	Exterior Improvements
Division 33	Utilities
Division 34	Transportation
Division 35	Waterway and Marine Construction
Division 36	*Reserved*
Division 37	*Reserved*
Division 38	*Reserved*
Division 39	*Reserved*

PROCESS EQUIPMENT SUBGROUP

Division 40	Process Integration
Division 41	Material Processing and Handling Equipment
Division 42	Process Heating, Cooling, and Drying Equipment
Division 43	Process Gas and Liquid Handling, Purification, and Storage Equipment
Division 44	Pollution Control Equipment
Division 45	Industry-Specific Manufacturing Equipment
Division 46	*Reserved*
Division 47	*Reserved*
Division 48	Electrical Power Generation
Division 49	*Reserved*

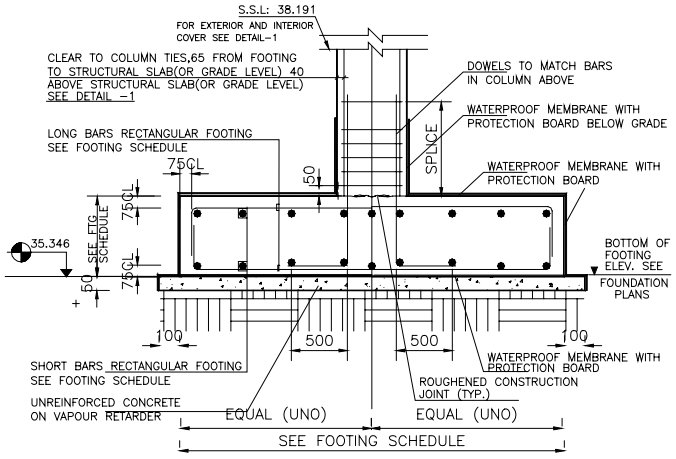
Division 3 – Concrete

1. Concrete:
   - Plain Concrete
   - Reinforced Concrete: Substructure
   - Reinforced Concrete: Superstructure
2. Formwork
   - Foundations
   - Columns
   - Beams
   - Slabs
3. Reinforcing Steel

Plain Concrete

- Concrete is classified by type, strength, and location
- Concrete volume is measured from detailed drawings in cubic meters, rounded to the nearest 0.5 meter
- Concrete Mat
- Foundation (Spread, Continuous, Raft)
- Pedestal
- Grade Beams
- Shear Walls
- Slab on grade
- Columns
- Beams
- Slabs
- Retaining Structures
- Stairs & Landings
- Use 5-10% waste factor

Foundation Details

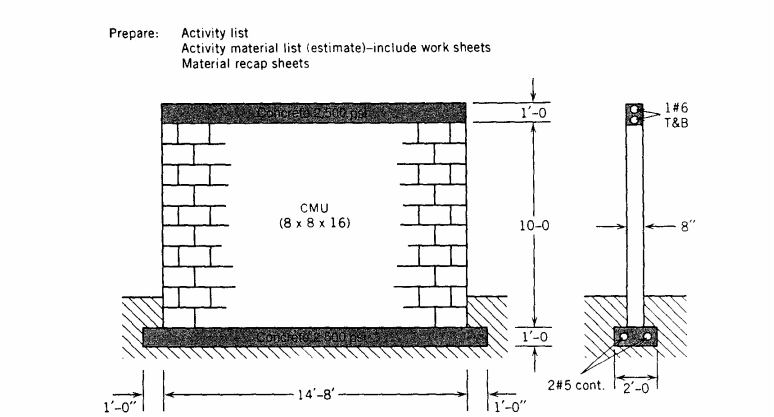


ASTM Standard Reinforcing Bars

Soft Metric Size	Nom Diam mm	Area mm^2	Weight Factors kg/m
10	9.5	71	.560
13	12.7	129	.994
16	15.9	199	1.552
19	19.1	284	2.235
22	22.2	387	3.042
25	25.4	510	3.973
29	28.7	645	5.060
32	32.3	819	6.404
36	35.8	1006	7.907
43	43.0	1452	11.384
57	57.3	2581	20.239

