

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-7 QUALITY**

**A-FRAME**

<b>Foundation</b> Concrete block or standard concrete
<b>Floor Structure</b> 4" x 8" girders, 48" o.c.; with a 5/4" plywood; or 2" tongue and groove sub-floor Alternate: 2" x 6" or 2" x 8" 16" o.c.; with 1" sub-floor
<b>Gable Ends</b> Framing: 2" x 4", 16" o.c. Siding: Average to good plywood, lap, or board and batten Alternate: Good wood shingles fully insulated Windows: Average quality wood or metal; double paned glass
<b>Roof</b> Framing: 4" x 8", 48" o.c.; with 2" or 3" tongue and groove sheathing Cover: Medium wood or aluminum shakes Pitch: Steep
<b>Floor Finish</b> Average to good quality carpet with sheet vinyl or good linoleum in kitchen and baths
<b>Interior Finish</b> Sheetrock and texture, plywood, or good quality knotty pine
<b>Bath Detail</b> Two three-fixture baths
<b>Kitchen</b> Base Cabinet: 12' to 16' hardwood veneer Wall Cabinet: Hardwood veneer Drain Board: 12' to 16' Formica or average ceramic tile
<b>Plumbing</b> Seven average fixtures; water heater
<b>Electrical</b> Romex wiring; average fixtures
<b>Special Features</b> One 8' sliding glass door; built-in range and oven

**MOUNTAIN RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-8 QUALITY**

**A-FRAME**

<b>Foundation</b> Concrete block or standard concrete
<b>Floor Structure</b> 4" x 8" girders, 48" o.c.; with 2" tongue and groove sub-floor Alternate: 2" x 6" or 2" x 8", 16" o.c.; with 1" sub-floor
<b>Gable Ends</b> Framing: 2" x 4", 16" o.c. Siding: Good plywood, lap, or board and batten; fully insulated Windows: Good wood or metal; double paned glass
<b>Roof</b> Framing: 4" x 8", 48" o.c.; with 2" or 3" tongue and groove sheathing Cover: Heavy shakes Pitch: Steep
<b>Floor Finish</b> Good carpet or hardwood sheet vinyl in kitchen and baths
<b>Interior Finish</b> Good quality hardwood veneer paneling
<b>Bath Detail</b> Two three-fixture baths, and one two-fixture bath
<b>Kitchen</b> Base Cabinet: 15' to 18' good hardwood veneer Wall Cabinet: Good hardwood veneer Drain Board: 15' to 18' good Formica or ceramic tile
<b>Plumbing</b> Nine good fixtures; one or two water heaters
<b>Electrical</b> Romex wiring; good fixtures
<b>Special Features</b> Built-in oven, range, garbage disposer, dishwasher, hood; large glass area; ornate entry doors

MOUNTAIN RESIDENCES  
"A"-FRAME" TYPE  
SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE A**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	104.24	94.12	87.19	81.75	77.82	74.70	71.93	69.94	68.04	66.45	65.13
D-4.5	114.30	103.11	95.53	89.65	85.34	81.86	78.86	76.57	74.50	72.87	71.34
D-5	125.16	113.02	104.67	98.31	93.46	89.68	86.45	83.94	81.71	79.83	78.15
D-5.5	137.25	123.88	114.78	107.67	102.45	98.34	94.71	92.00	89.58	87.49	85.68
D-6	150.49	135.79	125.79	117.97	112.35	107.80	103.71	100.82	98.13	95.89	93.86
D-6.5	166.47	150.21	139.17	130.56	124.25	119.23	114.79	111.53	108.58	106.09	103.91
D-7	184.16	166.14	153.92	144.42	137.46	131.91	127.01	123.42	120.09	117.31	114.91
D-7.5	248.40	224.17	207.70	194.83	185.43	178.00	171.38	166.50	162.01	158.30	155.07
D-8	286.77	258.76	239.73	224.90	214.08	205.39	197.79	192.11	187.05	182.66	178.98

