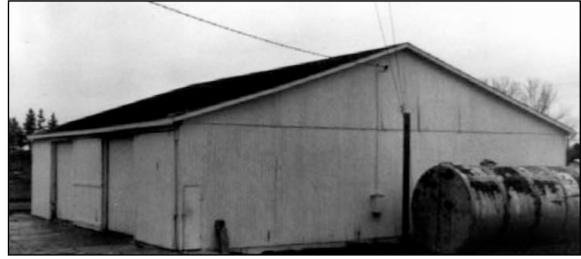


FARM IMPLEMENT (EQUIPMENT SHOP) BUILDINGS



GOOD CLASS D



AVERAGE CLASS D



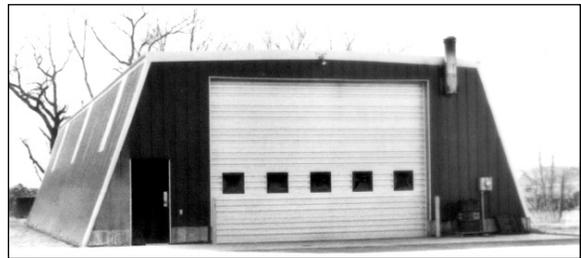
GOOD CLASS D ARCH RIB



AVERAGE D_{POLE}



LOW-COST/AVERAGE D_{POLE}



GOOD CLASS S SLANT WALL



GOOD CLASS S QUONSET



AVERAGE CLASS S

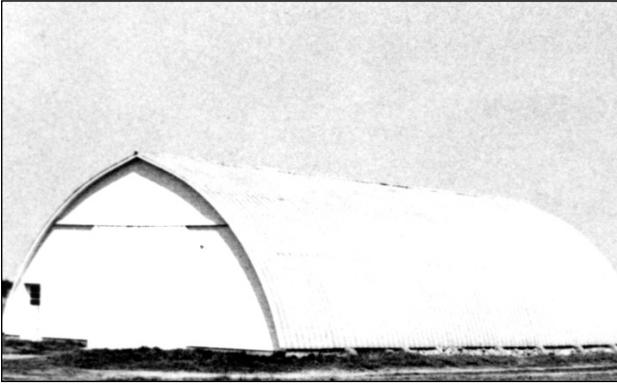


AVERAGE CLASS S IMPLEMENT SHED



LOW CLASS D_{POLE} IMPLEMENT SHED

STORAGE BUILDINGS



AVERAGE CLASS D UTILITY
Arch Rib



LOW CLASS S UTILITY
Slant Wall



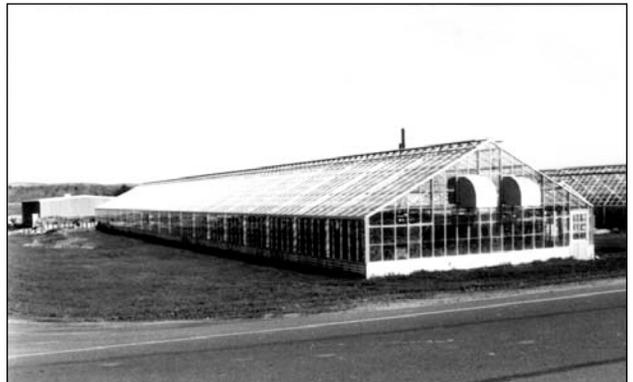
LOW CLASS D_{POLE} UTILITY BUILDING



LOW CLASS S QUONSET UTILITY



GOOD CLASS S UTILITY
Grain Storage



GOOD CLASS S GREENHOUSE
Straight Wall



CLASS D TOOL SHED



CLASS D BULK FERTILIZER STORAGE

FARM IMPLEMENT BUILDINGS

OCCUPANCY DESCRIPTION: Implement buildings are for storage and maintenance of farm equipment. These structures have lighter-gauge materials or less interior finish than their commercial counterparts. They have better electrical circuits and built-in shop features not found in utility buildings or storage sheds. Walls are usually either block or some type of metal or wood over the frame. Roof systems are

either steel or wood, and the floors are light concrete or asphalt. For arch-rib, use center arch height in entering the story height table.

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

NOT INCLUDED IN COSTS: Heating systems are not included.