Bar Size	(kg/m)	Area (mm^2)
6	0.222	28.3
8	0.395	50.3
10	0.617	78.5
12	0.888	113
14	1.21	154
16	1.58	201
20	2.47	314
25	3.85	491
28	4.83	616
32	6.31	804
40	9.86	1257
50	15.4	1963

Prepare: Activity list
Activity material list (estimate)–include work sheets
Material recap sheets



Small Wall Construction

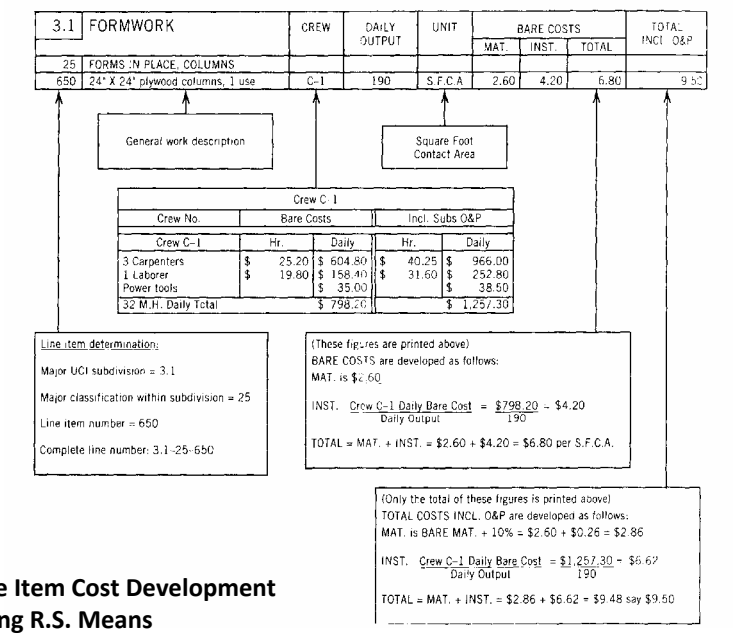
Activity Material List

Project _____

Activity code	Activity description	Material description	Quantity	Unit	Cost code
1	Layout	Stakes 2 x 4 x 24 8 ea.	10.3	BF	0100
3	Place rebar	#5 st. 2 PCS @ 2	32.3	LF	0320
		Tie wire	1	Roll	0320
4	Cost and cure	footing			
		Concrete	1.23	CY	0330
		Curing compound	.25	Gal	0337
5	Erect CMU wall				
		CMU 8 x 8 x 16 stretcher	143	Ea	0412
		CMU 8 x 8 x 16 corner	14	Ea	0412
		CMU 8 x 8 x 16 corner	16	Ea	0412
		Scaffolding 4 x 4' x 6'	2	Sec.	0100
		Mortar	.27	CY	0412
7	Form bond beam				
		2 x 4 (4 – 15' – 0")	43.5	BF	0310
		2 x 2	12.7	BF	0310
		1 x 2	2.0	BF	0310
		3/4" ext ply	60.3	SF	0310
		Snaptites 8"	24	Ea	0310
		Nails 8a	1.5	Lb	0310
		Nails 6a	.4	Lb	0310
		Form oil	.07	Gal	0310
8	Place bond beam rebar				
		#6 rebar (str.)	28.67	LF	0320
9	Cost and cure	Bond beam			
		Concrete	.35	CY	0330
		Curing compound	.05	Gal	0337
10	Strip forms and rub bond beam				
		Grout	1	CF	0339.2

Unit Price

- If the work is fairly standard, the cost can be calculated by simply taking *dollar per unit* cost from company records and applying this cost with a qualitative correction factor to the quantity of work to be performed.
- Unit pricing values are available in many standard estimating references:
  - R. S. Means Company, *building Construction Cost Data*
  - F. R. Walker's The *Building Estimator's Reference Book*
  - *The* Richardson *General Construction Estimating Standards*