**"D" CONSTRUCTION - SHAPE A**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	63.92	62.87	62.01	61.17	59.60	58.33	57.34	56.49	55.61	54.97	54.39
D-4.5	70.08	68.85	67.98	67.08	65.30	63.92	62.89	61.97	61.01	60.24	59.67
D-5	76.83	75.46	74.48	73.52	71.60	70.08	68.87	67.89	66.80	66.08	65.31
D-5.5	84.20	82.72	81.68	80.56	78.49	76.83	75.56	74.41	73.23	72.37	71.61
D-6	92.24	90.62	89.48	88.24	86.04	84.20	82.75	81.54	80.26	79.34	78.53
D-6.5	102.06	100.31	99.04	97.65	95.09	93.14	91.58	90.17	88.85	87.74	86.87
D-7	112.89	111.01	109.53	108.09	105.28	103.04	101.31	99.72	98.30	97.11	96.09
D-7.5	152.40	149.65	147.74	145.65	141.98	139.00	136.70	134.61	132.53	131.00	129.65
D-8	175.82	172.70	170.54	168.18	163.86	160.46	157.71	155.34	152.92	151.18	149.65

**"D" CONSTRUCTION - SHAPE B**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	105.86	95.73	88.80	83.42	79.43	76.31	73.59	71.48	69.72	68.05	66.63
D-4.5	116.07	104.94	97.34	91.42	87.02	83.60	80.59	78.42	76.37	74.59	73.07
D-5	127.16	115.05	106.64	100.17	95.39	91.65	88.41	85.83	83.76	81.74	80.05
D-5.5	139.41	126.02	116.89	109.79	104.57	100.45	96.90	94.12	91.72	89.61	87.74
D-6	152.77	138.13	128.09	120.32	114.61	110.01	106.17	103.15	100.56	98.20	96.16
D-6.5	169.07	152.81	141.77	133.14	126.77	121.77	117.45	114.14	111.27	108.60	106.43
D-7	187.02	169.03	156.75	147.25	140.21	134.71	129.92	130.28	123.13	120.17	117.69
D-7.5	252.33	228.13	211.52	198.74	189.18	181.72	175.31	170.31	166.06	162.17	158.83
D-8	291.18	263.23	244.12	229.27	218.36	209.71	202.32	196.58	191.70	187.13	183.23

**"D" CONSTRUCTION - SHAPE B**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	65.56	64.42	63.60	62.68	61.23	59.95	58.93	58.09	57.31	56.49	55.96
D-4.5	71.87	70.53	69.72	68.76	67.12	65.71	64.63	63.65	62.87	61.97	61.44
D-5	78.74	77.34	76.37	75.32	73.59	72.01	70.82	69.74	68.85	67.89	67.28
D-5.5	86.33	84.78	83.72	82.53	80.67	78.87	77.60	76.48	75.46	74.41	73.67
D-6	94.59	92.91	91.72	90.49	88.41	86.54	85.01	83.81	82.72	81.54	80.79
D-6.5	104.65	102.77	101.52	100.08	97.80	95.72	94.08	92.71	91.50	90.17	89.35
D-7	115.76	113.71	112.30	110.72	108.15	105.84	104.05	102.60	101.20	99.72	98.82
D-7.5	156.25	153.37	151.46	149.39	145.94	142.79	140.39	138.32	136.54	134.61	133.38
D-8	180.30	177.09	174.88	172.40	168.44	164.79	162.05	159.69	157.57	155.34	153.94

MOUNTAIN RESIDENCES  
 "A"-FRAME" TYPE  
 SQUARE FOOT AREA COST TABLES

**"D" CONSTRUCTION - SHAPE C**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	107.40	97.32	90.37	85.01	81.00	77.82	75.15	72.96	70.48	69.53	68.17
D-4.5	117.75	106.58	99.05	93.19	88.80	85.34	82.35	80.00	77.23	76.20	74.72
D-5	129.05	116.86	108.54	102.04	97.34	93.46	90.24	87.65	84.72	83.56	81.90
D-5.5	141.40	128.05	118.94	111.91	106.64	102.45	98.98	96.04	92.86	91.57	89.79
D-6	154.94	140.41	130.33	122.66	116.94	112.35	108.40	105.28	101.76	100.31	98.35
D-6.5	171.50	155.25	144.20	135.66	129.31	124.25	119.97	116.46	112.57	111.05	108.83
D-7	189.66	171.80	159.55	150.12	143.09	137.46	132.69	128.81	124.51	122.84	120.46
D-7.5	255.95	231.71	215.31	202.50	192.99	185.43	179.00	173.83	167.94	165.73	162.41
D-8	295.40	267.50	248.38	233.75	222.78	214.08	206.62	200.66	193.88	191.27	187.49