FARM IMPLEMENT (EQUIPMENT SHOP) BUILDINGS

CLASS	TYPE	COST/ SQ. FT.	EXTERIOR WALLS	INTERIOR FINISH	LIGHTING & PLUMBING
C	Good	\$20.00	Reinforced block, steel or wood truss, good roof cover	Unfinished, concrete floor, tool cabinets, shop area	Good lighting and outlets, water service
	Average	15.65	Block, steel or wood roof structure, good fenestration	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
D	Good	15.85	Wood frame and truss, wood siding or stucco	Unfinished, concrete floor, tool cabinets, shop area	Good lighting and outlets, water service
	Average	11.25	Open wood frame, exposed board siding, shingles, windows	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
DPOLE	Good	13.95	Pole frame, best metal siding, sheathing	Unfinished, concrete floor, tool cabinets, shop area	Good lighting and outlets, water service
	Average	9.65	Pole frame, metal siding, good doors, windows	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	6.70	Pole frame, metal siding	Unfinished, light floor, few extras	Minimum services
S	Good	15.05	Steel frame and truss, steel or aluminum siding	Unfinished, concrete floor, tool cabinets, shop area	Good lighting and outlets, water service
	Average	10.70	Steel frame and siding, good doors, windows	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	7.65	Light steel frame, siding	Unfinished, light floor, few extras	Minimum services
S SLANT WALL	Good	14.10	Light steel slant frame and truss, steel siding	Unfinished, concrete floor, tool cabinets, shop area	Good lighting and outlets, water service
	Average	10.05	Light steel slant frame and siding, good doors, windows	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	7.15	Light steel slant frame and siding	Unfinished, light floor, few extras	Minimum services

ARCH-RIB (QUONSET) FARM IMPLEMENT BUILDINGS

D	Good	\$18.65	Good laminated arch, siding, shingles, pedestrian and overhead doors	Unfinished, concrete floor, tool cabinets, shop area	Good lighting and outlets, water service
	Average	14.15	Arched frame, shingles and siding, windows, overhead door	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	10.80	Light arch-rib, frame, comp. shingles, end-wall sliding-door entry	Unfinished, light floor, few extras	Minimum services
DPOLE	Good	17.35	Good laminated arch, metal siding, pedestrian and overhead doors	Unfinished, concrete floor, tool cabinets, shop area	Good lighting and outlets, water service
	Average	13.00	Pre-engineered arched frame, metal siding, windows, overhead door	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	9.80	Light arch-rib frame, metal siding, end-wall sliding-door entry	Unfinished, light floor, few extras	Minimum services
DHOOP ARCH	Average	8.80	Wood post, knee wall, pipe hoop frame, fabric cover, end curtains	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	6.70	Wood post, pipe hoop, fabric cover	Unfinished light floor, few extras	Minimum services
S	Good	17.15	Good self-framing quonset panels, pedestrian and overhead doors	Unfinished, concrete or asphalt floor, some cabinets	Good lighting and outlets, water service
	Average	12.95	Pre-engineered quonset, metal siding, windows, overhead door	Unfinished, concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	9.80	Light self-framing quonset panels, end-wall sliding-door entry	Unfinished, light floor, few extras	Minimum services
	Cheap	7.95	Light self-framing quonset panels, open ends	Unfinished, light floor	Minimum services

FARM IMPLEMENT (EQUIPMENT) SHELTERS

D	Good	\$7.50 – \$10.60	No walls, composition or steel gable roof on wood rafters and posts, concrete floor, security lighting		
	Average	5.35 – 7.50	No walls, steel shed or flat roof on wood posts and girders, light slab floor, minimum electrical		
	Low cost	3.80 – 5.35	No walls, light steel flat roof on light wood posts, asphalt floor, no electrical		
S	Very Good	9.30 – 13.10	No walls, large bulk commodity canopy structure, heavy frame and floor, good electrical		
	Good	7.80 – 11.00	No walls, steel gable roof and truss on steel column, wide span, concrete floor, security lighting		
	Average	5.55 – 7.80	No walls, heavy fabric or steel shed or flat roof and girders on good steel posts, light slab floor, minimum electrical		
	Low cost	3.95 – 5.55	No walls, light steel, fiberglass or shade netting, flat roof on low-cost pipe, asphalt floor, no electrical		

FARM IMPLEMENT BUILDINGS

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.

1

ADJUSTMENTS FOR DEVIATIONS FROM BASE COSTS	ADD OR DEDUCT PER SQUARE FOOT		
	GOOD	AVERAGE	LOW
Dirt Floor	\$.23	\$.19	\$.14
Gravel .....	.49	.42	.35
Asphalt	2.10	1.70	1.30
Concrete Floor, plain	2.78	2.36	1.93
Reinforced	3.80	2.90	2.21
Plank Floor	2.35	1.39	.82
Electric Service .....	.89	.46	.17
Water Service .....	.55	.29	.12

2

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.	
Electric cable or baseboard	\$2.90
Electric wall heaters (inc. FWA)	1.25
Forced air, ducted	3.20
heaters or furnace, vented .....	.95
Hot water, baseboard/convactor	5.85
radiant floor or ceiling	6.05
Space heaters, with fan	1.60
radiant	1.80
Steam	5.05
Wall or floor furnace	1.45
Package heating and cooling	6.30
Ventilation, blower and ducts .....	.95
fans only .....	.40

