Illinois Department of Revenue
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Instructions for Industrial Schedules

The information in this publication is current as of the date of the publication. Please visit our web site at **tax.illinois.gov** to verify you have the most current revision.

The contents of this publication are informational only and do not take the place of statutes, rules, or court decisions. For many topics covered in this publication, we have provided a reference to the Illinois Property Tax Code for further clarification or more detail. All of the sections and parts referenced can be found at 35 ILCS 200/1 *et seq*.

Contents

About this publication

Pub-127, Instructions for Industrial Schedules, is issued according to Section 8-5 of the Property Tax Code which states, "The Department shall confer with, advise, and assist local assessment officers relative to the performance of their duties."

This publication includes schedules for industrial buildings by square foot (SF) cost, pre-engineered steel building shells, component-in-place (CIP) method, and grain elevators. The pricing schedules here have been developed to help assessors estimate the replacement cost of typical industrial structures. The assessor's professional judgement still greatly affects the outcome of this system.

Acronyms used in this publication

BPA	Base price adjustment
CIP	Component-in-place
LB	Load bearing
RCN	Replacement cost new
REL	Remaining economic life
SF	Square foot
SFFA	Square foot of floor area
SFGA	Square foot ground area
SFSA	Square foot surface area
WH	Wall height

Note: For definitions of common construction terms used in this publication, see Publication 124, Construction Terminology.

Industrial Square Foot Schedule Instructions

The industrial square foot schedule was designed from the component-in-place (CIP) schedules. This was accomplished by constructing hypothetical model buildings of a variety of wall types combined with a variety of structural frames. The model buildings were of varying dimensions with a 20' wall height on the first story and 12' wall heights on upper stories. The roof design was flat. In structural framed buildings, the frame bay sizes did not exceed 1,200 SF.

The components included with all buildings at the same cost rate were

- site preparation and excavation
- concrete grade slab floor construction
- average interior construction
- footings and foundations
- exterior doors
- heating and cooling
- lighting and electrical
- minimal floor finish
- roof drains
- typical plumbing service and fixtures

To the above constant cost, several combinations of exterior wall construction, structural frame types, and roof structures were added. The square foot costs for each variation were analyzed to derive a typical square foot cost for buildings with either of three basic types of wall construction or one of the types of framing.

A single square foot price for a subject building is extracted from the schedule by correlating the story (1st, 2nd, or upper) and the framing type (load-bearing, wood post and beam, ordinary steel columns and beams, or concrete columns and beams), with the exterior wall treatment (brick or stone, block or concrete panel, steel panel, or comparable).

Note: Adjustments to the base price may be necessary for building shape, size, and wall height. Additions and deductions for size, and wall height variations are included at the bottom of the base price schedule. Other additions (extra plumbing fixtures, extensive office enclosures, mezzanines, power wiring, extensive partitioning, basement construction, docks, and yard and outside improvements, etc.) to the base price may be necessary. Some of these items can be priced from the subsidiary schedules that follow the base price schedules. It may be necessary to refer to the CIP schedules in this publication to price other items.

Primary base price adjustments

1 **Wall height variation —** The amount of this adjustment is 1 or 2 percent per foot of wall height variation. The schedule includes a standard wall height of 20' for the 1st story and 12' for the upper stories. If a subject building's wall varies from these dimensions, make an adjustment to the initial floor base price for each story of the building and then write the amount on the PRC.

Example: 18' brick walls on conc. blk and steel framing

	$173.05	1st floor base price
x	.96	4% decrease for 2' wall height variation
	$ 166.13	adj. 1st floor base price

The following steps will be chain-multiplied to arrive at a base price adjustment factor.

2 **Adjustment for size —** It usually costs less (per unit) to build a larger area than a smaller one. It is sometimes necessary to adjust the base cost to account for building size. Various sizes and appropriate adjustment factors are shown on the base price adjustments table in the industrial cost schedules.

3 **Shape adjustment —** Make an adjustment for shape to account for area or perimeter ratio variations. It costs less to build a square box than a rectangular box of the same area and volume because the rectangular box will have a larger wall area. The building shape table is provided to adjust the base price for these variations for wall to floor area ratio. The process for shape adjustment follows.

a Multiply the length by the width of the subject property to determine the building's SFGA.

b Add the length of the building's exterior walls to calculate the perimeter of the subject building. To calculate an effective perimeter for party walls, an adjustment of 60 percent is necessary for the length of any party wall (common wall between two buildings).

c Divide the SFGA by the effective perimeter to find the wall ratio.

d Select the corresponding shape adjustment factor from the appropriate building shape adjustment table.

Example: Refer to the manufacturing shape adjustment table and use wall ratio of 40 to find a shape adjustment factor of 1.03.

Note: When multiple adjustments are necessary, adjust any variation in height before you write the floor price in the computation ladder (Step 1). Then, add each adjusted floor price to obtain a base price per SFGA for the entire building. Next, adjust the base price for size, shape, and construction weight by applying a base price adjustment (BPA) factor (Steps 2 through 3). Make this adjustment in the computation ladder space designated as BPA. An example of a multiple adjustment is shown below.

Example

Step 1

$173.05	1st floor base price
x .96	height adj. factor
$166.13	1st floor adjusted price

Step 2 - Step 3

1.0	size adjustment
x 1.03	shape adjustment
1.03	BPA factor

Step 4

$166.13	1st floor adjusted base price
x 1.03	BPA factor
$171.11	adjusted base price

Manufacturing Square Foot Schedules

The cost figures shown are for one-story and multi story industrial buildings. First story wall height is 20ft. to eaves. Upper story wall height is 12 ft. In each cost category the price includes excavation, footings and foundation, floor construction and finish, framing, roof structure and cover, exterior wall construction, heating and cooling, electrical and lighting, average interior walls and 4% - 7% office space, door, roof drains, sprinkles and typical plumbing service. Add for all other features, such as excessive interior walls, enclosures, etc., from subsidiary schedules or from CIP schedules.

Adjustments for wall heights, size, and building shape are applicable to base prices selected from this schedule. Also a quality grade assignment and factor is necessary and applicable to the total cost estimate derived from the use of this schedule.

The base price is derived by correlating the framing type and story with the visible exterior wall treatment with the correct story and size. Adjust wall height for 6,500 to 15,000 SF 2% for each 1 foot variation and 20,000 to 60,000 SF 1%.

Manufacturing/Plant Buildings (cost per SF)

Story	Wall ht.	Exterior wall	Framing	6,500	10,000	15,000	20,000	25,000	30,000	40,000	50,000	60,000
First Story	20’	Face brick common	Steel frame	197.55	175.15	165.90	156.30	151.35	146.40	141.60	139.20	135.80
		Brick backup	Conc. frame	186.46	164.10	155.25	142.30	138.85	135.40	132.05	129.95	126.05
		Face brick conc.	Steel frame	194.60	173.05	164.60	155.40	150.45	145.45	143.55	139.00	136.05
		Block backup	Conc. frame	183.20	161.65	153.20	144.00	139.00	134.00	131.60	129.60	126.30
			Load bearing	179.75	160.60	152.30	142.95	138.85	134.25	132.05	127.90	125.10
		Stucco on	Steel frame	183.20	161.20	156.95	148.95	144.75	140.50	136.40	133.80	131.55
		conc. block	Conc. frame	171.60	152.85	145.50	137.50	133.30	129.05	125.20	122.80	121.00
		Concrete block	Steel frame	125.50	123.65	120.20	116.95	113.70	109.40	106.75	104.95	103.15
			Load bearing	123.85	120.30	116.85	113.60	110.35	106.05	103.45	101.70	99.90
		Precast conc. panels	Steel frame	133.85	130.25	126.75	122.75	118.75	113.60	110.15	108.15	106.15
		Insulated mtl panels	Steel frame	130.60	126.30	122.15	118.95	115.75	110.10	108.25	106.30	104.35
		Tilt-up conc. panels	Steel frame	132.70	128.30	124.50	120.90	117.30	112.30	109.40	107.35	105.30
Second Story	12’	Face brick common	Steel frame	159.90	145.80	139.45	133.20	129.60	127.00	123.55	120.20	118.30
		brick backup	Conc. frame	149.35	135.30	127.80	120.35	119.10	116.55	113.25	110.00	108.30
		Face brick conc.	Steel frame	157.10	143.80	138.10	132.35	128.50	126.10	122.85	119.65	117.90
		block backup	Conc. frame	146.25	132.95	127.25	121.50	117.60	115.25	111.95	108.80	106.85
		Stucco on conc. blk.	Steel frame	146.05	135.40	130.80	126.20	123.20	121.40	118.85	116.35	114.65
			Conc. frame	135.25	124.60	120.00	115.35	112.35	110.55	107.95	105.45	103.95
Third Story	12’	Face brick common	Steel frame	168.30	153.45	146.80	140.20	136.40	133.70	130.05	126.50	124.50
		Brick backup	Conc. frame	157.20	142.40	134.55	126.70	125.35	122.70	119.20	115.80	114.00
		Face brick conc.	Steel frame	165.35	151.35	145.35	139.30	135.25	132.75	129.30	125.95	124.10
		Block backup	Conc. frame	153.95	139.95	133.95	127.90	123.80	121.30	117.85	114.50	112.45
		Stucco on conc.	Steel frame	153.75	142.40	137.70	132.85	129.70	127.80	125.10	122.45	120.70
		Block	Conc. frame	142.35	131.15	126.30	121.40	118.25	116.35	113.65	111.00	109.40

Manufacturing/plant building adjustments for height and shape adjustments

Basement Additions
For unfinished basement add $33.15 per square foot of basement area.

Height Adjustments									
Square footage	6,500	10,000	15,000	20,000	25,000	30,000	40,000	50,000	60,000
Add or deduct from base cost per 1’	2%	2%	2%	1%	1%	1%	1%	1%	1%

Manufacturing building shape adjustment table Wall Ratio = SF ÷ perimeter											
Wall ratio	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Adjustment factor	1.31	1.28	1.26	1.23	1.21	1.20	1.18	1.17	1.15	1.14	1.13
Wall ratio	**26**	**27**	**28**	**29**	**30**	**32**	**34**	**36**	**38**	**40**	**45**
Adjustment factor	1.12	1.11	1.10	1.10	1.09	1.07	1.06	1.05	1.04	1.03	1.01
Wall ratio	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**
Adjustment factor	1.00	0.99	0.98	0.97	0.96	0.96	0.95	0.95	0.94	0.94	0.93

Warehouse Square Foot Schedules

The cost figures shown are for a 1-story industrial warehouse building. The wall height is 24 ft. to eaves. In each cost category the price includes excavation, footings & foundation, floor construction and finish, framing, roof structure and cover, exterior wall construction, heating and cooling, electrical and lighting, average interior walls and small, 3 to 8 percent, office space, doors, roof drains, sprinklers and typical plumbing service. Add for all other features such as excessive interior walls, enclosures, *etc.*, from subsidiary schedules or from CIP schedules.

Adjustments for wall height, size, and building shape are applicable to base prices selected from this schedule. Also a quality grade assignment and factor is necessary and applicable to the total cost estimate derived from the use of this schedule.

The base price is derived by correlating the framing type and story with the visible exterior wall treatment with the correct size.

Warehouse buildings (cost per SF of floor)

Exterior wall	Framing	10,000	15,000	20,000	25,000	30,000	35,000	40,000	50,000	60,000
Tilt-up conc. panels	Steel frame	121.80	111.80	106.30	101.35	98.55	96.75	95.35	93.55	90.80
Brick with block backup	Bearing walls	137.25	122.75	116.20	109.00	105.05	102.55	100.70	98.05	93.15
Concrete block	Steel frame	116.60	108.75	105.15	101.35	99.25	97.90	96.95	95.50	93.45
	Bearing walls	112.35	104.40	100.75	96.90	94.75	93.40	92.40	90.95	88.85
Galvanized steel siding	Steel frame	126.10	117.55	113.70	109.50	107.15	105.75	104.55	103.10	100.70
Metal sandwich panels	Steel frame	126.80	117.05	112.60	106.75	105.05	103.35	102.15	99.35	97.55
Story ht. adj. add or deduct	Per 1 foot	1%	1%	1%	1%	1%	1%	1%	1%	1%

For unfinished basement add $28.45 per SF of basement area.

Warehouse building shape adjustment table

Wall ratio	15	16	17	18	19	20	21	22	23	24	25
Adjustment	1.31	1.28	1.23	1.21	1.20	1.18	1.16	1.12	1.10	1.05	1.00
Wall ratio	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**36**	**38**
Adjustment	1.00	.99	.98	.97	.96	.95	.95	.94	.93	.93	.92
Wall ratio	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**90**	**100**
Adjustment	.92	.91	.91	.90	.90	.90	.89	.87	.88	.88	.87

Mini Warehouse Schedules

The cost figures shown are for a 1-story mini warehouse or self storage industrial building. The wall height is 12' to eaves. In each cost category, the cost includes evacuation, footage and foundation, floor construction, and finish, framing, roof structure and cover, exterior wall construction, unit heaters, electrical service, water heater, toilet, and wash basin, sprinkler systems, and interior partitions separating rental units. Add for all other features such as climate control or air conditioning, office enclosure, etc., from subsidiary schedules or from CIP schedules. Adjustments for wall height and building shape are applicable to base costs selected from this schedule. Also, a quality grade assignment and factor is necessary and applicable to the total cost estimate derived from the use of this schedule.

The base cost is derived by correlating the framing type with the visible exterior wall treatment with the correct size.