**"D" CONSTRUCTION - SHAPE C**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	67.10	65.69	65.13	64.20	62.82	61.47	60.47	59.67	58.78	58.09	57.48
D-4.5	73.56	71.94	71.34	70.37	68.83	67.34	66.24	65.31	64.44	63.65	62.97
D-5	80.57	78.86	78.15	77.16	75.38	73.72	72.66	71.61	70.69	69.74	69.00
D-5.5	88.39	86.45	85.68	84.54	82.68	80.91	79.61	78.53	77.36	76.48	75.63
D-6	96.79	94.71	93.86	92.60	90.58	88.57	87.27	86.06	84.82	83.81	82.93
D-6.5	107.09	104.84	103.91	102.43	100.24	98.00	96.57	95.20	93.82	92.71	91.72
D-7	118.49	115.94	114.91	113.38	110.83	108.53	106.83	105.34	103.76	102.60	101.52
D-7.5	159.92	156.37	155.07	152.92	149.57	146.35	144.12	142.15	140.07	138.32	136.89
D-8	184.54	180.56	178.98	176.54	172.67	168.87	166.30	164.01	161.64	159.69	158.01

**"D" CONSTRUCTION - SHAPE D**

Class	400	500	600	700	800	900	1000	1100	1200	1300	1400
D-4	109.02	98.82	91.91	86.54	82.49	79.34	76.60	74.50	72.73	71.07	69.97
D-4.5	119.45	108.34	100.70	94.80	90.45	86.93	83.98	81.71	79.67	77.97	76.57
D-5	130.94	118.73	110.31	103.87	99.08	95.30	92.02	89.58	87.41	85.35	84.06
D-5.5	143.45	130.09	121.01	113.80	108.60	104.46	100.90	98.08	95.73	93.62	92.10
D-6	157.28	142.58	132.54	124.80	119.06	114.43	110.57	107.53	104.94	102.58	100.90
D-6.5	174.01	157.76	146.68	138.09	131.73	126.67	122.32	119.00	116.14	113.46	111.68
D-7	192.42	174.53	162.28	152.77	145.66	140.12	135.32	131.65	128.42	125.51	123.50
D-7.5	259.68	235.51	218.94	206.10	196.50	188.96	182.58	177.62	173.24	169.36	166.64
D-8	299.69	271.77	252.57	237.74	226.89	218.09	210.73	204.95	199.97	195.45	192.33

**"D" CONSTRUCTION - SHAPE D**

Class	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	3200
D-4	68.49	67.55	66.61	65.71	64.34	62.97	62.00	61.15	60.31	59.67	59.04
D-4.5	75.01	73.96	72.97	72.01	70.45	69.00	67.96	67.04	66.10	65.31	64.69
D-5	82.20	81.01	80.04	78.87	77.20	75.63	74.45	73.46	72.43	71.61	70.89
D-5.5	90.09	88.86	87.72	86.54	84.63	82.93	81.60	80.49	79.43	78.53	77.67
D-6	98.73	97.36	96.14	94.80	92.73	90.91	89.39	88.21	87.04	86.06	85.12
D-6.5	109.30	107.76	106.31	104.90	102.68	100.56	99.00	97.56	96.34	95.20	94.19
D-7	120.83	119.21	117.61	116.05	113.51	111.24	109.42	107.94	106.53	105.34	104.20
D-7.5	163.06	160.80	158.68	156.50	153.16	150.01	147.66	145.63	143.74	142.15	140.62
D-8	188.18	185.62	183.17	180.67	176.80	173.21	170.43	168.13	165.86	164.01	162.18

**MOUNTAIN RESIDENCES  
ADDITIVE COSTS**

**WOOD DECKS AND PORCHES**

<u>2" wood deck with steps and railings</u>	<u>Cost Per Square Foot</u>		
1 foot above ground	13.50	-	16.07
4 to 6 feet above ground	16.07	-	21.25
6 to 9 feet above ground	16.71	-	22.51
9 to 12 feet above ground	17.65	-	23.45
12 to 15 feet above ground	18.65	-	24.46
15 to 18 feet above ground	19.29	-	25.72

**FIREPLACES**

<u>Type</u>	<u>Cost</u>		
Metal hood with concrete slab	1,700	-	2,100
Simple concrete block	3,000	-	5,000
Simple block with stone facing	4,000	-	6,000
Simple natural stone	7,000	-	10,000
Brick	5,000	-	up
Wood stove	1,854	-	4,326
Zero clearance	2,472	-	3,708

**FLATWORK**

<u>Type</u>	<u>Cost Per Square Foot</u>		
Asphalt paving	2.62	-	3.93
4" concrete	2.62	-	3.28
6" concrete	3.28	-	5.24

**GARAGES AND CARPORTS**

<u>Type</u>	<u>Cost Per Square Foot</u>		
Average carport, no slab	16.39	-	20.17
Average single garage with slab	36.25	-	43.49
Average double garage with slab	31.89	-	39.15

**HEATING**

<u>Type</u>	<u>Cost</u>		
Wall heaters			
35,000 BTU	803.86		
65,000 BTU	1018.24		
Central heating, perimeter ducts (per square foot)	4.08		
Baseboard hot water (per square foot)	3.22		
Geothermo heat pumps	6120	-	7140

**MOUNTAIN RESIDENCES  
ADDITIVE COSTS**

**HALF-STORY FRACTIONS**

**Mountain Residences**

Use suggested fractions as per AH 531.40, *Building Additives*.