3

HEIGHT REFINEMENTS	
STORY HEIGHT MULTIPLIERS	
Multiply base cost by following multiplier for any variation in average story height. For quonset shape buildings, use the center arch height to enter the table.	
Average Wall Height	Square Foot Multiplier
8	.963
9	.981
10	1.000
11	1.019
12	1.038
13	1.058
14	1.077
16	1.115
18	1.154
20	1.192
22	1.231
24	1.269
28	1.346
32	1.423

4

Average Floor Area, Sq. Ft./Story	AVERAGE PERIMETER														Average Floor Area, Sq. Ft./Story
	90	150	200	250	300	350	400	500	600	700	800	900	1000	1200	
500	1.24	1.54	1.79	2.04	----	----	----	----	----	----	----	----	----	----	500
800	1.17	1.42	1.62	1.83	1.57	----	----	----	----	----	----	----	----	----	800
1,000	1.11	1.33	1.50	1.68	1.42	2.04	----	----	----	----	----	----	----	----	1,000
2,000	1.07	1.26	1.42	1.57	1.10	1.88	----	----	----	----	----	----	----	----	2,000
4,000	1.02	1.17	1.29	1.42	1.57	1.66	1.79	----	----	----	----	----	----	----	4,000
6,000	----	.98	1.04	1.10	1.42	1.23	1.29	1.42	1.54	1.66	1.79	1.91	----	----	6,000
8,000	----	----	.92	.95	1.10	1.01	1.04	1.10	1.17	1.23	1.29	1.35	1.42	----	8,000
10,000	----	----	----	.90	.95	.94	.96	1.00	1.04	1.08	1.12	1.17	1.21	1.29	10,000
12,000	----	----	----	----	----	.88	.89	.92	.94	.97	.99	1.02	1.04	1.09	12,000
14,000	----	----	----	----	----	----	.86	.88	.90	.92	.93	.95	.97	1.01	14,000
16,000	----	----	----	----	----	----	----	.87	.89	.90	.92	.93	.95	.98	16,000
20,000	----	----	----	----	----	----	----	.85	.87	.88	.89	.91	.92	.94	20,000

Use the total length of walled sides as the perimeter. Do not use table for sheds without walls.

5

USE COUNTY MULTIPLIERS IN MULTIPLIER SECTION.

SHEDS AND UTILITY BUILDINGS

OCCUPANCY DESCRIPTION: Equipment shed buildings are for storage and maintenance of farm equipment. These structures are typically designed with an open front and only three exterior walls, of either wood frame or steel construction. Floors are either light concrete, asphalt, gravel or dirt. Electrical and water service are commensurate with the quality.

are light arch-rib wood with metal (Class D_{POLE}), wood siding or shingles (Class D) or self-framing metal quonset panels (Class S). The floors are light concrete, asphalt or dirt at the lower qualities. Use the center arch height in entering the story height table.

Quonset shape farm utility buildings have many uses, such as general material, commodity or equipment storage. Interior modifications can make them accommodate any one of several uses. Frames

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

NOT INCLUDED IN COSTS: No heat or special equipment.

FARM IMPLEMENT/EQUIPMENT SHEDS

CLASS	TYPE	COST/ SQ. FT.	EXTERIOR WALLS	INTERIOR FINISH	LIGHTING & PLUMBING
C	Average	\$12.80	Open one side, block light roof, some end-wall fenestration	Unfinished, light concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	9.30	Open front, cheap block, shed roof	Unfinished, gravel floor, few extras	Minimum services
D	Average	9.70	Open one side, wood frame, siding, some end-wall fenestration	Unfinished, light concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	5.60	Open front, box frame, siding	Unfinished, gravel floor, few extras	Minimum services
DPOLE	Average	8.05	Open one side, metal on pole frame, some end-wall windows	Unfinished, light concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	4.65	Open front, metal on pole frame	Unfinished, gravel floor, few extras	Minimum services
S	Average	9.25	Open one side, metal on steel frame, some end-wall windows	Unfinished, light concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	5.70	Open front, metal on steel frame	Unfinished, gravel floor, few extras	Minimum services
S SLANT WALL	Average	8.55	Open one side, metal on steel slant frame, some light panels	Unfinished, light concrete or asphalt floor, some cabinets	Adequate water, electrical service and outlets
	Low cost	5.25	Open front, metal on light slant frame	Unfinished, gravel floor, few extras	Minimum services