Mini warehouse buildings (cost per SF of floor)

Exterior wall	Framing	2,000	3,000	5,000	8,000	12,000	20,000	30,000	50,000	100,000
Concrete block	Steel	181.85	159.00	140.80	130.45	124.75	120.15	117.95	116.00	114.75
	Load bearing	158.85	144.95	133.95	127.65	124.25	121.50	120.05	118.95	118.10
Metal sandwich panel	Steel	156.25	141.00	128.85	122.00	118.20	115.15	113.70	112.80	111.50
Tilt-up concrete panel	R/concrete	170.60	155.75	143.95	137.25	133.55	130.65	129.10	127.95	127.05
Precast concrete panel	Steel	158.90	143.05	130.45	123.30	119.30	116.15	114.80	113.35	112.35
	Concrete	180.65	163.75	150.25	142.60	138.45	135.05	133.75	132.00	130.95
Metal siding	Wood pole	116.45	104.65	96.20	91.55	89.05	87.10	85.85	85.15	84.40
Story ht. adj. add or deduct	Per 1 ft.	2%	2%	1%	1%	1%	1%	1%	1%	1%

Mini warehouse building shape adjustment table

Wall ratio	15	16	17	18	19	20	21	22	23	24	25
Adjustment	1.31	1.28	1.23	1.21	1.20	1.10	1.05	1.02	1.00	1.00	.99
Wall ratio	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**36**	**38**
Adjustment	.99	.99	.98	.97	.96	.95	.95	.94	.93	.93	.92

Industrial Subsidiary Schedules

Fire escapes

Counterbalanced	
Two story building	$7,870
Each additional flight	3,725

Balcony and stairs	
Steel balcony - 2' wide (per LF)	$ 228
- 3' wide (per LF)	285
Steel stairs - 3' wide (per flight)	3,665

Ladders	Per VLF
Steel, bolted to bldg.	
w/cage	$161
w/o cage	88
Aluminum, bolted to bldg.	
w/cage	208
w/o cage	118

Fire sprinkler system

Sprinkler costs include all interior heads, supply lines, and accessories. Wet system piping contains water at all times; dry pipe system contains air under pressure and is used in those unheated areas where freezing might be encountered. For dry pipe systems, add 10% to the wet system prices. Exterior pipe, alarm systems, and fire pumps should be added to the costs below.

Area serviced	Cost per SFSA	
	Ordinary hazard*	Extra hazard**
Through 1,000 SF	$8.40	$11.20
1,001 - 2,000	8.65	10.85
2,001 - 5,000	5.70	8.60
5,001 - 10,000	5.30	7.90
over 10,000	4.75	7.95

*Ordinary hazard occupancies include stores, commercial, offices, garages, factories, warehouses, *etc.*
**Extra hazard occupancies include aircraft hangers, chemical works, linoleum manufacturing, paint shops, and varnish works, solvent extracting, *etc.*

Quality

	+50	338%	C		100%
	+25	281%		-5	95%
	+10	248%		±10	90%
AA		225%		+5	86%
	+40	210%	D		82%
	+30	195%		-5	78%
	+20	180%		-10	74%
	+10	165%		-20	66%
	+5	158%		-30	57%
A		150%	E		50%
	-5	143%		-10	45%
	±10	135%		-20	40%
	+5	128%		-30	35%
B		122%		-40	30%
	-5	116%		-50	25%
	±10	110%			
	+5	105%			

Retaining walls

Prices are for exposed face area and includes concrete footing 3' below grade.

Type		Per LF
Concrete block	6' high	$174.85
	8'	278.50
	10'	385.35
Reinforced concrete	6' high	307.80
	8'	368.10
	10'	519.45

Doors (industrial)

Type	Per SFDA
Steel roll-up	$ 23.25
Fiberglass overhead	25.40
Wood panel overhead	18.05
Steel	
rolling	27.00
overhead	15.65
vertical lift electric	118.00
Add for electric operation	
roll-up door	13.95
overhead	13.00
rolling	14.20

Walk-in	Per SFDA
Metal clad	
ind. swinging single leaf	62.80
ind. swinging double leaf	59.80
office swinging single leaf	40.55

Fire doors	Per SFDA
Rolling	46.90
Swinging	51.70
Add for electric operation each	1,880.00

Office enclosures (Per SF)

Grade	Finished	
	Divided	Open
Economy	$28.45	$20.50
Average	45.95	33.20
Good	56.05	40.45
Excellent	73.95	53.35

Over 2,500 SF build from CIP schedules

Note: Finished divided costs include suspended ceilings with grid, average lighting and electrical service, wood or metal framed perimeter and partitions with painted drywall office doors, and average carpet.
Except for interior partitions, finished open cost include the same items as finished divided costs.

Industrial Subsidiary Schedules

Plumbing

The typical fixture cost is for sinks, water closets, tubs, water heaters, urinals, etc. The cost includes amounts for the fixture, water supply, waste, and vent lines. Exterior piping to the building is not included.

Typical fixtures

Residential Type 1	Commercial Type 2	Industrial Type 3	Specialty Type 4
$1,775	$2,600	$3,410	see below

Specialty fixtures

	Each	
Drinking fountain		
floor	$ 2,060	
wall	1,690	
Electric water cooler	1,720	
Laundry tub		
single	1,525	
double	1,675	
Sump pump	415	
Janitor's sink	2,695	
Emergency shower or face wash	1,050	
Cast iron trough sinks		
4 faucet, 48"	2,465	
8 faucet, 96"	4,135	
Add for stainless steel	20%	
	36"	54"
Circular wash sinks		
polished cement	$ 4,055	$ 4,665
terrazzo	4,185	4,795
enameled steel	4,665	5,195
stainless steel	4,980	5,725
	36"	54"
Semi-circular wash sinks		
polished cement	$ 3,575	$ 4,080
terrazzo	3,790	4,345
enameled steel	4,260	4,715
stainless steel	4,585	5,165
	Enameled steel	Stainless steel
Column showers		
circular (per shower head)	$ 590	$ 815
semi-circular (per shower head)	785	1,075
Single stall shower		
w/receptor & curtain hanger	$ 890	
w/receptor & hinger door	1,110	

Note: Above prices do not include partitions

Mezzanines (cost per SFFA)

Mezzanine costs include the framing support system, the floor system, stairways, and lighting. Where applicable typical partitioning, floor, wall, and ceiling finishes are also included. A height adjustment is not applicable to the mezzanine cost. Mezzanines created by a structural floor over interior partitions should be priced by using appropriate CIP schedules for each construction and/or finish component.

Mezzanine finish	Construction	
	Steel framed	Concrete framed
Unfinished	$38.10	$42.50
store, display (finished open) storage	64.00	71.10
Office (finish divided)	85.85	95.90

For wood framed mezzanines use 65% of the steel costs.

Basement walls (includes footings)

Wall const.	Thickness	Height	Per LF
Reinforced concrete	8"	8'	$186.70
		9'	209.95
		10'	233.95
		12'	238.05
	12"	8'	211.85
		9'	238.00
		10'	265.15
		12'	328.40
		16'	436.65
Concrete block	8"	8'	153.10
		9'	172.15
		10'	191.85
		12'	195.20
	12"	8'	173.70
		9'	195.15
		10'	217.40
		12'	269.30
		14'	304.35
		18'	372.30
Brick (solid)	8"	8'	248.30
		9'	280.95
		10'	313.50
		12'	319.99
	12"	8'	283.90
		9'	316.55
		10'	355.30
		12'	440.05
		14'	504.10
	16"	8'	424.50
		9'	471.90
		10'	519.30
		12'	614.10
		14'	707.85

Industrial REL Table Instructions

The REL table is designed to be a guide to determine the loss in value due to physical, functional, and economic depreciation. The REL factor is dependent upon your judgment of condition, desirability, and utility of the subject's improvements. Remember that

- the table is used only when local supportive data is nonexistent. It cannot substitute for actual market data.
- age is a relative thing. A building with an actual age of 15 years may have an effective age of 3 years or 25 years based on physical condition alone. Considering desirability or utility can further reduce or increase the effective age estimate.
- actual age and effective age are the same when physical condition of the improvement is average.

The schedule attempts to relate loss in value due to condition, desirability, and utility (CDU). CDU represents depreciation as

Condition (C) = physical deterioration Desirability (D) = economic obsolescence Utility (U) = functional obsolescence

To use the Industrial REL table, segregate these basic depreciation components into two categories for consideration

- **Condition (C) = age considering physical condition**
- **Desirability and Utility (D and U) = effective age**

Analyze the two categories, and then estimate the effective age that is correlated to an REL factor. This process uses the age/life method of depreciation with an assumed economic life of 45 years.

Using the REL table

To consider the condition of the improvement, inspect the physical condition and compare it to similar improvements of the same age. By making this comparison, you can estimate the effective age according to the improvement's condition. Actual age and effective age are the same when physical condition of the improvement is average. Conditions that substantially differ from the average result in effective ages less than or greater than actual age. Locate this age (actual age considering condition) in the far left-hand column of Schedule A and then correlate it with the appropriate desirability and utility rating column.

When you consider desirability, focus on any loss of value due to economic obsolescence. Economic obsolescence is usually caused by factors outside of the property. Some typical areas to consider are general location, highway access, railroad access, market for manufactured products, labor markets, utility sources, community relations, police and fire protection, competition, financing, taxes, and educational and recreational facilities.

When you consider utility, focus on loss of value caused by functional obsolescence. This obsolescence may be in the form of inadequacy or super-adequacy. For instance, an industrial building with a 20' ceiling height may suffer a loss of value due to functional obsolescence if the market reflects the need for 15' ceilings. The value loss is caused by over-adequacy.

When you consider a rating for utility, consider the following frame bay size, availability of rail siding, number of stories, dock facilities, expansion space, transportation access and egress, parking facilities, ceiling height, adequacy of building fixtures (e.g., lighting, heating, ventilation, plumbing), existing utilities or availability, office area, traffic patterns, and building size.

Average (A) desirability and utility requires that the improvement have the features that are typical for a mercantile business to operate in the building. Lack of economic or functional features results in a less than average rating (i.e., poor [P] or unsound [U]). Additional features that contribute economically or functionally to the improvement result in an above-average rating (i.e., excellent [E] or good [G]) for desirability or utility.

After you assign a desirability and utility rating, correlate the effective age from Schedule A in column one with the appropriate column (e.g., average, good) to reach an effective age that reflects the improvement's CDU. Locate this final estimate of effective age in Schedule B and correlate it with an estimate of REL of the improvement.

Industrial REL Table

Schedule A						Schedule B	
Age* considering physical condition	Effective age considering desirability and utility					REL	
	E	G	A	P	U	Eff. age	REL
1	1	1	1	5	9	1	97.5
2	1	1	2	6	10	2	95
3	1	1	3	7	11	3	92.5
4	1	1	4	8	12	4	90
5	1	1	5	9	13	5	87.5
6	1	2	6	10	14	6	85
7	1	3	7	11	15	7	82.5
8	1	4	8	12	16	8	80
9	1	5	9	13	17	9	77.5
10	2	6	10	14	18	10	75
11	3	7	11	15	19	11	72.5
12	4	8	12	16	20	12	70
13	5	9	13	17	21	13	67.5
14	6	10	14	18	22	14	65
15	7	11	15	19	23	15	62.5
16	8	12	16	20	24	16	60
17	9	13	17	21	25	17	57.5
18	10	14	18	22	26	18	55
19	11	15	19	23	27	19	52.5
20	12	16	20	24	28	20	50
21	13	17	21	25	29	21	47.5
22	14	18	22	26	30	22	45
23	15	19	23	27	31	23	42.5
24	16	20	24	28	32	24	40
25	17	21	25	29	33	25	37.5
26	18	22	26	30	34	26	35
27	19	23	27	31	35	27	32.5
28	20	24	28	32	36	28	30
29	21	25	29	33	37	29	27.5
30	22	26	30	34	38	30	25
31	23	27	31	35	39	31	22.5
32	24	28	32	36	40	32	20
33	25	29	33	37	—	33	17.5
34	26	30	34	38	—	34	15
35	27	31	35	39	—	35	12.5
36	28	32	36	40	—	36	10
37	29	33	37	—	—	37	10
38	30	34	38	—	—	38	10
39	31	35	39	—	—	39	10
40	32	36	40	—	—	over 40	10
41	33	37	—	—	—		
42	34	38	—	—	—		
43	35	39	—	—	—		
44	36	40	—	—	—		
45	37	—	—	—	—		

* Actual age and effective age are the same when physical condition of the improvement is average.

Sample Cost — Industrial building factory and office

Foundation — concrete spread footings, masonry wall foundation

Frame — load-bearing

Walls — 16” block and brick, 448 LF

Floors — 6” concrete

Roof — Flat with steel bar joist, steel decking, and built-up composition roofing

Mechanical features

Electrical — Fluorescent fixtures; rigid conduit wiring
Plumbing — 5 water closets, 3 lavatories, 1 urinal, and 1 water heater
Heat — Suspended space heaters

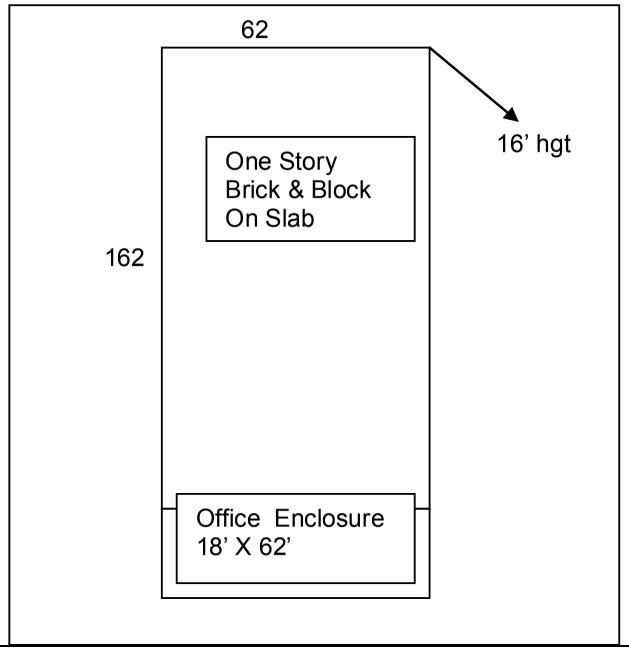
Other features

18’ x 62’ wood office enclosure with good quality finish

A sample PRC is on the following page.