**A-Frame Mountain Residences**

Type I simple platform with low-cost floor cover, minimum partitions, and minimum lighting:  
**\$51.03 to \$53.85 per square foot**

Type II average quality—average-quality carpet, average amount of partitions finished with sheetrock or plywood veneer, average lighting:  
**\$53.85 to \$61.23 per square foot**

Type III good quality—good carpet, decorative rustic partitions and ceiling beams, good lighting:  
**\$78.01 to \$88.68 per square foot**

**EXTRA PLUMBING**

<u>Type</u>	<u>Cost</u>
Lavatory	929 - 1,387
Water Closet	1,135 - 1,387
Tub	1,199 - 1,577
Stall Shower	882 - 1,261
Sink	947 - 1,387

**SLOPE ADJUSTMENTS**

Mountain cabins built on sloping lots will cost more than if they are built on level lots. If the land is a sloping lot, this extra cost should be included in the cost estimate of the building.

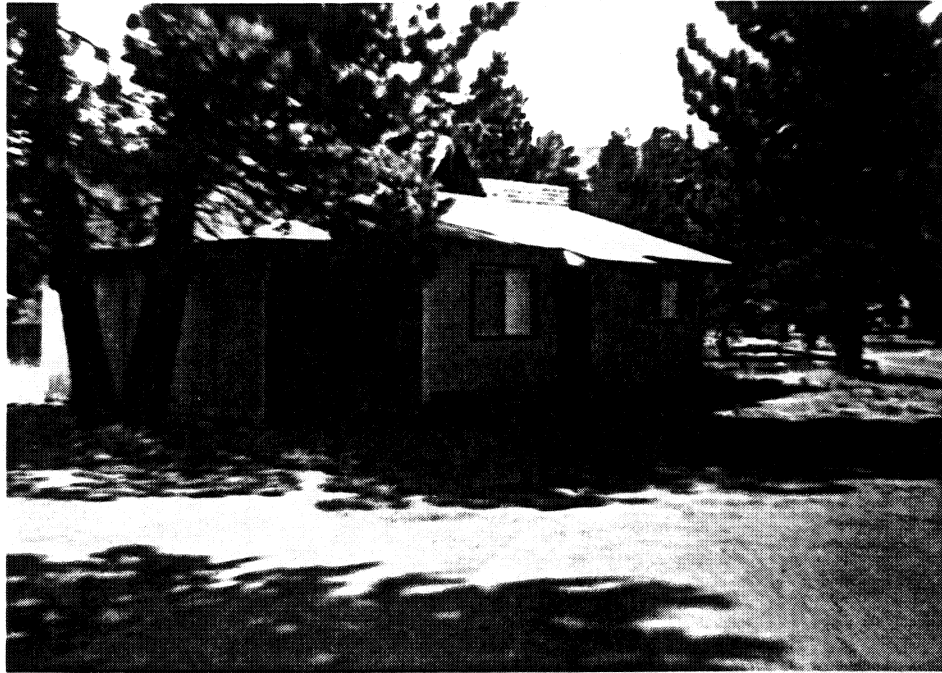
The cost of the walls of a building that are not a part of the area that square-foot costs are applied to are estimated using in-place costs. This estimate includes the in-place cost of all materials above a normal foundation (12" to 18" above ground) and the bottom of the next floor structure where square-foot costs have been applied.

The excessive cost of hillside construction called crippling should be included by adding an additional cost for the extra walls, structural members, and high foundation. This extra cost can be estimated by adding the following cost to the highest wall on the steepest side of the house.

