

GREENHOUSES

OCCUPANCY DESCRIPTION: Enclosures used to regulate the climatic conditions for germinating and growing various plants and vegetables.

INCLUDED IN COSTS: Architects' fees and contractors' overhead and profit.

NOT INCLUDED IN COSTS: Heating or automated watering systems, shade curtains and planting benches are not included.

STRAIGHT-WALL STRUCTURES

CLASS	TYPE	COST/ SQ. FT.	EXTERIOR WALLS	INTERIOR FINISH	LIGHTING & PLUMBING
D	Average	\$ 7.25	Wood frame, glass or fiberglass covering, some vents	Gravel, some concrete	Adequate electrical and hose bibs
	Fair	4.75	Wood frame, fiberglass walls, double polyethylene roof cover	Gravel floor	Minimum electrical, lighting and water
	Low cost	3.10	Post frame, fiberglass end walls, double polyethylene cover	Dirt floor	Minimum equipment outlet and hose bibs
	Cheap	2.75	Light post frame, wide spacing, polyethylene cover	Dirt floor	No electrical, hose bib only
S	Excellent	21.75	Best frame, translucent sandwich panels and venting	Concrete floor, drains	Good lighting and plumbing
	Very good	17.95	Heavy frame, good sandwich panels, good wall and roof vents	Good concrete walks	Adequate electrical, good fixtures and water service
	Good	14.80	Good metal frame, tempered glass, polycarbonate or acrylic, good vents	Concrete walks	Adequate electrical and water service
	Average	6.85	Metal frame, glass or fiberglass covering, some vents	Gravel, some concrete	Adequate electrical and hose bibs
	Fair	4.70	Metal frame, double poethylene arch roof, fiberglass walls	Gravel floor	Minimum electrical, lighting and water
	Low cost	3.20	Metal frame, fiberglass end walls, double polyethylene cover	Dirt floor	Minimum equipment outlet and hose bib
	Cheap	2.85	Light pipe arch, wide spacing, polyethylene cover	Dirt floor	No electrical, hose bib only

HOOP (ARCH-RIB/QUONSET) STRUCTURES

D	Low cost	\$ 2.90	Light built-up wood arch, fiberglass ends, double polyethylene cover	Dirt floor	Minimum equipment outlet and hose bibs
S	Very good	12.55	Good translucent sandwich panels, heavy frame, pitched peak, vents	Good concrete walks	Adequate electrical, good fixtures and water service
	Good	10.40	Good polycarbonate or acrylic cover, roof and wall vents	Concrete walks	Adequate electrical and water service
	Average	4.90	Fiberglass panels on light arch frame, some vents	Gravel, some concrete	Adequate electrical and hose bibs
	Fair	3.35	Pipe or light tubular arch, double poly., fiberglass ends & knee walls	Gravel floor	Minimum electrical, lighting and water
	Low cost	2.30	Trussed pipe arch, double polyethylene cover, fiberglass end walls	Dirt floor	Minimum equipment outlet and hose bibs
	Cheap	2.05	Light pipe arch, wide spacing, polyethylene cover	Dirt floor	No electrical, hose bib only

For modified hoop structures (3' straight side wall), add 5%.

SHADE HOUSES

D	Average	\$3.65	Wood skeleton frame, spaced wood lath	Gravel, some concrete walks	Equipment outlets and hose bibs
	Low cost	1.65	Light wood posts and girders, shade netting cover	Some gravel	No electrical, hose bibs only
	Cheap	1.25	No walls, wood posts and cable, flat shade netting roof	Dirt floor	Hose bibs only
S	Average	6.00	Metal skeleton frame, spaced aluminum lath	Gravel, some concrete walks	Equipment outlets and hose bibs
	Low cost	1.75	Light pipe columns and girders, shade netting cover	Some gravel	No electrical, hose bibs only
	Cheap	1.30	No walls, steel pipe and cable, flat shade netting roof	Dirt floor	Hose bibs only

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REFINEMENTS: On this page are the means of making major adjustments to the base costs on the previous page. Follow Steps 1 through 5 to attain final costs, adjusted for lump sums, heating and cooling, story height, floor area/perimeter ratio and locality.