Property Record - Commercial - Industrial

Construction Specifications							Use						Data Bank		Description			Computation
Foundation							Store		Office		Vacant		SF Ground Area	10,044	Flr. Price X Ht. Adj.	WH		
Sprd. Ftg	X	Pile					Apt.		WH		Abandoned		Eff. Perim LF	448			Bsmt.	
Caisson		Other					Factory	X					CF of Bldg.	160,704	160.62 X .92	16	1st Floor	147.75
Wall Framing							No. of Units						SF Wall Area	7,168			2nd Floor	
	B	1	2	3	A		Avg. Unit Size						Wall Ratio	22.42			3rd Floor	
Wood							No. Rooms Per Unit						1 Story	Sched. Comm. SF				
Steel O/FP							Prorated @	% with:										
Reinf. Concrete																Base Price		147.75
Load Bearing		X													Size 1.00 x Shape 1.17 Weight 1.00	BPA		1.17
Frame Bay - Bay Area						N/A										Adj. Base Price		172.87
Floors																Heat		
Wood															No air cond. (included in base cost)	A/C		-5.00
Steel O/FP																Electrical Light		
Reinf. Concrete		X													No sprinkler (included in base cost)	Sprinkler		-4.75
Frame	Wood	Steel	Conc															
Exterior Walls																		
Siding																		
Masonry		X														SF Price		163.12
Steel																SF		10,044
Glass																Subtotal		1,638,377
																Plumbing		
Finish																		
Unfinished		X														Partitions		
Finished Open															400 SF Steel frame glass /alum. Trim			
Finished Divd.		X													372 SF in base adjust 28 SF @ 52.20	Front		
																Canopy		
Heat																Dock		
Cent. Wm. Air																		
Ht. Wt/Steam																		
Unit Heaters		X													S C M I [Grade C			Total 1,638,377
															C&D 1 G 1 NH 1 A 1			FAC1.00
None															Eff. Age 28.00 / Eff. Age 28.00 / CDU Avg / Ag 28	Replacement Cost New		1,638,377
Air Conditioning																		
Central																Depreciation =		
Unit																REL		0.30
																Full Value		**491,513**
None		X																



Summary of Other Buildings

Roofing				Type	No.	Construction	Size	Rate	Grade	Age	CDU	Factor	Repl. Cost New	CDU	Full Value
Composition	X	Shingle													
Slate		Metal													
Frame	Wood	Steel	Conc												
Plumbing Type															
1		2													
3	10 fixtures	4													
				Listed by: FWS									Total full value other buildings		
	Sprinkler			Date: 01/10									Total full value all buildings		491,513

Pre-engineered Steel Building Shell

Schedule explanation

The minimal economic size of pre-engineered steel buildings is 3,000 SF and a typical eave height is 18-20 feet. In recent years, the use of these buildings has expanded from industrial/warehouse to include a wide variety of uses including mercantile and office. Because of this, the basic schedule is designed to price building shells only. Other construction features are to be priced separately from the CIP schedules. The term "building shell" (as used here) refers to the steel frame, including girts and purlins, a roof deck, and exterior wall skin of 26 gauge colored steel. A list of other items that may need pricing includes excavation, knee walls, fill and compaction, footings, foundation, floor interior construction, electrical and lighting, heating and cooling, plumbing, yard and outside improvements, *etc.* Some of these items may be priced from the subsidiary schedules that follow the base price schedules.

In cases where a subject building does not have the wall and/or roof cover described above, a deduction per SF of wall and/or roof area is made, then the existing wall and/or roof is priced using the appropriate CIP schedule.

Pre-engineered Steel Building Shell

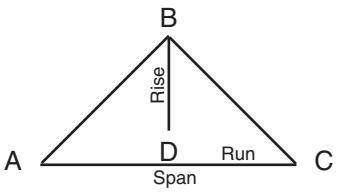
Building type	Typical building widths	Eave height				
		10'	14'	16'	20'	24'
Rigid frame	30 — 40	$ 24.00	$ 26.90	$ 29.20	$ 32.00	$ 36.35
	50 — 100	17.50	24.05	19.90	21.90	24.05
	110	—	23.60	19.50	21.50	23.60
	120	—	23.10	19.10	21.00	23.10
Tapered beam	30	25.20	28.60	30.90	34.90	—
	40	22.65	25.50	27.45	30.35	—
	50 — 80	19.30	21.45	22.35	31.50	—
Column & beam 1 post at center point	80	—	18.50	19.65	21.15	23.45
	100	—	17.10	17.35	19.60	21.30
	120	—	16.70	17.40	18.90	20.55
Column & beam 2 posts at 1/3 points	120	—	15.85	16.45	17.80	19.65
	150	—	15.00	15.50	16.70	18.70
Column & beam 3 posts at 1/4 points	160	—	14.35	15.05	16.70	17.45
	200	—	13.70	14.10	15.10	16.80

For buildings with roof pitch of 4:12 or over add.....5 in 12 8% or 1.08, 6 in 12 12% or 1.12

For buildings of less than 5,000 SF, add 5%

For buildings of over 20,000 SF, deduct 10%

How to calculate roof pitches



Roof pitch is computed from the ratio of the rise to the run and is described as a 4 in 12 pitch, a 5 in 12 pitch, etc. In this cross section, the steepness of distances AB and BC constitutes pitch. Distance (AC) extending from one eave to the other is the span. One-half this distance (AD or DC) is called the run. Distance (BD or DB) is called the rise. The first step is to determine the length of the run and the rise.

Example: known — 50' span (AC) with 12' rise (BD)

1 Convert rise to inches — 12' x 12" per foot = 144".

2 Divide inches of rise (144") by run in feet (25') — 144" ÷ 25' = 5.76 rise, or 6 in 12 pitch.

Pre-engineered Steel Building Shell

Earthwork

Demolition (per CF of building)	$0.55
Site preparation (per SFGA)	0.35
Excavation (per CF earth removed)	0.45
Fill, compacted (per CF of fill)	0.40

Foundation walls (including footings)

Concrete*

Rating	Supported area above foundation	Per LF
Light	Up to 2 stories	$ 91.95
Medium	3 — 6 stories	104.00
Heavy	7 — 10 stories	116.50
X-heavy	Institutional	128.00
Concrete block*		
Medium	1 story	$ 64.50
Heavy	Over 1 story	89.60

Strip footings only (12" deep — without foundation walls)

Width	Per LF
	Reinforced
24"	$ 41.85
32"	48.25
40"	54.05
48"	72.60

*Prices based on 4' wall height — includes asphalt damp proofing.

Office enclosures

Grade	Finish (per SF)	
	Divided	Open
Economy	$ 28.45	$ 20.50
Average	45.95	33.20
Good	56.05	40.45
Excellent	73.95	53.35

Over 2,500 SF Build from CIP schedules

Note: Finished divided costs include suspended ceiling with grid, average lighting and electrical service, wood or metal framed perimeter and partitions with painted drywall, office doors, and average carpet.
Except for interior partitions, finished open costs include the same items as finished divided costs.

Pre-fabricated shop offices

Pre-fabricated aluminum framed booths including doors, floors, lighting, HVAC, *etc.*

Approx. office size	Per SFFA
50 SF	$ 140
80 SF	125
100 SF	110

Heating — ventilation air conditioning (HVAC) (per SFFA)

Prices for HVAC are provided below according to finish or use of the building (or area within the building). The prices were developed on the basis of heating, ventilation, or air conditioning cubic area and then converted to SF costs for the convenience of the assessor. Because of this, it may be necessary to adjust the costs for height. The base height is 14' and 3% of the cost indicated should be added or deducted for each foot of height variation in your subject building.

Type	Comm.	Ind.	Ofc.
Electric baseboard	$4.40	$4.15	$7.00
Electric wall/floor heaters	2.05	2.05	2.85
Heat pump, heat and cool	9.45	7.45	14.55
Forced warm air, central system	4.65	3.50	7.75
Ventilation only w/ducts	1.40	1.05	2.15
Hot water baseboard	8.25	5.80	12.35
radiant floor	7.95	5.80	12.10
Steam radiators			
w/boiler	7.20	5.40	11.50
w/o boiler	5.90	4.45	9.75
Suspended unit heaters			
gas fired	1.90	1.55	2.30
w/steam or hot water coil	3.40	1.75	—
Zoned hot & cold water	19.65	15.00	29.35
Zoned hot & cold air	11.80	8.75	18.65
A/C central forced air	8.50	6.55	11.00

Suspended unit heaters (cost each)

In those instances where a building has a very limited number of individual heating units, the above square foot cost might not be applicable. For a more reasonable cost estimate each individual heater should be priced separately. The costs are provided below and need not be adjusted for story height.

BTU rated capacity	Cost each	BTU rated capacity	Cost each
35,000	$ 1,805	150,000	$ 2,635
75,000	2,115	250,000	3,605
100,000	2,290	400,000	6,010

Electric heaters (cost each)

Infra-red ceiling or wall
1 kw: $530 2 kw: $700 3 kw: $900

Infra-red modular baseboard or wall units
1 kw: $605 3 kw: $1,000 5 kw: $1,150

Ventilators

Roof power driven	Cost each	Roof gravity type	Cost each
12"	$ 655	12"	$ 500
18"	900	24"	1,695
24"	1,155	30"	2,050
30"	1,370	36"	2,420
36"	1,605	48"	3,105
48"	2,010		

For wall mounted power ventilators, deduct 10% from cost of roof power drive ventilators.

Sample Cost — Pre-engineered Building Shell

Foundation — concrete spread footings and concrete wall (light rating)

Frame — steel rigid frame (five 40’ increments)

Walls — enameled corrugated steel, 16’ height, on 8” x 4’ height concrete knee wall, batt insulation has been added to the exterior wall

Floor — 6” concrete slab

Roof — corrugated enameled steel and insulation over purlins

Mechanical features

Electric — scant lighting and electrical in rigid conduit
Plumbing — Three type 3 plumbing fixtures
Heat — adequate number of gas-fired suspended space heaters

Other features

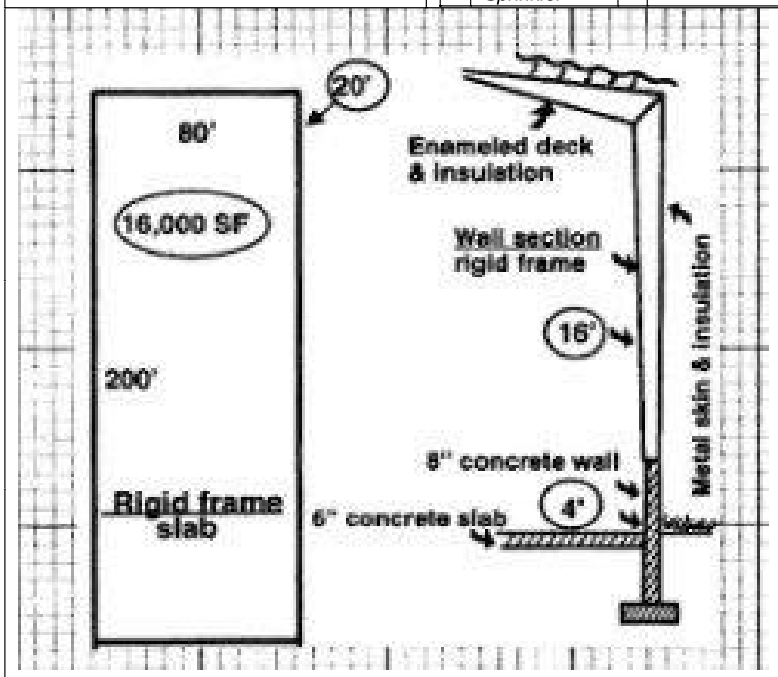
80’ x 4” face brick trim
Two 12’ x 14’ steel panel overhead doors with electric operators;
Two 3’ x 7’ metal doors
350 SF office enclosure with C grade finish (wood-frame partitions)

A sample PRC is on the following page.

Building Record – Component-in-Place

General Construction Specifications

Foundation							Finish						
Sprd. Ftg.	X	Pile					Unfinished		X				
caisson		Other					Finished Open						
							Finished Divd.						
Framing							**Heat**						
	B	1	2	3	A		Cent. Warm Air						
Wood							Hot Water/Steam						
Steel O/FP		Rigid Frame					Unit Heaters		X				
Reinf. Conc.													
Load bearing							None						
							Air Conditioning						
Floors							Central						
Wood							Unit						
Steel O/FP							None		X				
Reinf. Conc.		X											
							Roofing						
Frame	Wood		Steel		Conc.		Composition		Shingle				
Walls							Slate		Metal		X		
Wood							Frame	Wood	Steel	Conc			
Msy. Blk./brk.							**Plumbing Type**						
Steel		X					1		2				
Glass							3	3 fixtures	4				
Concrete		X						Sprinkler					



	Component	Field Description	Cost
PRIMARY COMPONENTS	Site preparation	Earthwork 16,000 SF @ $0.35	$5,600
	Excavation		
	Footings	Spd. Footings 10" conc. lt. rating to 2 stories 560 LF @ $91.95	51,492
	Foundation		
	Frame shell	Rigid frame 16/ 16,000 SF @ $19.90	318,400
	Roof structure		
	Roof cover		
	Exterior walls	8" Concrete (formed) 4' X 560' @ $23.20	51,968
	Exterior walls		
	Doors (2)	12' X 14" Steel OH $15.65 + $13.00 electric operation @ $28.65	9,626
	Doors (2)	3' X 7' metal single walk-in @ $62.80 SFDA	2,638
	Floor constr.	6" Concrete slab 16,000 SF @ $4.70	75,200
	Floor constr.		
INTERIOR CONSTRUCTION	Brick trim	4' X 80' 4" Face brick @ $13.40	4,288
	Partition		
	Partition		
	Office enclosure	350 SF average grade finish open @ $33.20	11,620
	Wall finish		
	Wall finish		
	Insulation	Roof ---- batts or roll 16,000 SF @ $1.75	28,000
	Insulation	Wall ---- batts or roll 16' X 560' @ $0.70	6,272
	Ceilings		
	Ceilings		
	Floor finish		
	Floor finish		
MECH	Electrical	Scant R/C Industrial 16,000 SF @ $1.75	60,800
	Plumbing	3 Type 3 fixtures @ $3,410 each	10,230
	Heating	Suspended unit heaters 16,000 SF @ ($1.55 X 1.18 hgt) = $1.83	29,280
	Ventilation		
	Air condition		
	Sprinkler system		
	Dock		