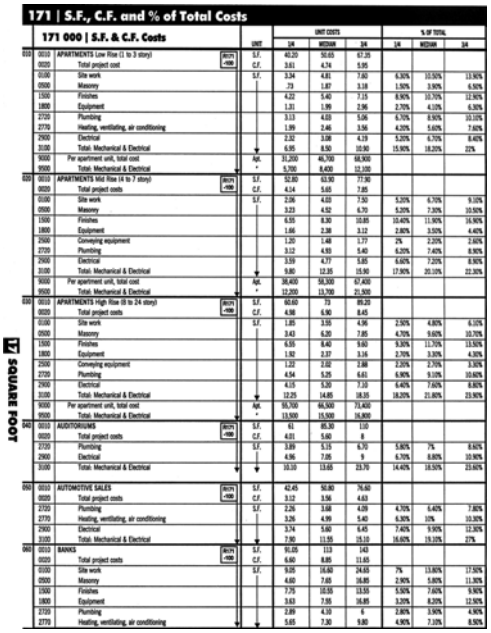


Line Item Cost Development Using R.S. Means

Figure 13.1 (p. 206)

Costs based on a representative unit.

(From *Building Construction Cost Data*. Copyright Reed Construction Data, Kingston MA 781-585-7880 all rights reserved.)