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ADJUSTMENTS	COST RANGE
Humidifiers, each	\$ 435.00 – \$1,775.00
Exhaust fan cooling assembly, per unit	800.00 – 1,650.00
Water-drip humidity pad assembly, per sq. ft. of pad	10.50 – 18.00
Automatic vent and/or environmental controls, per unit	780.00 – 1,600.00
Automatic chemical injectors (excluding tanks), per unit	2,250.00 – 3,650.00
Automatic water controls, per unit	260.00 – 600.00
Traveling boom sprayer, per linear foot of rail	50.00 – 81.75
Roof shade curtains, per sq. ft. of cover, manual (automated, add 100%)53 – .69
Hinged vents, manual, per linear foot (automatic, add 20%)	23.25 – 29.50
Automatic sidewall curtain assembly, per linear foot	9.50 – 13.50
Concrete curb, per linear foot	2.05 – 4.40
Stem, knee walls, per linear foot	8.70 – 11.75
MISCELLANEOUS SQUARE FOOT COSTS	
Electrical: Low cost, \$.16; Average, \$.49; Good, \$1.00; Excellent, \$1.75	
Floors or walks: Dirt, \$.16 – \$.25; Gravel, \$.36 – \$.50; Asphalt, \$1.37 – \$2.18; Concrete, \$1.99 – \$2.89	
Water system, plastic: Spray, \$.11 – \$.21; Mist, \$.19 – \$.35; Drip tube, \$.25 – \$.40	
Planting benches, per square foot of bench: Plastic, \$2.70 – \$4.20; Wood slat, \$4.20 – \$4.80; Solid propagating, \$4.50 – \$8.10	

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HEATING AND COOLING	
These costs are averages of total installed cost of the entire heating or cooling installation including its prorated share of contractors' overhead and profit and architects' fees.	
Hot water or steam	\$3.30
Gas furnaces	1.40
Suspended gas heaters	1.05
add for fan-jet duct distribution68
Ventilation, fans only40

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HEIGHT REFINEMENTS	
STORY HEIGHT MULTIPLIERS	
Multiply base cost by following multiplier for any variation in average story height.	
Average Wall Height	Square Foot Multiplier
7	.973
8	.982
9	.991
10	1.000
11	1.009
12	1.018
13	1.027
14	1.036
16	1.055
18	1.074

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Average Floor Area, Sq. Ft./Story	AVERAGE PERIMETER												Average Floor Area, Sq. Ft./Story
	90	200	300	500	600	800	1000	1200	1400	1600	1800	2000	
500	1.71	1.84	----	----	----	----	----	----	----	----	----	----	500
1,000	1.65	1.72	1.78	----	----	----	----	----	----	----	----	----	1,000
2,000	1.36	1.41	1.45	----	----	----	----	----	----	----	----	----	2,000
4,000	----	1.20	1.24	1.32	----	----	----	----	----	----	----	----	4,000
5,000	----	1.15	1.16	1.18	1.19	----	----	----	----	----	----	----	5,000
6,000	----	----	1.11	1.13	1.14	----	----	----	----	----	----	----	6,000
8,000	----	----	1.04	1.06	1.07	1.08	----	----	----	----	----	----	8,000
10,000	----	----	.95	.99	1.00	1.02	1.04	----	----	----	----	----	10,000
20,000	----	----	----	.83	.84	.86	.88	----	----	----	----	----	20,000
25,000	----	----	----	----	.80	.82	.84	.86	----	----	----	----	25,000
50,000	----	----	----	----	----	.68	.70	.72	.74	----	----	----	50,000
100,000	----	----	----	----	----	----	.58	.59	.60	.61	----	----	100,000
200,000	----	----	----	----	----	----	----	.55	.56	.57	.58	.59	200,000

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USE COUNTY MULTIPLIERS IN MULTIPLIER SECTION.