Data Bank		Use		S C M I	Grade	Total	665,414
SF Ground area	16,000	Store		C 1.00 D G NH A			=FAC 1.00
Eff. Perim LF	560	Factory		Eff. Age	Eff. Age	CDU	Age	Replacement Cost New
CF of Bldg.	320,000	Office		10	10	Avg.	10	$ 665,414
SF Wall Area	11,200	WH	X	Date: 01/2010 FWS				REL 0.75
Wall ratio	28.57 = 29							Full Value
								$ 499,061

Sample Cost — Industrial Building

Foundation — concrete spread footings and 14” concrete wall

Framing — ordinary steel with bay sizes of 24’ x 20’; column height of 16’

Wall construction — curtain wall, 12” concrete block back-up with 4” face brick

Floors — 6” concrete with 656 SF of nylon carpet with pad and 1,344 SF of vinyl asbestos tile

Roof — steel deck and frame with built-up composition cover and insulation

Partitions (office enclosure) — 1,200 SF, 8” block painted on two sides; 1,800 SF, 2” x 4” 16” on center steel stud with ½” drywall painted on two sides

Ceilings — 2,000 SF mineral fiber tile in metal suspension system

Mechanical

Electric — Fluorescent fixtures throughout; average service with wiring in rigid conduit
Heating — manufacturing area has suspended gas-fired unit heaters; office area has a zoned hot/cold air system
Plumbing — eight typical fixtures in industrial area and six typical fixtures in office area

Other features

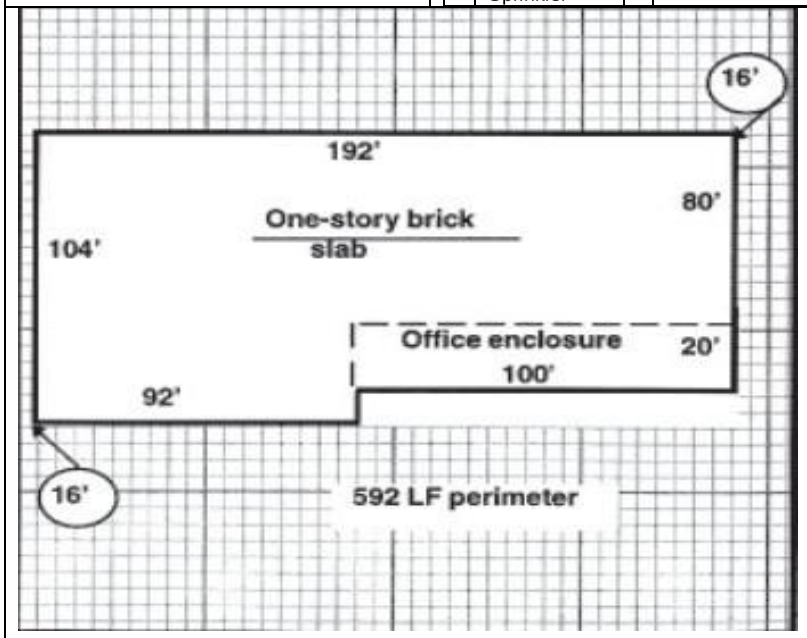
2,000 SF unfinished concrete framed mezzanine
Two 8’ x 12’ steel overhead dock doors, each with electric operator
Two 3’ x 7’ steel walk-in doors
8’ x 8’ aluminum frame glass front with brick
One 3’ x 7’ aluminum-framed glass door

A sample PRC is on the opposite page.

Building Record ☐ Component-in-Place

General Construction Specifications

Foundation							Finish					
Sprd. Ftg.	X	Pile					Unfinished		X	Plant		
caisson		Other					Finished Open					
							Finished Divd.		X	Office		
Framing							**Heat**					
	B	1	2	3	A		Cent. Warm Air					
Wood							Hot Water/Steam					
Steel O/FP		X					Unit Heaters					
Reinf. Conc.												
Load bearing							None					
Frame Bay							**Air Conditioning**					
Floors							Central		X	Office		
Wood							Unit					
Steel O/FP							None					
Reinf. Conc.		X										
							Roofing					
Frame	Wood		Steel		Conc.		Composition		Shingle			
Walls							Slate		Metal			
Wood							Frame	Wood	Steel	Conc		
Msy. Blk./brk.		X					**Plumbing Type**					
Steel							1		2	6 fixtures		
Glass							3	8 fixtures	4			
Concrete								Sprinkler				



Component		Field Description	Cost
PRIMARY COMPONENTS	Site preparation	Earthwork 19,568 SF @ $0.35	$ 6,849
	Excavation		
	Footings	Spd. Footings 14" conc. lt. rating to 2 stories 592 LF @ $91.95	54,434
	Foundation		
	Frame shell	Ordinary steel frame 19,568 SF @ $8.95 X 1.10 hgt adj. = $9.85	192,745
	Roof structure	Steel frame with steel deck 19,568 SF @ $13.55	265,146
	Roof cover	Built up composition 19,568 SF @ $1.95	38,158
	Roof insulation	Rigid insulation board 19,568 SF @ $2.35	45,985
	Exterior walls	12" Brick with block backup curtain wall 9,472 SF @ $27.10	256,691
	Exterior walls		
	Doors (2)	8' X 12' Steel OH $15.65 + $13.00 electric operation @ $28.65	5,501
	Doors (2)	3' X 7' metal single walk-in @ $62.80 SFDA	2,638
	Glass/brick front	64 SF @ $52.20 SFDA + 3' X 7' alum. Frame door @ $1,600	4,941
	Floor constr.		
	Floor constr.	6" Concrete slab 19,568 SF @ $4.70	91,970
INTERIOR CONSTRUCTION			
	Partition	8" Conc. block paint-2 sides, 120 LF X 10' @ $12.60 + $2.50= $15.10	18,120
	Partition	2' X 4" 16" o.c. steel stud with ½" drywall, painted 2 sides 9' X 200'	
		@ $2.35 + $3.70 + $2.50 = $8.55	15,390
	Wall finish		
	Wall finish		
	Ceilings	Mineral fiber tile with suspension 2,000 SF @ $ 2.25 + $2.25= $4.50	9,000
	Ceilings		
	Mezzanine	Concrete floor unfinished with stairs and safety railing 2,000 SF	85,000
	Floor finish	Nylon carpet with pad – economy grade 656 SF @ $6.65 + $1.30	5,215
	Floor finish	Vinyl tile 1,344 SF @ $3.70	4,973
	Electrical	Average service rigid conduit in Office 2,000 SF @ $15.70	31,400
	Electrical	Average service rigid conduit in Industrial 17,568 SF @ $6.40	112,435
MECH	Plumbing	6 Type 2 fixtures @ $2,600 each and 7 Type 3 fixtures @ $3,410 each	42,880
	Heating	Industrial 17,568 SF @ ($1.55 X 1.06 height adjustment) = $1.64	28,812
	Ventilation		
	Air condition	Office 2,000 SF @ $18.65 (zoned hot and cold air)	37,300
	Sprinkler system		
	Dock		

Data Bank		Use		S C M I	Grade	Total 1,355,583
SF Ground area	19,568	Store		C 1.00 D G NH A		=FAC 1.00
Eff. Perim LF	592	Factory		Eff. Age / Eff. Age / CDU / Age / Replacement Cost New		
CF of Bldg.	313,088	Office		14 / 14 / Avg. / 14 / $ 1,355,583		
SF Wall Area	9,472	WH	X	Date: 01/2010 FWS		REL 0.65
Wall ratio	33					Full Value
						$ 881,129

Memo

Ownership & Mailing Address	Township	Tax Code	Area	Sect.	Block	Parcel	Unit
McCall's Patterns Stupendville, IL 77777			03	30	333	003	0080
	Division		NH Code		Card No. ____ of ____		Condo. Comm.
			Property Class		Land Use		Zoning

Property Address

1 Earthwork: site preparation for building area 19,568 SF
2 Plant eng. in for: ftgs. 2 ½' x 1' spread concrete & foundation 14" concrete walls 32" to top of ftg.
3 Frame ordinary steel w/f column & beams bays typ. size 24' x 20'
4 Roof structure: steel bar joist & corr. steel deck
5 Built-up composition cover & insulation 1 ½"
6 Exterior curtain walls: 12"concrete block with 4" face brick
7 Doors 2: 8' x 12' steel overhead with electric opener; 2 - 3' x 7' steel walk-in
8 Aluminum frame front w/door
9 Floor construction: 6" concrete slab (est.)
10 North & west exterior office partitions: 8" concrete block P-2S 120' x 10' = 1,200 SF
11 Interior office partitions: steel studs ½" drywall & P-2S 200' LF x 9' = 1,800 SF
12 Office ceiling suspended tile mineral fiber
13 Mezzanine: 2,000 SF unfinished concrete framed
14 Office carpet: 2 private offices - nylon carpet & pad 656 SF total
15 Balance of office: floored w/vinyl asbestos tile 1, 344 SF
16 Office & plant displays, adequate lighting & service outlets - all in rigid conduit
17 Office: 2-stool, 2-lav., 1 urinal, 1-w.h.; Plant: 4-stool, 2-lav., 1-urinal, 1-w.h.
18 Office: zoned hot/cold air system; Plant: suspended space heaters

PRC-9 (R-6/99)

Industrial Section
Index of CIP Schedules

CIP Schedules

1 Earthwork

Demolition (per CF of building)	$0.55
Site preparation (per SFGA)	0.35
Excavation (per CF earth removed)	0.45
Fill, compacted (per CF of fill)	0.40

2 Foundation walls (including footings)

Concrete*

Rating	Supported area above foundation	Per LF
Light	Up to 2 stories	$ 91.95
Medium	3 — 6 stories	104.00
Heavy	7 — 10 stories	116.50
X-heavy	Institutional	128.00

Concrete block*

Medium	1 story	$ 64.50
Heavy	Over 1 story	89.50

Strip footings only
(12” deep — without foundation walls)

Width	Per LF Reinforced
24”	$ 41.85
32”	48.25
40”	54.05
48”	72.60

*Prices based on 4’ wall height — includes asphalt damp proofing.

3 Basement walls (including footings)

Wall const.	Thickness	Height	Per LF
Reinforced concrete	8”	8’	$186.70
		9’	209.95
		10’	233.95
		12’	238.05
	12”	8’	211.85
		9’	238.00
		10’	265.15
		12’	328.40
		16’	436.65
Concrete block	8”	8’	153.10
		9’	172.15
		10’	191.85
		12’	195.20
	12”	8’	173.70
		9’	195.15
		10’	217.40
		12’	269.30
		14’	304.35
		18’	372.30
Brick (solid)	8”	8’	248.30
		9’	280.95
		10’	313.50
		12’	319.00
	12”	8’	283.90
		9’	316.55
		10’	355.30
		12’	440.05
		14’	504.10
	16”	8’	424.50
		9’	471.90
		10’	519.30
		12’	614.10
		14’	707.85

4 Piling (cost per LF of piling)

Diameter or Size	Wood untreated	Wood creosote	Pre-cast concrete	Concrete in steel pipe	Concrete in drilled hole	Steel H-column
8”	—	—	—	$ 42.75	—	$39.30
10”	$17.25	$22.45	$ 34.35	52.10	—	51.85
12”	21.65	28.45	43.20	60.75	$ 34.40	65.45
14”	27.20	34.80	52.25	—	—	79.60
16”	33.85	38.70	62.75	77.90	41.20	—
18”	—	—	71.35	94.05	—	—
24”	—	—	102.70	127.45	61.65	—
36”	—	—	—	—	110.55	—
48”	—	—	—	—	199.35	—
Average setup cost	$17,155	$17,155	$26,465	$24,830	—	$18,075

Example:

104 - 10” x 35’ H-column piles (104 x 35’ x $51.85) =	$188,735
Plus average setup cost	$ 18,075
Total cost of pilings	$206,810

CIP Schedules

5 Structural framing (cost per SFFA)

Structural framing costs are provided below by correlation of an approximate frame bay area and the framing construction type. The derived costs are to be applied to all areas of a building that are structurally framed. Cost does not include truss or roof structure. Base prices are for 14' story height, add or deduct 5% for each foot of column height variation. This adjustment is to be made before entering the price in the computation ladder.

Construction material	Frame bay area			
	Through 400 SF	401 SF to 1,200 SF	1,201 SF to 2,000 SF	Over 2,000 SF
Wood post and beam	$ 4.40	$ 5.60	$ 7.05	$ 8.90
Ordinary steel	6.95	8.95	11.50	14.80
Fireproof steel	17.75	20.90	24.60	28.95
Concrete column and beam	16.65	19.45	22.70	25.00
L/B w/interior supports	1.95	2.30	2.80	3.35

6 Roof construction

Structures and decks

Structure	Deck	Per SFRA
Wood structure	Wood	$ 6.25
	Corrugated or ribbed metal	7.55
Steel structure	Wood	7.55
	Corrugated or Ribbed metal	9.15
	Steel cellular	13.55
	Gypsum plank	8.55
	Formed concrete	16.70
	Pre-cast concrete	14.60
	Poured concrete or gypsum on steel deck	11.85
Concrete structure	Formed concrete	11.40
	Pre-cast concrete Joist & deck	13.40

For monitor or sawtooth roof add 40% to above costs.

Trusses (cost each truss)

Span	Steel		Wood	
	Light*	Heavy*	Light*	Heavy*
20'	—	—	$ 1,170	$ 1,525
30'	$3,085	$4,575	—	—
40'	4,140	6,065	2,900	3,920
60'	6,370	9,155	4,745	6,705
80'	7,050	12,310	6,800	9,890
100'	8,545	15,405	9,035	13,260
120'	10,720	18,560	11,425	16,995
140'	—	21,620	13,905	20,950
160'	—	24,755	—	—

*Light trusses are those carrying roof loads only. Heavy trusses are those carrying additional load of hoists or cranes.

The above trusses are for heavy industrial use buildings. When computing a lighter industrial or commercial use building that has wood truss roof construction use the table below.