171 | S.F., C.F. and % of Total Costs

171 000 | S.F. & C.F. Costs

			UNIT	UNIT COSTS 1/4	UNIT COSTS MEDIAN	UNIT COSTS 3/4	% OF TOTAL 1/4	% OF TOTAL MEDIAN	% OF TOTAL 3/4
010	0010	APARTMENTS Low Rise (1 to 3 story)	S.F.	40.20	50.65	67.35			
	0020	Total project cost	C.F.	3.61	4.74	5.95			
	0100	Site work	S.F.	3.34	4.81	7.60	6.30%	10.50%	13.90%
	0500	Masonry		.73	1.87	3.18	1.50%	3.90%	6.50%
	1500	Finishes		4.22	5.40	7.15	8.90%	10.70%	12.90%
	1800	Equipment		1.31	1.99	2.96	2.70%	4.10%	6.30%
	2720	Plumbing		3.13	4.03	5.06	6.70%	8.90%	10.10%
	2770	Heating, ventilating, air conditioning		1.99	2.46	3.56	4.20%	5.60%	7.60%
	2900	Electrical		2.32	3.08	4.19	5.20%	6.70%	8.40%
	3100	Total: Mechanical & Electrical		6.95	8.90	10.90	15.90%	18.20%	22%
	9000	Per apartment unit, total cost	Apt.	31,200	40,700	68,900			
	9500	Total: Mechanical & Electrical	"	5,700	8,400	12,100			
020	0010	APARTMENTS Mid Rise (4 to 7 story)	S.F.	52.80	63.90	77.90			
	0020	Total project costs	C.F.	4.14	5.65	7.05			
	0100	Site work	S.F.	2.06	4.03	7.50	5.25%	6.70%	9.10%
	0500	Masonry		3.23	4.52	6.70	5.20%	7.30%	10.50%
	1500	Finishes		6.55	8.30	10.85	10.40%	11.90%	16.90%
	1800	Equipment		1.66	2.38	3.12	2.80%	3.55%	4.40%
	2500	Conveying equipment		1.20	1.48	1.77	2%	2.20%	2.60%
	2720	Plumbing		3.12	4.93	5.40	6.35%	7.40%	8.90%
	2900	Electrical		3.59	4.77	5.85	6.60%	7.35%	8.90%
	3100	Total: Mechanical & Electrical		9.80	12.35	15.90	17.90%	20.10%	22.30%
	9000	Per apartment unit, total cost	Apt.	38,400	58,300	67,400			
	9500	Total: Mechanical & Electrical	"	12,200	13,700	21,500			
030	0010	APARTMENTS High Rise (8 to 24 story)	S.F.	60.60	73	89.20			
	0020	Total project costs	C.F.	4.98	6.90	8.45			
	0100	Site work	S.F.	1.85	3.55	4.96	2.50%	4.80%	6.10%
	0500	Masonry		3.43	6.20	7.85	4.70%	9.60%	10.70%
	1500	Finishes		6.55	8.40	9.60	9.30%	11.70%	13.50%
	1800	Equipment		1.92	2.37	3.16	2.70%	3.30%	4.30%
	2500	Conveying equipment		1.22	2.02	2.88	2.25%	2.70%	3.30%
	2720	Plumbing		4.54	5.25	6.61	6.90%	9.10%	10.60%
	2900	Electrical		4.15	5.30	7.10	6.40%	7.60%	8.80%
	3100	Total: Mechanical & Electrical		12.25	14.85	18.35	18.20%	21.80%	23.90%
	9000	Per apartment unit, total cost	Apt.	59,700	66,500	73,400			
	9500	Total: Mechanical & Electrical	"	13,900	15,500	16,800			
040	0010	AUDITORIUMS	S.F.	61	85.50	110			
	0020	Total project costs	C.F.	4.01	5.60	8			
	2720	Plumbing	S.F.	3.89	5.15	6.70	5.90%	7%	8.60%
	2900	Electrical	"	4.96	7.05	9	6.70%	8.60%	10.90%
	3100	Total: Mechanical & Electrical	"	10.10	13.65	23.70	14.40%	18.50%	23.60%
050	0010	AUTOMOTIVE SALES	S.F.	42.45	58.80	76.60			
	0020	Total project costs	C.F.	3.12	3.98	4.63			
	2720	Plumbing	S.F.	2.26	3.68	4.09	4.70%	6.40%	7.80%
	2770	Heating, ventilating, air conditioning		3.26	4.99	5.40	6.30%	10%	10.30%
	2900	Electrical		3.74	5.60	6.45	7.40%	9.90%	12.30%
	3100	Total: Mechanical & Electrical	"	7.90	11.95	15.10	16.60%	19.10%	27%
060	0010	BANKS	S.F.	91.05	113	143			
	0020	Total project costs	C.F.	6.60	8.85	11.65			
	0100	Site work	S.F.	9.05	16.60	24.65	7%	13.80%	17.50%
	0500	Masonry		4.60	7.65	10.85	2.90%	5.80%	11.30%
	1500	Finishes		7.75	10.55	13.55	5.50%	7.60%	9.90%
	1800	Equipment		3.63	7.55	16.85	3.20%	8.20%	12.50%
	2720	Plumbing		2.89	4.10	6	2.60%	3.90%	4.90%
	2770	Heating, ventilating, air conditioning		5.65	7.30	9.80	4.90%	7.10%	8.90%

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Avoiding Errors in Estimates

- The accuracy of an estimate is a measure of how accurate or correct the numbers in the estimate are
- The completeness of an estimate is a measure of whether the bid has all the items needed for the project without duplicating items

Avoiding Errors in Estimates

- List Cost Codes
- Spend More Time on Large Costs
- Prepare Detailed Estimates
- Mark Items Counted During the Quantity Takeoff

Avoiding Errors in Estimates

- Double Check All Takeoffs
- Include Units in Calculations
- Automate with Spreadsheets
- Use Well Tested and Checked Formulas
- Double Check All Calculations

Avoiding Errors in Estimates

- Perform Calculations in Two Ways
- Drop the Pennies
- Have Someone Review the Estimate
- Review Each Cost Code as a Percentage of the Total Costs

Avoiding Errors in Estimates

- Check Unit Costs for Each Cost Code
- Compare Costs to another Project
- Allow Plenty of Time

Questions