ARCH-RIB (QUONSET) FARM UTILITY BUILDINGS

D	Good	\$18.00	Good laminated arch, siding, shingles, pedestrian and overhead doors	Unfinished, good concrete slab	Adequate wiring, lighting and water service
	Average	10.55	Arched frame, shingles and siding, end wall sliding-door entry	Unfinished, cheap asphalt or slab floor	Adequate wiring and outlets, water service
	Low cost	6.20	Arch-rib frame, siding, composition shingles, open ends	Unfinished, dirt floor	Minimum electric service
DPOLE	Good	16.65	Good laminated arch, metal siding, pedestrian and overhead doors	Unfinished, good concrete slab	Adequate wiring, lighting and water service
	Average	9.65	Pre-engineered arched frame, metal siding, end-wall sliding door entry	Unfinished, cheap asphalt or slab floor	Adequate wiring and outlets, water service
	Low cost	5.60	Light arch-rib frame, metal siding, open ends	Unfinished, dirt floor	Minimum electric service
DHOOP ARCH	Average	7.00	Wood post, knee wall, pipe hoop frame, fabric cover, end curtains	Unfinished, cheap asphalt or slab floor	Adequate wiring, lighting and water service
	Low cost	4.40	Wood, pipe hoop, fabric cover	Unfinished, dirt floor	Minimum electric service
S	Good	16.45	Good self-framing quonset panels, pedestrian and overhead doors	Unfinished, good concrete slab	Adequate wiring, lighting and water service
	Average	9.60	Pre-engineered quonset, metal siding, end-wall sliding-door entry	Unfinished, cheap asphalt or slab floor	Adequate wiring and outlets, water service
	Low cost	5.60	Light self-framing quonset panels, open ends	Unfinished, dirt floor	Minimum electric service

SHEDS AND UTILITY BUILDINGS

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.

1

ADJUSTMENTS FOR DEVIATIONS FROM BASE COSTS	ADD OR DEDUCT PER SQUARE FOOT		
	GOOD	AVERAGE	LOW
Dirt Floor	\$.23	\$.19	\$.14
Gravel .....	.49	.42	.35
Asphalt	2.10	1.70	1.30
Concrete Floor, plain	2.78	2.36	1.93
Reinforced	3.80	2.90	2.21
Plank Floor	2.35	1.39	.82
Electric Service, implement buildings .....	.89	.46	.17
Utility buildings .....	.41	.25	.13
Water Service .....	.55	.29	.12

2

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.	
Electric cable or baseboard	\$2.90
Electric wall heaters (inc. FWA)	1.25
Forced air, ducted	3.20
heaters or furnace, vented .....	.95
Hot water, baseboard/convactor	5.85
radiant floor or ceiling	6.05
Space heaters, with fan	1.60
radiant	1.80
Steam	5.05
Wall or floor furnace	1.45
Package heating and cooling	6.30
Ventilation, blower and ducts .....	.95
fans only .....	.40

3

HEIGHT REFINEMENTS	
STORY HEIGHT MULTIPLIERS	
Multiply base cost by following multiplier for any variation in average story height. For quonset shape buildings, use the center arch height to enter the table.	
Average Wall Height	Square Foot Multiplier
8	.963
9	.981
10	1.000
11	1.019
12	1.038
13	1.058
14	1.077
16	1.115
18	1.154
20	1.192
22	1.231
24	1.269
28	1.346
32	1.423

4

Average Floor Area, Sq. Ft./Story	AVERAGE PERIMETER														Average Floor Area, Sq. Ft./Story	
	75	150	200	250	300	350	400	500	600	700	800	900	1000	1200		
500	1.17	1.54	1.79	2.04	----	----	----	----	----	----	----	----	----	----	----	500
600	1.10	1.42	1.62	1.83	2.04	----	----	----	----	----	----	----	----	----	----	600
700	1.06	1.33	1.50	1.68	1.86	2.04	----	----	----	----	----	----	----	----	----	700
800	1.03	1.26	1.42	1.57	1.73	1.88	----	----	----	----	----	----	----	----	----	800
1,000	.98	1.17	1.29	1.42	1.54	1.66	1.79	----	----	----	----	----	----	----	----	1,000
2,000	.87	.98	1.04	1.10	1.17	1.23	1.29	1.42	1.54	1.66	1.79	1.91	----	----	----	2,000
4,000	----	.89	.92	.95	.98	1.01	1.04	1.10	1.17	1.23	1.29	1.35	1.42	----	----	4,000
6,000	----	----	.87	.90	.92	.94	.96	1.00	1.04	1.08	1.12	1.17	1.21	1.29	----	6,000
10,000	----	----	----	.85	.86	.88	.89	.92	.94	.97	.99	1.02	1.04	1.09	----	10,000
14,000	----	----	----	.83	.84	.85	.86	.88	.90	.92	.93	.95	.97	1.01	----	14,000
16,000	----	----	----	----	----	.84	.85	.87	.89	.90	.92	.93	.95	.98	----	16,000
20,000	----	----	----	----	----	----	.84	.85	.87	.88	.89	.91	.92	.94	----	20,000

Use the total length of walled sides as the perimeter. Do not use table for sheds without walls.

5

USE COUNTY MULTIPLIERS IN MULTIPLIER SECTION.