Wood	Per SFFA
Light duty	$3.30
Heavy duty	5.90

7 Roof cover

Type	Per SF
Aluminum	$ 5.55
corrugated or ribbed shingles	4.10
Asbestos cement (transite)	
corrugated	6.00
shingles	5.90
Built-up comp.	1.95
with gravel surfacing	3.60
Clay tile	15.35
Composition shingles	3.40
Concrete tile	7.10
Copper-flat or standing seam	16.25
Fiberglass-corrugated or sheet	2.70
Lead	10.85
Roll comp.	1.45
Slate	11.10
Steel	
galvanized, corrugated, or ribbed	7.45
porcelain enamel	3.15
Synthetic rubber membrane	3.70
Wood	
shingles	7.20
shakes	7.30

8 Roof insulation (per SF insulation)

Insulation type		Per SFIA
Batts or roll insulation		$ 1.75
Rigid insulation board		2.35
Sprayed foam on deck	1"	2.40
	2"	4.15

Gutter and downspouts

Construction materials	Per LF
Aluminum gutters	10.20
Copper gutters	26.15
Galvanized gutters	9.35
Vinyl gutters	8.25
Aluminum downspouts	7.15
Copper downspouts	16.20
Galvanized downspouts	7.10

CIP Schedules

9 Exterior wall coverings

This schedule starts with the wood or metal studs to which the cost of sheathing, insulation, *etc.*, must be added. For build-up of the interior of the wall, see the interior wall finishes schedule to complete the wall cost.

		Per SFWA
Framing		
wood studs		
2 x 4 -	12" oc	$ 2.80
	16"	2.40
	24"	1.70
2 x 6 -	12" oc	3.90
	16"	2.95
	24"	2.40
4 x 4 -	24" oc	3.90
	36"	2.95
	48"	2.60
steel studs		
2 x 4 -	16" oc	2.35
2 x 6 -	16" oc	2.70
Sheathing		
asphalt composition		1.55
fiberboard		1.50
gypsum board		2.00
plywood		1.85
wood boards		1.95
Insulation		
aluminum foil, paper backing		0.45
batts or roll		0.70
polystyrene		1.70
loose fill in stud walls		1.45
Exterior facing		
aluminum siding, corrugated		5.05
enameled		6.05
transite		5.45
metal sandwich panels		11.90
fiberglass		2.70
galvanized steel, corrugated		5.70
flat enameled steel		6.70
hardboard, masonite		3.35
Masonry veneers		
face brick common		13.40
used brick		12.80
cast stone, ornamental		28.35
ashlar stone		30.50
granite		49.45
limestone		34.80
marble		62.10
slate		40.80
Stucco		
on wire mesh		4.90
on metal lath		5.70
on masonry		4.05
Wood shakes, shingles		4.75
plywood panels		2.70
board and batten		3.60

Ornamentation: For these items, depending upon the backing, a cost for furring may be required.

Concrete block	
screen	11.20
split-face	10.50
ceramic tile	13.80
terra cotta	29.40
structural glass (vitrolite)	23.60
glass block	38.15
Additions for furring	
wood	1.50
masonry	1.80
Paint	
on masonry	1.10
on stucco	1.20
on wood	1.15

10 Exterior wall construction

Normally, wall costs are priced for the total wall area when openings for doors, windows, *etc.,* are only a small percentage of the total. The price of doors, windows, *etc.,* is then added. When the openings represent over 20% of the total wall area, they should be deducted from the wall area before pricing the wall. For walls over 25 feet in height, add 1% for each foot.

Masonry load-bearing walls		Per SFWA
Concrete block	6"	$17.80
	8"	19.20
	12"	21.90
Brick, common	8"	25.75
	12"	31.65
	16"	37.50
Brick, block backup	8"	23.15
	12"	25.85
Clay tile	6"	19.10
	10"	22.40
Concrete formed	6"	21.50
	8"	23.20
	12"	26.55
Add for pilasters		1.30
Concrete precast panels		
	4"	17.50
	6"	19.20
	8"	21.25
	12"	24.95

Wood or steel framed load-bearing walls	
Wall cost includes studs	**Per SFWA**
Aluminum siding	15.50
Wood shingles	15.65
Wood siding	14.80
Cement fiber asbestos siding	15.10
Brick veneer	22.15
Stone veneer	34.15
Stucco	15.35
Add for sheathing	1.05
Add for insulation	0.80

CIP Schedules

11 Curtain (non-bearing) walls

Curtain walls (or panel walls) are exterior walls that enclose a building but do not support upper floors or roof construction. The price given is for the curtain wall only and includes no costs for structural framing that should be priced from the appropriate framing schedule.

Type		Per SFWA
Concrete tilt-up panels	4”	$17.30
	6”	18.55
	8”	19.95
	10”	21.50
Brick, block backup	8”	24.20
	12”	27.10
Brick, solid common	8”	27.10
	12”	33.35
Add for face brick		3.30
Concrete block	6”	18.75
	8”	20.15
Add for int. core insulation		0.80
Concrete formed	6”	22.65
	8”	24.50
	12”	28.00
Clay tile	6”	19.90
	10”	23.20
Concrete and glass panels		33.65
Metal and glass panels		37.50
Stainless steel and glass		54.15
Marble or stone panels		51.20
Glass block		51.20

12 Doors (industrial)

Type	Per SFDA
Steel roll-up	$ 23.25
Fiberglass overhead	25.40
Wood panel overhead	18.05
Steel	
rolling	27.00
overhead	15.65
vertical lift electric	118.00
Add for electric operation	
roll-up door	13.95
overhead	13.00
rolling	14.20
Walk-in	**Per SFDA**
Metal clad	
ind. swinging single leaf	$ 62.80
ind. swinging double leaf	59.80
office swinging single leaf	40.55
Fire doors	**Per SFDA**
rolling	$ 46.90
swinging	51.70
Add for electric operation, each	1,880.00

13 Windows

Type frame		Per SF window area
Steel sash, fixed, industrial		$ 17.15
	vented, industrial	20.80
Aluminum sash, awning		22.30
	casement	19.40
	sliding	14.45
	jalousie	21.15
Add for	1/4” wire glass	13.70
	1/4” plate glass	3.90
	double glazed	6.20
	solar glass	16.50

14 Store fronts

Type	*Per SF display area
Wood framed glass & trim with	
wood siding	$ 32.15
brick	41.25
ceramic	43.60
marble or granite	79.25
Steel framed glass & aluminum trim with	
brick	52.20
ceramic	55.95
marble or granite	91.60
Steel framed glass & stainless steel or bronze trim with	
brick	73.70
ceramic	76.10
marble or granite	11.70

*In calculating the total display area include surface area of all glass, sign, and bulkhead areas, including entrance way, islands, *etc.*

Additions to basic store fronts

Display platforms (per SF)	$ 8.10
Display ceiling (per SF)	4.90
Display back (per SF)	8.50
Entrance doors	
Revolving door, each	$ 41,100.00
Hinged aluminum & glass, each	1,600.00
Hinged bronze or stainless, each	3,400.00
Add for automatic door opener (per door)	6,050.00
Sliding automatic glass and stainless steel	16,750.00
Security gates (per SF of gate area)	
Scissor type folding gate painted steel	$ 21.50
14 roll-up grille, alum. manual, each	38.15
Add for motorized operation, each	1,525.00
Marquees (per SF)	
Plain, steel framed	$ 35.00
Ornamental, steel framed	43.05
Plain, wood framed	32.60
Wood or stucco, wood framed	28.35
Illuminated plastic, single face	93.95

CIP Schedules

15 Interior partitions

Construction type		Per SFWA
Wood stud wall frame		
2 x 4 -	12" oc	$ 2.20
	16"	1.80
	24"	1.40
2 x 6 -	12" oc	2.90
	16"	2.30
	24"	1.80
Steel stud wall frame		
2 x 4 -	16" oc	2.35
2 x 6 -	16" oc	1.95
Masonry construction cost		**Per SFWA**
Concrete block	4"	$ 10.60
	6"	12.05
	8"	12.60
	10"	13.80
	12"	14.60
Clay tile	4"	$ 12.00
	6"	14.25
	8"	15.25
	10"	30.45
	12"	33.25

16 Cubicle partitions

These are trackless, moveable shop partitions. The panels are semi-acoustical and at least 1 5/8" thick.

Construction type	Per SFWA
Enameled panels, flush	$ 23.35
Vinyl covered, flush	21.10
Wood and composition	17.10
For less than 8' wall height	deduct 10%

17 Accordion or folding partitions

Type	Per SF
Wood — low acoustical	$36.25
Wood — acoustical, vinyl faced	72.60
Formica or hardwood finish	47.50

18 Floors

Basement & grade slabs	Per SFFA
Concrete, including prepared base,	
reinforced 4"	$3.85
6"	4.70
8"	5.85
Asphalt, including prepared base,	
2"	3.10
Structural floors (above grade)	**Per SFFA**
Steel joists, corrugated deck & concrete	$ 11.25
cellular deck & concrete	12.15
concrete slab	13.75
precast plank	11.65
steel grating	7.20
wood deck	23.00
Precast concrete joists & slab	10.65
Elevated concrete slab	12.25
Wood joist & deck	6.25
Pan or waffle (formed concrete)	11.20
Add for insulation	0.80
Add for fire proofing	1.10

19/20 Office enclosures (per SF)

Grade	Finished divided Per SFFA*	Finished open Per SFFA**
Economy	$28.45	$20.50
Average	45.95	33.20
Good	56.05	40.45
Excellent	73.95	53.35

Note: over 2,500 SF build from CIP

* Finished divided costs include suspended ceiling with grid, average lighting and electrical service, wood framed perimeter and partitions with painted drywall, office doors, and average carpet.

** Except for partitions, finished open costs include the same items as finished divided costs.

CIP Schedules

21 Pre-fabricated shop offices

Pre-fabricated aluminum framed booths including doors, floors, lighting, HVAC, *etc.*

Approx. office size	Per SFFA
50 SF	$140
80 SF	125
100 SF	110

22 Woven wire partitions (each)

Wall panels	$ 205
Ceiling panels	270
Sliding door - 3' wide x 7' high	650
Sliding door - 6' wide x 7' high	930

23 Toilet partitions

Each		Each	
Marble	$2,430	Stainless steel	$2,850
Painted metal	1,000	Handicap additions	455
Plastic laminate	1,170		
Urinal screens			
Marble	$ 825	Stainless steel	$ 935
Painted metal	395	Plastic laminate	560

24 Stairs with railing (per tread)

Concrete, reinforced on ground	$ 240
on steel frame	375
Steel grate with steel frame	295
Wood	100
Spiral, ornamental cast iron	390
industrial steel	465
For stair landings	
concrete free standing	28.30/SF
on ground	13.35/SF

25 Mezzanines (cost per SFFA)

Mezzanine costs include the framing support system, the floor system, stairways, and lighting. Where applicable typical partitioning, floor, wall, and ceiling finishes are also included. A height adjustment is not applicable to the mezzanine cost. Mezzanines created by a structural floor over interior partitions should be priced by using appropriate CIP schedules for each construction and/or finish component.

Mezzanine finish	Construction	
	Steel framed	Concrete framed
Unfinished	$38.10	$42.50
Store, display (finished open)	64.00	71.10
Office (finished divided)	85.85	95.90

For wood framed mezzanines use 65% of the steel costs.

26 Interior wall finishes

Construction type	Per SFWA
Drywall, taped & sanded, 1 side	$ 1.85
Plaster	
on masonry	3.70
on and including lath	4.25
Paint	
on masonry	1.25
on plaster, drywall, wood	1.25
Ceramic tile	8.05
Wood paneling	
birch plywood	3.80
Oak or cherry	7.10
Walnut, chestnut, rosewood	9.65
Wallpaper,	
average	1.80
good	2.75
excellent	4.20
Specialities	
Acrylic glazed coatings	1.65
Epoxy coatings	2.55
Vinyl sheet plastic	1.80
Copper sheet	8.05
Cork tile or sheet	5.20
Marble veneer - up to 3/4"	48.75
Granite veneer - up to 2"	74.50
Limestone veneer - up to 2"	47.95
Furring	
on wood	1.15
on block or brick	1.80

27 Ceilings

Construction type	Per SFCA
Acoustical tile	
aluminum, perforated	$ 7.00
mineral fiber	2.25
Drywall finished, taped, & painted	
w/textured spray	5.60
Plaster on lath,	
plain	3.50
acoustical	5.00
Plywood panel	
softwood	3.15
hardwood	4.65
Luminous plastic panel with	
suspension system	6.10
Add for	
furring	2.40
insulation	1.80
suspension system	2.25

CIP Schedules

28 Floor finish

Type	Per SFFA
Carpet	
economy grade	$ 6.65
good grade	7.15
excellent grade	9.50
add for pad	1.30
Composition	
epoxy, troweled	11.05
epoxy w/ chips	9.30
terrazzo	20.25
Concrete toppings	
cement troweled, 1/2”	6.30
cement troweled, 1”	6.85
add for coloring	3.10
add for hardener & sealer	2.60
Resilient	
vinyl or asphalt tile	3.70
vinyl sheet	10.45
rubber tile or sheet	19.45
cork tile	16.15
synthetic turf	12.75
Brick, stone & tile	
brick, common in mortar	10.60
industrial acid-proof	22.80
ceramic or quarry tile	14.20
marble	29.20
terrazzo	13.70
slate	13.60
flagstone	15.40
Wood	
block, end grain	13.80
oak	11.40
pine	5.80
parquet blocks, pre-finished	16.95
Add for sleepers, 24” oc	
1” x 2”	5.80
2” x 4”	3.00
Computer floor, raised	
metal on plywood	15.65
aluminum panels	41.95
w/vinyl covering - add	8.45
w/high pressure laminate - add	6.90
w/carpet cover - add	10.80
Paint	
on masonry & porous surface	0.70

29 Electrical and lighting (cost per SFSA)

Cost includes electrical panel, wiring, and average grade lighting fixtures & devices all in place. The price does not include special wiring such as alarm or signal systems.

Type service	Comm.	Ind.	Ofc.
Scant service			
flexible conduit	$ 6.35	$ 3.15	$ 8.90
rigid conduit	7.60	3.80	10.70
Average service			
flexible conduit	9.20	5.40	12.80
rigid conduit	11.05	6.40	15.70
Abundant service			
flexible conduit	13.50	9.20	18.40
rigid conduit	16.20	10.85	23.25
Unfinished areas			
flexible conduit	2.60	2.05	3.00
rigid conduit	3.10	2.50	3.55

Cost by use

Listed below are typical average electrical system costs according to certain occupancies. The unit price is to be applied to floor area of electrical service.

Use type	Per SFSA	Use type	Per SFSA
Banks, branch	$ 18.75	OFC bldgs.	
Dept. stores	12.55	avg. quality	$ 9.65
Discount stores	5.10	high quality	12.50
Garages	4.70	Retail stores	6.70
service	5.05	Restaurants	
storage	3.60	low quality	11.75
Manufac. light	4.75	high quality	20.10
Manufac. heavy	13.65	Supermarkets	8.40
Mini-warehouse	2.05	Warehouses	2.20

30 Cabinets — counters

Type	Per LF
Base with doors (w/o counter top)	
hardwood	$ 177.35
enameled steel	177.45
painted wood	137.35
add for drawer unit	50%
Wall	
hardwood	129.35
enameled steel	137.35
painted wood	114.50
Tall lab storage cabinets	257.60
Counter tops	
plastic	53.80
ceramic	89.60
stone	201.35
stainless steel	135.10

CIP Schedules

31 Plumbing

The typical fixture cost is for sinks, water closets, tubs, water heaters, urinals, *etc.* The cost includes amounts for the fixture, water supply, waste, and vent lines. Exterior piping to the building is not included.

Typical fixtures

Residential Type 1	Commercial Type 2	Industrial Type 3	Specialty Type 4
$1,775	$2,600	$3,410	see below

Specialty fixtures

	Each
Drinking fountain	
floor	$ 2,060
wall	1,690
Electric water cooler	1,260
Laundry tub	
single	1,525
double	1,675
Sump pump	415
Janitor's sink	2,695
Emergency shower or face wash	1,050
Cast iron trough sinks	
4 faucet 48"	2,465
8 faucet 96"	4,135
Add for stainless steel	20%

	36"	54"
Circular wash sinks		
polished cement	$ 4,055	$ 4,665
terrazzo	4,185	4,795
enameled steel	4,665	5,195
stainless steel	4,980	5,725
Semi-circular wash sinks		
polished cement	$ 3,575	$ 4,080
terrazzo	3,790	4,345
enameled steel	3,260	4,715
stainless steel	4,585	5,165

	Enameled steel	Stainless steel
Column showers		
circular (per shower head)	$ 590	$ 815
semi-circular (per shower head)	785	1,070

Single stall shower	$ 890
w/receptor & curtain hanger	1,110
w/receptor & hinged door	

Note: Above prices do not include partitions.

32 Heating — ventilation air conditioning (HVAC) (per SFFA)

Prices for HVAC are provided below according to finish or use of the building (or area within the building). The prices were developed on the basis of heating, ventilation, or air conditioning cubic area and then converted to SF costs for the convenience of the assessor. Because of this, it may be necessary to adjust the costs for height. The base height is 14' and 3% of the cost indicated should be added or deducted for each foot of height variation in your subject building.

Type	Comm.	Ind.	Ofc.
Electric baseboard	$ 4.40	$ 4.15	$ 7.00
Electric wall/floor heaters	2.05	2.05	2.85
Heat pump, heat and cool	9.45	7.45	14.55
Forced warm air, central system	4.65	3.50	7.75
Ventilation only w/ducts	1.40	1.05	2.15
Hot water baseboard	8.25	5.80	12.35
radiant floor	7.95	5.80	12.10
Steam radiators			
w/boiler	7.20	5.40	11.50
w/o boiler	5.90	4.45	9.75
Suspended unit heaters			
gas fired	1.90	1.55	2.30
w/steam or hot water coil	3.40	1.75	—
Zoned hot & cold water	19.65	15.00	29.35
Zoned hot & cold air	11.80	8.75	18.65
A/C central forced air	8.50	6.55	11.00

Suspended unit heaters (cost each)

In those instances where a building has a very limited number of individual heating units, the above square foot cost might not be applicable. For a more reasonable cost estimate each individual heater should be priced separately. The costs are provided below and need not be adjusted for story height.

BTU rated capacity	Cost each	BTU rated capacity	Cost each
35,000	$ 1,805	150,000	$ 2,635
75,000	2,115	250,000	3,605
100,000	2,290	400,000	6,010

Electric heaters (cost each)

Infra-red ceiling or wall
1 kw: $530 2 kw: $700 3 kw: $900

Infra-red modular baseboard or wall units
1 kw: $605 3 kw: $1,000 5 kw: $1,150

Ventilators

Roof power driven	Cost each	Roof gravity type	Cost each
12"	$ 655	12"	$ 500
18"	900	24"	1,695
24"	1,155	30"	2,050
30"	1,370	36"	2,420
36"	1,605	48"	3,105
48"	2,010		

For wall mounted power ventilators, deduct 10% from cost of roof power drive ventilators.

CIP Schedules

33 Fire protection equipment

Hose house	Each
Metal	$ 1,510
Hose house equipment	
100 LF industrial fire hose	
1½" diameter	315
2½" diameter	520
Hose racks	
swinging w/125'	
1½" hose	565
Alarm systems	
4 zone w/control panel	2,240
8 zone w/control panel	3,380
12 zone w/control panel	4,530

Fire pumps

Including controls and accessories (not including piping).

GPM	Electric	Diesel
500	$ 33,350	$ 92,440
750	40,640	100,170
1,000	48,960	105,895
1,500	60,800	115,050
2,000	64,680	121,060
2,500	73,840	126,785

Pump houses

Includes concrete floor, wall & roof construction, pump pits, lighting, water connection, and doors.

Type construction	Per SF
Corrugated metal - wood frame	$ 64.80
steel frame	69.85
Concrete block - load bearing	96.75

Add for space heater from HVAC schedule 32

Add for underground pipe from schedule 69

34 Fire escapes

Counterbalanced	
Two story building	$ 7,870
Each additional flight	3,725
Balcony and stairs	
Steel balcony - 2' wide (per LF)	$ 230
3' wide (per LF)	285
Steel stairs - 3' wide (per flight)	3,655
Ladders	**Per VLF**
Steel, bolted to building	
w/cage	$ 160
w/o cage	90
Aluminum, bolted to building	
w/cage	200
w/o cage	120

35 Fire sprinkler system

Sprinkler costs include all interior heads, supply lines, and accessories. Wet system piping contains water at all times; dry pipe system contains air under pressure and is used in those unheated areas where freezing might be encountered. For dry pipe systems, add 10% to the wet system prices. Pumps should be added to the costs below.

Area serviced	Cost per SFSA	
	Ordinary hazard*	Extra hazard**
Through 1,000 SF	$ 8.45	$ 11.20
1,001 - 2,000	8.65	10.85
2,001 - 5,000	5.70	8.60
5,001 - 10,000	5.30	7.90
over	4.75	7.95

*Ordinary hazard occupancies include stores, commercial, offices, garages, factories, warehouses, *etc.*

**Extra hazard occupancies include aircraft hangers, chemical works, linoleum manufacturing, paint shops and varnish works, solvent extracting, *etc.*

36 Underground fuel storage tanks

Gallons cap.	Fiberglass	Steel
550	$ 8,270	$ 6,400
1,000	10,175	8,430
2,000	12,930	10,950
4,000	16,350	14,390
6,000	21,600	19,475
10,000	28,540	26,500
12,000	32,000	29,950
15,000	39,100	36,570
20,000	51,000	47,500
30,000	75,400	69,750

Price includes excavation, setting in place, and all backfill.
Price is for single wall; add 50% for double wall.

CIP Schedules

37 Escalators (cost per flight)

Story height	Stair width	
	32”	48”
10’	$ 135,000	$ 147,400
12’	140,300	151,750
14’	144,400	157,300
18’	151,750	167,650
22’	160,650	179,500
25’	167,640	187,620

Add $1,185 per foot of rise per unit for glass panel sides.

38 Vertical lifts

Type	Cost
Electric dumbwaiter - 500#	$ 47,070
Electric man lift*	12,825
Manual dumbwaiter	$ 24,320
Manual man lift	$ 3,815

* Add $2,380 per stop over two.

39 Dock gates

Hinged, painted steel, diamond pattern, scissor type

Width		6’ High
Single	5’	$ 605
	6’	620
	8’	720
Double	8’	1,075
	10’	1,090
	12’	1,440
	14’	1,570
Additions		
Add for	aluminum gates	125%
	stainless steel gates	150%
	bronze gates	250%
Door seals vinyl covered (per LF)		$ 64.15
Expandable truck & RR shelter (each)		3,350.00
Rubber dock bumpers		
12” high x 14” long (each)		154.00
	24” long (each)	174.00
	36” long (each)	200.00

40 Retaining walls

Prices are for exposed face area and includes concrete footing 3’ below grade.

Type		Per LF
Concrete block	6’ high	$ 174.85
	8’	280.50
	10’	385.35
Reinforced concrete	6’ high	307.80
	8’	368.10
	10’	519.45

41 Loading ramps and wells

Type	Per SF
Truck ramp - concrete, 0’ to 4’ rise	$ 20.30
Truck well - concrete, 0’ to 4’ deep	20.30
Truck or RR well, grade level, 4’ high concrete side walls	13.85

42 Dock levelers

Deck size	Capacity (lbs.)	Cost each
6’ x 8’ fixed	5,000	$13,000
6’ x 8’ hinged	20,000	8,080
7’ x 8’ hinged	20,000	8,720
6’ x 8’ hydraulic	20,000	12,795
7’ x 8’ hydraulic	20,000	16,385

43 Dock canopies

Type	Per SF
Simple wood or steel without lighting	$ 14.90
Good structure with lighting, soffit	21.80

44 Loading docks

Concrete: Includes concrete foundation, floor, retaining walls, bumpers, and steps.

Dock Width	SF Costs where length is					
	10’	20’	30’	50’	100’	200’
5’	$ 75.65	$ 54.10	$ 46.85	$ 41.10	$ 40.95	$ 37.55
10	53.90	37.15	30.05	25.80	22.55	20.95
15’	43.10	29.05	24.40	20.70	19.40	17.50
20’	39.05	25.95	21.60	18.95	16.25	14.80
30’	37.05	24.00	19.70	16.85	14.45	12.90

For concrete block walls ..... deduct 5%

Wood: Includes concrete piers, wood posts & girder framework, bumpers, and steps.

Light construction - 2” plank or 2” joists ..... deduct 25%
Heavy construction - 4” plank or 4” joists ..... add 50%

CIP Schedules

45 Cold storage refrigeration

For accurate cost build-up of cold storage plants, determine the basic building cost then add for the insulation, doors, refrigeration equipment, *etc.*

Insulation (per SFSA)

Apply costs to insulated surface area of the walls, ceilings, and floors. Costs do not include prices of inner walls or partitions that may be made of concrete, concrete blocks, or wood that must be priced from the appropriate CIP schedule. For coolers or freezers without floors, deduct 23% from total costs.

Type	1”	2”	4”	6”	8”
Cork	$7.00	$8.05	$10.75	$12.55	$14.25
Fiberglass board	6.15	6.20	7.00	7.35	7.90
Foamglass board	7.10	8.45	10.90	13.50	16.05
Mineral wool batts	5.55	5.75	6.35	6.90	7.40
Styrene board	5.55	5.85	6.35	7.05	7.55
Urethane board	6.15	7.30	9.20	11.30	13.40
Urethane sprayed	4.00	5.60	8.65	12.00	13.75

Doors (per SFDA)

Costs are for manually operated, hinged, galvanized doors.

SFDA	2”	4”	6”	8”
Up to 15 SF	$132.00	$141.30	$151.00	$161.00
16 - 25	113.20	123.20	133.85	145.90
26 - 40	94.90	105.55	118.00	131.60
Over 40	79.80	90.40	103.10	117.20

For other doors, use the following adjustments.

Stainless steel .....add 50%
Wood clad..... deduct 10% per side
Sliding doors - single .....add 25%
double .....add 40%

Add for electric operators by door type
Hinged - single ..... $ 3,320 each
double ..... 4,635 each
Sliding - single ..... 5,980 each
double ..... 6,860 each

Walk-in boxes — prefab

Cost includes complete galvanized unit 7’6” high, including doors, floors, and refrigeration equipment. For wood exterior and interior, deduct 10%. Without floor, deduct 6%.

Size	32^{0}F to 60^{0}F	5^{0}F to 31^{0}F	-15^{0}F to 5^{0}F
50 SF	$12,430	$13,540	$14,180
100	17,695	18,980	19,915
200	25,200	26,830	32,080
300	31,030	32,785	37,895
400	35,910	39,775	42,775
500	40,235	44,100	47,100

46 Refrigeration equipment

Room type	Per CF
Cooler, up to 50^0 F	$ 1.00
Chiller, up to 0^0 F	1.20
Freezer, below -15^0 F	1.50
Sharp freezer, below -30^0 F	2.00

Accessories

	Per SF
Shelving - plated or galvanized	$33.45
Stainless steel shelving	50.15

CIP Schedules

47 Passenger elevators (electric)

Costs include shaft, penthouse, cab, and automatic controls for passenger-operated (push-button) elevator with power-operated doors. Deduct 10% for manual controls.

Speed	Capacity (lbs.)	Cost per elevator	Add for each stop
100 FPM	2,000	$ 87,165	$ 6,830
	2,500	97,180	”
	3,000	106,205	”
150 FPM	2,000	99,280	”
	2,500	110,065	”
	3,000	120,450	”
200 FPM	2,000	108,770	”
	2,500	120,450	”
	3,000	130,830	”
250 FPM	2,000	117,300	”
	2,500	129,050	”
	3,000	139,500	”
300 FPM	2,000	124,700	”
	2,500	136,330	”
	3,000	147,200	”
350 FPM	2,000	131,140	”
	2,500	143,375	”
	3,000	153,575	”

Passenger elevators (hydraulic)

Costs include shaft, penthouse, cab, and automatic controls for passenger-operated (push-button) elevator with power-operated doors. Deduct 10% for manual controls.

Speed	Capacity (lbs.)	Cost per elevator	Add for each stop
100 FPM	2,000	$ 68,200	$ 8,300
	2,500	70,300	”
	3,000	72,000	”
150 FPM	2,000	73,470	”
	2,500	75,080	”
	3,000	76,775	“
200 FPM	2,000	78,620	”
	2,500	80,220	”
	3,000	81,920	”

Freight elevators

Costs include complete installation as above. Deduct 10% for manual controls.

Speed	Capacity (lbs.)	Cost per elevator	Add for each stop: Manual doors	Add for each stop: Power doors
Hydraulic 50 FPM	2,000	$ 28,900	$ 7,900	$15,000
	4,000	35,850	8,900	16,190
	6,000	42,700	9,850	17,490
	8,000	46,600	10,440	18,100
	10,000	69,450	10,940	18,660
Electric 100 FPM	2,500	86,700	8,280	15,575
	4,000	92,330	8,900	16,310
	6,000	97,580	10,000	17,645
	8,000	101,475	10,630	18,475
	10,000	108,770	11,125	19,000

Add for rear door-manual ..... $ 9,980
power 17,600

48 Rail spur track

Complete including rails, ties, and ballast.

Rail weight	Rail size	Cost per LF	Add for switch and turnout
80#	5 x 5	$ 103.50	$34,185
100#	5 3/8 x 6	117.00	38,000
115#	5 1/2 x 6 5/8	127.20	40,850

Add for each sliding bumper $4,475
Add per pair of wheel stops 1,050

49 Railroad scales

Cost includes concrete pit and platform with steel scale mechanism.

Capacity	Cost
150 Ton	$ 96,484
175 ”	107,935
200 ”	120,920
250 ”	150,650
300 ”	188,900
350 ”	235,450

50 Floor recessed scales

Cost of built-in floor scale includes cost of pit, scale, and platform. For wood platform, deduct 6%.

Capacity	Cost
4,000#	$ 9,460
6,000#	12,665
10,000#	18,200
20,000#	26,200

51 Truck scales

Cost includes pit, beam scale, and steel weight bridge. For wood platform, deduct 6%.

Capacity	Cost
20 Ton	$ 34,185
30 ”	39,700
40 ”	45,635
50 ”	51,540
60 ”	58,220
70 ”	67,365

Add for
Automatic card printer ..... $ 1,920
Remote reading electronic system 8,255

CIP Schedules

52 Industrial wells and pumps

Costs include the complete well installation excluding pumps. Price well pumps separate from wells.

Wells		Vertical pumps		
Size	Cost per VLF	GPM	HP	Cost
4" - 6"	$37.80	200	5	$ 10,075
8" - 10"	64.05	600	10	14,195
12" - 14"	81.30	1,000	20	19,805
16" - 18"	101.90	2,000	30	30,450
20" - 22"	121.35	4,000	60	52,660
24" - 26"	145.10	6,000	100	68,800
28" - 30"	166.00	10,000	150	116,555

53 Towers

Self-supporting (each):	
50'	$ 19,475
75'	38,225
100'	60,380
150'	117,145
200'	187,260
225'	226,775
250'	268,510
300'	362,000
350'	465,235
400'	578,315
Triangular guyed (Per LF Ht.):	
10" Ham radio, police, fire	$ 105.75
20" Taxi, public	161.75
24" Radio, V.H.F., U.H.F.	217.00
30" Cellular	290.00
40" Microwave	355.00
54" Television	785.00

54 Traveling overhead cranes

Bridge span	Capacity			
	10 Ton	15 Ton	20 Ton	25 Ton
20'	$ 94,450	$ 109,100	$ 125,400	$ 144,300
30'	103,550	118,150	133,600	155,300
40'	113,280	128,675	146,500	166,280
50'	124,500	139,900	158,250	173,500
75'	156,380	173,065	192,300	213,500
100'	196,900	212,000	234,100	255,000

Costs are averages for ground controlled, variable speed, twin girder, and overhead cranes (exclusive of craneways). For cranes with cabs, add $5,800 for minimum controls; add $21,350 for deluxe cabs with air conditioning and complete controls.

55 Crane ways (per LF)

Beam size	Supports 20' oc	Supports 25' oc	Supports 30' oc	Bldg. framing supported
12"	395	355	330	200
15"	445	405	375	230
18"	530	475	440	270
20"	590	530	495	300
24"	650	585	545	330
30"	765	690	640	390
36"	880	790	735	450

Costs are based on 16' height including crane ways and supporting columns. Costs are for length of crane way. Add or subtract 5.5% for each 2' of variance from base height. **Example:** 100 LF of 18" crane way beams with supporting columns 25' oc, 20' high = $475 + (2 x 5.5% x $475) = $527.25; 100 LF at $527.25 = $52,725 craneway cost.

56 Industrial monorail cranes

Capacity (tons)			
2	3	5	10
$11,035	$11,545	$12,950	$16,470

Costs are for smaller industrial hoists where a lower capacity and headroom is required and where each has their individual crane way bracing or support system. The structural steel columns and beams of the support system must be priced and added to the hoist cost.

57 Above ground storage tanks

Gallons cap.	Steel	Wood
10,000	$ 49,555	$ 19,000
20,000	79,235	33,500
30,000	103,880	43,500
50,000	141,775	60,200
75,000	185,500	77,400
100,000	217,510	94,150
125,000	243,270	108,475
150,000	262,880	122,800
200,000	287,065	148,250
250,000	335,250	—
300,000	371,530	—
400,000	464,450	—
500,000	544,840	—
750,000	699,865	—
1,000,000	809,045	—

Cost includes sand and gravel foundations on smaller tanks, concrete foundations on larger tanks, ladders or stairs, painting, fittings, *etc.*

CIP Schedules

58 Jib cranes — column or wall mount

Costs include column, boom, and base, if any. Capacities are for the jib crane only and costs do not include the price of the chain or rope hoist that must be added.

Boom length	Capacity	Cost
8’	1,000#	$ 2,290
8’	4,000#	3,750
8’	8,000#	5,725
12’	1,000#	2,775
12’	2,000#	3,520
12’	4,000#	4,865
12’	8,000#	7,640
16’	1,000#	3,520
16’	6,000#	8,240
16’	8,000#	10,130

Chain or rope hoists

Electric		Manual	
Capacity	Cost	Capacity	Cost
1,000#	$ 1,800	1,000#	$ 350
2,000#	2,100	2,000#	585
4,000#	2,770	4,000#	785
6,000#	3,375	6,000#	1,010

*Monorail hoist systems may be priced by adding together the costs of the single steel beam and the chain (or rope) hoist, each according to its size and/or its capacity.

Steel columns and beams

I beams		H beams	
Size	Per LF	Size	Per LF
4”	$ 32.60	4” x 4”	$ 35.60
6”	42.65	6” x 6”	45.20
8”	45.30	8” x 8”	59.20
12”	56.20	12” x 12”	100.00
15”	72.10	14” x 14”	110.10

CIP Schedules

59 Paving

Paving type	Per SFGA
Asphalt	
Binder course	
2” thick	$ 1.15
3” thick	1.55
4” thick	1.95
Wearing course	
1 1/2” thick	.85
2” thick	1.15
2 1/2 “ thick	1.40
Light traffic (drive-ins, parking lots, *etc.*)	1.75
Heavy traffic (truck stops, service stations, *etc.*)	3.25
Concrete	
6”	3.35
8”	4.95
9”	5.60
Crushed stone (includes grading)	
3”	.75
6”	1.35
9”	1.95
Curbs	**Per LF**
Asphalt	
6” x 8”	$ 3.70
8” x 8”	4.20
Concrete	
6” x 18” cast in place, straight	12.60
6” x 18” cast in place, curved	22.50
6” x 18” precast, straight	19.75
6” x 18” precast, curved	29.20
Granite	
5” x 16”	22.90
6” x 18”	28.60
Sidewalks	**Per SFGA**
Asphalt on ground	
2”	$ 1.30
2 1/2”	1.55
Concrete on ground	
4”	4.65
5”	5.65
6”	6.30
Add for exposed aggregate	1.00
Prepared base (for above walks) 4”	1.35
8”	2.50
Steps	**Per LF tread**
Concrete	$ 33.20
Brick	57.80
Railroad ties	40.05

60 Yard lighting

Type	20’	30’	40’
Aluminum 1 arm br.	$1,910	$3,000	$3,715
2 arm	2,055	3,140	3,860
3 arm	2,340	3,325	4,040
4 arm	2,390	3,475	—
Steel 1 arm	2,240	2,555	—
2 arm	2,355	2,670	—
3 arm	2,420	2,735	—
4 arm	2,565	2,880	—
Wood 1 arm 10’ high	680	—	—
12’ high	775	—	—
15’ high	870	—	—
20’ high	1,010	—	—

Lamps and lights

Add to cost of poles and arms.

Type	Size	Cost each
Incandescent	500 W	$ 360
	1,000 W	480
	1,500 W	650
Metal halide	175 W	900
	400 W	1,275
	1,000 W	1,800
Mercury-vapor	400 W	805
	1,000 W	1,100
Sodium	400 W	940
	1,000 W	1,340

61 Fencing

Type	Height		
	4’	6’	8’
Chain link	$10.20	$14.90	$19.60
Add for			
gates (swinging) ea.	300	415	510
motor operated	30%	30%	30%
vinyl cover add	10%	10%	10%
barbed guard, per LF	2.55	2.55	2.55
sliding add	25%	25%	25%
Cedar			
picket	17.95	25.90	—
split rail	16.95	—	—
stockade	—	16.00	—
Redwood			
picket	21.40	25.90	—
Basket weave	20.95	26.25	—
Solid board	20.75	23.00	—
Add for gates, per SF	12.35	12.35	—
Vinyl fences	27.95	30.50	—
Vinyl gates	32.85	32.85	

CIP Schedules

62 Signs

The cost estimate for a particular sign installation combines the cost of the display sign itself and the costs of the support columns or wall installation.

Type	Per SF sign
Painted metal	
single face	$ 55.75
double face (use SF of one side)	70.55
porcelainized (add per SFSA)	11.85
w/neon tubing (add per face)	40%
Plastic - illuminated	
single face	130.00
double face (use SF of one side)	182.30

Wall brackets	Per SF sign
Costs of brackets in place per SF sign surface, projected from wall	$ 8.35

Sign poles

Costs include concrete base. Estimate column height from ground to bottom of sign for horizontal signs and overall height for vertical signs.

Base dia.	Per LF	Base dia.	Per LF
4”	$ 56.10	10”	$ 121.00
6”	78.20	12”	142.35
8”	100.35	14”	161.40

Billboard signs

Single face w/wood poles (SFSA)	$ 31.25
Art, display, & pictorial (SFSA)	4.90
Steel poles (SFSA)	8.80
Wood platform (LF)	31.35
Steel platform (LF)	61.25
Additional back-to-back sign panel	Add 50%
Illumination (base cost per site)	1,050.00
Add for	
Incandescent	300.00
Quartz	495.00
Mercury vapor	1,295.00
Sodium	1,750.00

63 Parking lot accessories

Type of accessory	Each
Barrier gate: programmable	$ 7,494
Card reader	2,605
Cashier booth average	24,825
Fee computer	17,170
Ticket splitter w/time & date	14,225
Mag. stripe encoding	24,040
Vehicle detector	700
Guide rails (per LF)	
corrugated steel	31.50
timber	35.50
cable	15.00
Paint striping (per LF)	0.50

64 Flagpoles

Cost for typical heights, includes concrete base

	Height				
Type	20’	25’	30’	35’	50’
Aluminum	$2,160	$2,425	$2,600	$3,115	$5,580
Steel	2,535	2,650	2,720	3,370	6,630
Fiberglass	2,400	2,650	3,245	3,275	7,355
Wood	—	2,610	3,400	—	—

For bronze or SS poles, add 125% to steel price.

65 Septic tanks

(not including piping)

Type	Gallons cap.	Cost
Precast concrete	750	$ 985
	1,000	1,315
	1,250	1,635
	1,500	1,925
	2,000	2,760
	4,000	8,530
	6,000	12,755
	10,000	18,620

Leaching lines - tile (per LF) $12.30
Plastic pipe (per LF) 7.10

66 Sewage pumping stations

(not including external piping)

Costs are for prefabricated steel, concrete, or fiberglass plants with 200 and 1,000 gallon per minute capacities.

200 GPM		$ 80,995
1,000 GPM		149,450
Add for generator unit		
200 GPM	concrete	32,670
	steel	50,540
1,000 GPM	concrete	45,390
	steel	54,925

67 Sewage treatment plants

(not including underground piping)

Type	GPD	Cost per gal.
Steel - blown air Aeration plant	1,000	$ 316.00
	5,000	232.00
	15,000	134.00
	50,000	56.70
	100,000	36.70
	200,000	34.10
	500,000	26.10
Concrete extended primary and secondary treatment	10,000	105.05
	50,000	51.50
	100,000	33.40
	500,000	23.70

CIP Schedules

68 Elevated tanks

Costs include tank, tower, riser pipe, ladders, balcony, *etc.*

Steel tanks

Capacity (gallons)	Tower height			
	50’	75’	100’	150’
50,000	$ 369,940	$ 410,220	$ 469,580	$ 606,320
75,000	443,080	490,780	549,080	681,580
100,000	474,120	524,700	587,240	722,920
200,000	789,700	853,300	917,960	1,026,980
300,000	982,620	1,073,280	1,142,080	1,270,940
400,000	1,154,340	1,261,400	1,320,760	1,461,740
500,000	1,287,900	1,400,260	1,509,440	1,665,260

Wood tanks

Capacity (gallons)	25’	50’	75’	100’
30,000	$ 72,795	$ 87,105	$ 108,250	$ 138,870
50,000	96,330	112,205	136,235	174,500
75,000	—	138,515	—	216,320

69 Underground pipe (per LF) (including trenching and back filling)

Costs include pipe and fittings installed up to the building

	4”	6”	8”	12”	16”	24”	36”	48”	60”	72”
Water, gas, & steam										
Asbestos cement	$ 30.00	$ 37.90	$ 48.15	$ 91.60	$ 132.00	$ 224.70	$ 382.60	—	—	—
Ductile iron	31.05	49.40	57.05	75.85	131.50	156.30	227.05	$ 315.60	—	—
Concrete	—	—	—	—	49.60	85.85	163.25	249.45	$ 356.15	$ 476.40
Plastic	19.65	24.05	29.10	54.95	—	—	—	—	—	—
Steel	36.20	45.05	56.90	99.45	124.50	190.80	342.10	533.20	—	—
Valves, each	765.00	1,705.00	2,950.00	6,280.00	10,740.00	23,340.00	49,980.00	86,750.00	—	—
Drain & sewer										
Asbestos cement	—	15.90	16.85	34.70	65.50	79.35	135.40	—	—	—
Corrugated metal	—	17.50	29.10	43.30	49.50	71.20	135.95	193.65	259.10	397.60
Plastic	6.50	10.00	14.15	24.85	—	—	—	—	—	—
Concrete-plain	—	17.35	25.35	30.80	36.95	—	—	—	—	—
Reinforced	—	—	—	37.85	47.90	75.65	143.65	242.40	397.60	448.90
Vitrified clay	13.55	20.50	25.00	48.40	85.65	128.50	208.60	—	—	—

Yard fire hydrants — $4,840 Catch basins — $4,855 each

70 Stacks (brick and concrete)

Costs include foundation. For square or rectangular stacks, use 1/3 the perimeter in place of diameter.

Base Diameter	Brick per VLF	Concrete per VLF	Base Diameter	Brick per VLF	Concrete per VLF
6’	$ 900	$ 770	16’	$ 2,010	$ 1,730
8’	1,145	950	20’	2,380	2,110
10’	1,395	1,145	24’	2,835	2,490
12’	1,645	1,375	28’	3,180	2,835
14’	1,830	1,590	32’	3,630	3,215

Grain Elevators — Pricing Procedure

To use schedules A and B, select a per bushel price according to the nearest bushel capacity to the subject facility. Apply this price to the exact bushel capacity of the subject elevator to derive a base cost. The base cost price includes the items listed in the bottom note of each schedule. Also listed in the bottom note are items typically found with each type of elevator that must be priced separately using other manual schedules. Elevator types A and B often have "added-on" storage and handling equipment similar to that described in type D grain elevator schedules. In this case, separate prices should be added from the D schedules.

Example:

An old wood-frame country elevator with 82,000 bushel capacity. The subject property also has

Two 48,000 bushel steel storage tanks

One 250 bushel dump pit

One 80' leg with 1,000 BPH capacity

One 6 duct distributor head, 6"

300 LF of round 6" spouting

Two 2,900 BPH grain dryers

Base price		
82,000 bu. x $7.30	=	$598,600
2 — 48000 bu. steel storage tanks		
$114,115 each	=	228,230
1 — 80' leg w/1,000 BPH capacity		
$445 x 80 LF	=	35,600
1 — 6", 6 duct distributor head	=	2,160
1 — yard dump pit, 250 bu.	=	900
300 LF 6" round spouting		
$39.75 x 300 LF	=	11,925
2 — 2,900 BPH grain dryers		
$330,230 each	=	660,640
Total cost estimate grain handling facilities		**$1,538,055**

Add the cost of other yard and outside improvements, scale house, railroad spurs, scales, *etc.,* to determine the total RCN estimate.

Type D facilities are custom-assembled according to the owner's judgment for the particular location. They usually consist of a battery of steel grain tanks with related grain handling equipment and subsidiary buildings. However, the storage facilities may be concrete tanks or a combination of steel and concrete grain storage tanks.

To calculate the total cost estimate, price each storage tank, each piece of grain handling equipment, and each yard and outside item of construction separately.

Example:

6 — 38,000 bu. steel tanks, approximately 56' height		
$91,850 each	=	$551,100
6 — 48,000 bu. steel tanks approximately 72' height		
$114,115 each	=	684,690
12 — 58,000 bu. steel tanks approximately 88' height		
$134,200 each	=	1,610,400
1 — 76,000 bu. steel building flat grain storage		
76,000 bu. x $1.70	=	129,200
3 — dump pits, 900 bu.		
$3.60 per bushel	=	9,720
2 — 60' legs/1,500 BPH		
$545 x 60 LF	=	65,400
1 — 80' leg/2,000 BPH		
$495 x 80 LF	=	39,600
2 — 6" 12 duct distributor head		
$4,640 each	=	9,280
2 — 6" 6 duct distributor head		
$2,160 each	=	4,320
1,800 LF of 6" round spouting		
$39.75 x 1,800 LF	=	71,550
2 — 2,900 BPH grain dryers		
$330,320 each	=	660,640
1 — 120' x 12" elevated belt conveyer		
$26,135 each	=	26,135
Total cost of grain storage and handling facilities		**$3,862,035**

Grain Elevator Schedules

Type A — wood framed

BU capacity	Elevator cost per BU
20,000	$ 12.30
25,000	11.25
30,000	10.50
40,000	9.35
50,000	8.55
75,000	7.30
100,000	6.55
150,000	5.55
200,000	4.95
250,000	4.55
300,000	4.25

Note: Costs do not include any separate office building, scale house, drying equipment, dump pits, railroad scales or spurs or yard improvements. These items must be described and priced separately from the appropriate schedules. See Type B or grain tank steel schedules for annex.

Type B — concrete country

BU capacity	Elevator cost per BU	Annex cost per BU*
75,000	$ 10.50	$ 6.80
100,000	9.80	6.30
150,000	8.85	5.70
200,000	8.25	5.30
250,000	7.80	5.05
300,000	7.45	4.80
400,000	6.95	4.50
500,000	6.55	4.25
750,000	5.90	3.85
1,000,000	5.50	3.55
2,000,000	4.65	3.00
2,000,000+	4.20	2.70

*Costs are for an annex with a basement.

For an annex with a tunnel only, deduct 9%.

Note: Costs do not include any separate office building, scale house, supplemental storage buildings, drying equipment, railroad spurs, truck or railroad scales or yard improvements. These items must be described and priced separately from the appropriate schedule.

Grain conversion tables

1 Bushel corn =	1.2445 CF	or 56 lbs.
1 Bushel wheat =	”	or 60 lbs.
1 Bushel soybeans =	”	or 60 lbs.
1 Bushel oats =	”	or 32 lbs.
1 Bushel barley =	”	or 45 lbs.

1 Cubic foot (CF) = .8036 bushel

1 Gallon = .1337 CF or .1074 bushel

To compute the volume of a circular bin with a flat top:

1 Multiply the square of the diameter of the bin floor x .63135 to get the bushel storage per foot of bin.

2 Multiply the bushel storage per foot by the eave height of the bin. (D^2 x .63135 x H)

Example:

Bin is 21’ dia. x 40’ high =
21’ x 21’ x .63135 = 278.43 (base area)

278.43 x 40’ = 11,137 bushels.

To compute the volume of same bin with an estimated 6’ high cone top, multiply the area of the base by 1/3 the altitude, then add this additional volume to the already calculated volume of the flat top bin or

278.43 x 2’ = 557 additional bushels

Supplemental equipment

Truck lifts, hydraulic, 70’ - 36^0 tilt
in concrete cell (w/o scale) $140,300

Receiving dump pits (in yard) per bushel 3.60

Manlifts — per lin. ft. travel
electric operated — LF 315
manual operated — LF 125

Aeration tubes, 12” dia., per LF 18.75

Grain truck probe 13,700

Grain Elevator (Type D) Schedules

Feed mill equipment

Because of the vast variety of types and sizes of feed mills, some of which are combined with a country-type elevator, it is recommended that the building be priced from the appropriate CIP schedules.

Equipment — the cost of the machinery is very flexible and the costs in the table represent a range based on the cubic feet of building volume which can be used as a guideline.

Normal machinery and equipment consists of a dump pit and screw conveyor, temporary storage bins, molasses tank and mixer, hammer-mill, roller mill, and an elevator or conveyor system.

Building volume	Per CF of building
20,000 CF	$4.25
30,000	3.75
40,000	3.65
50,000	3.30
75,000	2.90
100,000	2.80
125,000	2.65
150,000 and more	2.50

Grain dryers

Continuous flow grain dryers

Farm		Commercial	
Bu per hr.	Base cost	Bu per hr.	Base cost
790	$ 138,225	1400-1999	$ 251,950
1115	189,315	2000-2925	330,200
1350	206,675	2926-3500	428,660
1650	233,650	over 3500	115.50
		Add for heat recovery	10%

Centrifugal bin fans

Type	Cost
Fans without motor	$ 2,035
Fans with 5 hp. single phase	3,440
Fans with 7.5 hp. single phase	4,030
Fans with 10 hp. single phase	4,625
Fans with 5 hp. 3 phase	2,725
Fans with 7.5 hp. 3 phase	2,835
Fans with 10 hp. 3 phase	3,580

Conveyors — elevated*

Length	8”	12”	16”	24”
15’	$ 4,635	$ 5,145	$ 6,905	$ 7,000
30’	6,770	8,910	10,810	13,330
45’	9,325	11,850	14,170	18,920
60’	11,465	15,505	18,000	22,280
75’	13,135	17,300	20,595	27,940
90’	14,980	21,835	23,220	33,480
120’	20,075	26,135	28,915	44,620
150’	23,660	31,780	34,485	54,205
200’	28,510	37,455	48,580	68,500

*For tunnel conveyors, deduct 25%.

Belt capacities

8” = 5,500 BPH	16” = 12,000 BPH
12” = 8,000 BPH	24” = 17,000 BPH

Distributors (each) manual 45^0

No. of ducts	6” - 8” dia.	9” - 12” dia.
3	$ 1,160	$ 1,450
6	2,160	2,895
12	4,640	5,790
18	6,965	8,680

Spouting (per LF)

Size	Flexible	Round	Square
6”	$ 24.40	$ 39.75	$ 55.10
8”	28.60	46.10	63.05
10”	49.80	70.50	91.85
12”	77.40	99.25	121.90
14”	85.85	107.75	135.70

Spouting (per LF) costs include installation on legs or saddle pads (including fittings on tank) but not pipe, valves, or foundations.

LP tanks — horizontal

Capacity	Size	Cost
5,000	5’ x 36’	$25,850
7,500	6’ x 37’	29,320
10,000	6’ x 50’	32,970
12,500	6’ x 61’	39,380
15,000	7½’ x 50’	45,790
20,000	7½’ x 65’	56,325
25,000	9½’ x 51’	63,070

Elevator legs (bucket conveyors)

Cap. bu.	Discharge height (per VLF) (Multiply cost per foot times height to determine cost of equipment.)						
Per hr.	30’	40’	50’	60’	80’	100’	120’
500	$ 680	$ 565	$ 500	$ 455	—	—	—
750	730	605	535	485	—	—	—
1,000	770	640	560	510	$ 445	$ 405	$ 380
1,500	825	685	600	545	475	430	405
2,000	870	720	630	570	495	440	420
3,000	935	770	675	610	530	480	450
5,000	1,025	845	735	665	575	520	485
7,500	—	890	790	715	615	550	520
10,000	—	—	830	745	645	580	540

Grain Elevator Schedules

Grain tanks — steel

Costs are for bolted steel tanks, including concrete foundation only.

Dia.	Eave height	Bu. cap.	Cost
9’	24’	1,297	$ 7,835
	32’	1,729	9,965
	40’	2,162	11,725
	56’	3,035	14,965
	72’	3,892	19,190
12’	24’	2,309	12,065
	32’	3,078	14,590
	40’	3,818	19,535
	56’	5,385	23,850
	72’	6,929	30,690
15’	24’	3,605	16,455
	32’	4,807	20,610
	48’	7,210	28,145
	64’	9,614	35,340
	80’	12,030	44,220
18’	24’	5,189	20,950
	40’	8,649	31,700
	56’	12,109	41,520
	72’	15,586	44,775
	88’	19,064	52,340
21’	32’	9,425	34,620
	40’	11,791	40,705
	56’	16,504	47,400
	72’	21,241	58,315
	88’	25,976	68,850
26’	32’	13,893	40,200
	48’	20,858	57,265
	64’	27,624	74,670
	72’	34,824	87,115
	88’	41,807	102,870
32’	32’	21,204	58,215
	40’	26,532	70,310
	56’	37,189	91,850
	72’	47,846	114,115
	88’	58,503	134,200
42’	32’	41,720	102,155
	40’	51,670	122,140
	48’	60,320	138,100
	58’	72,050	161,150
48’	32’	55,250	128,845
	40’	68,250	152,650
	60’	98,120	206,975
60’	40’	110,000	227,370
	50’	132,010	264,450
	60’	155,460	304,860
72’	40’	168,960	327,750
	48’	197,750	368,920
	64’	255,360	460,160

For corrugated galvanized tanks, see rural section.

Steel building flat grain storage

Costs include concrete foundation and floor, steel panel walls, gable steel roof with rigid steel frame, doors, and explosion-proof lighting.

The SFGA costs do not include heat, loading or leveling systems, aeration devices, or any other features, and are only for those buildings specially designed and built for the storage of grain.

For other types of construction, price from the appropriate schedules.

Bushel capacity	Cost per bushel	Bushel capacity	Cost per bushel
50,000	$ 1.95	300,000	$ 1.40
75,000	1.70	400,000	1.35
100,000	1.65	500,000	1.30
150,000	1.55	750,000	1.25
200,000	1.50	1,000,000	1.20
250,000	1.40	2,000,000+	1.15

Quonset buildings

Costs include standard building with concrete footings and doors at each end.

Costs do not include floors, heating, lighting, or plumbing. Heating and plumbing should be added from CIP schedules.

Length	30’ Wide	40’ Wide	60’ Wide	70’ Wide
30’	$ 22.85	—	—	—
36’	21.80	—	—	—
48’	20.35	$ 18.15	—	—
60’	19.25	17.55	$ 16.70	—
72’	18.45	16.75	16.00	$ 14.50
84’	17.80	16.20	15.35	14.90
96’	17.15	15.60	14.40	14.35
108’	16.65	15.20	14.10	14.00
120’	16.20	13.75	14.00	13.50
160’	15.15	13.00	13.00	12.60
200’	—	12.40	12.30	11.95

Additions	Cost
Floors —	
asphalt	$ 0.55
concrete	2.90
crushed stone	1.20
Lighting	1.90

Auger and drive

This is used for the unloading of grain bins directly into hoppers.

Tank diameter	Base price
15’	$ 1,040
18’	1,170
21’	1,295
26’	1,510
30’	1,680
34’	1,850
40’	2,110

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