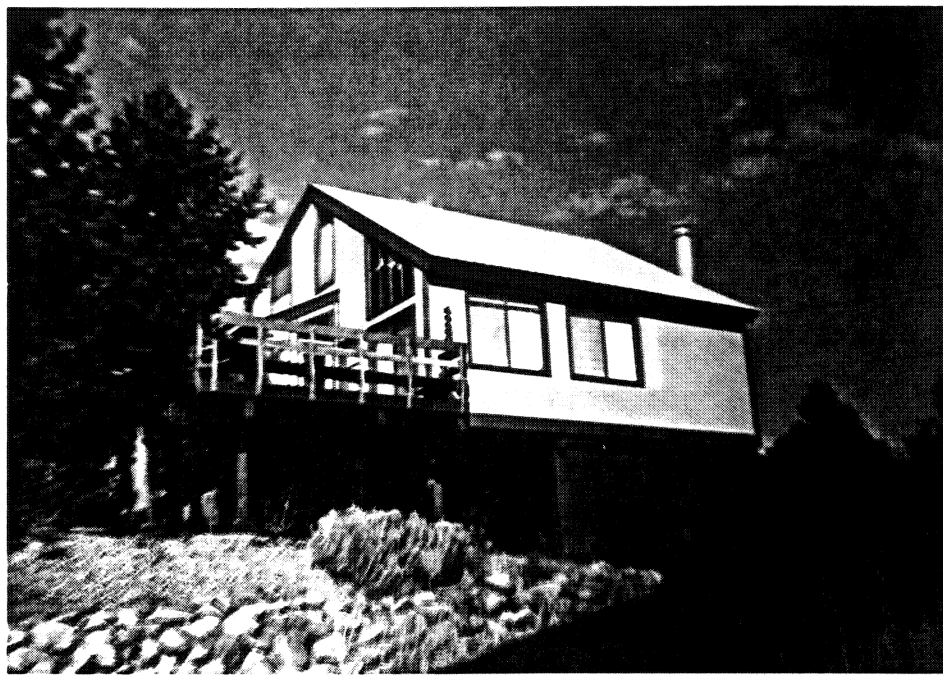
<u>Wall Height</u>	<u>Cost Per Lineal Foot</u>
4'	\$44.34
6'	81.43
8'	125.77
10'	162.72

**THIS PAGE BLANK**

**MOUNTAIN RESIDENCES  
D-5 QUALITY**



**MOUNTAIN RESIDENCES  
D-6 QUALITY**



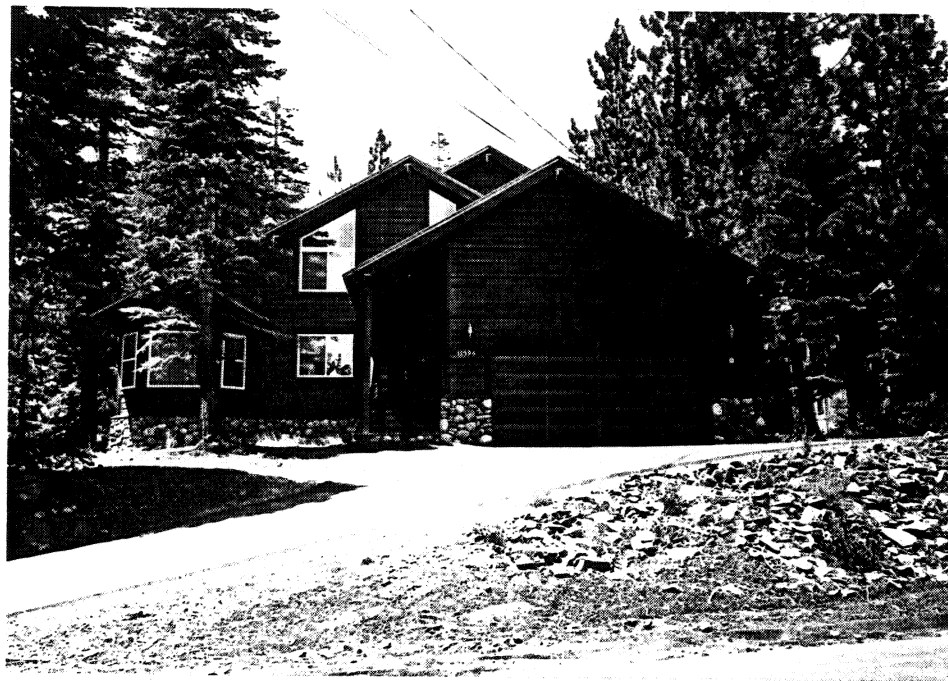
**MOUNTAIN RESIDENCES  
D-6 QUALITY**



**MOUNTAIN RESIDENCES  
D-7 QUALITY**



**MOUNTAIN RESIDENCES  
D-7 QUALITY**



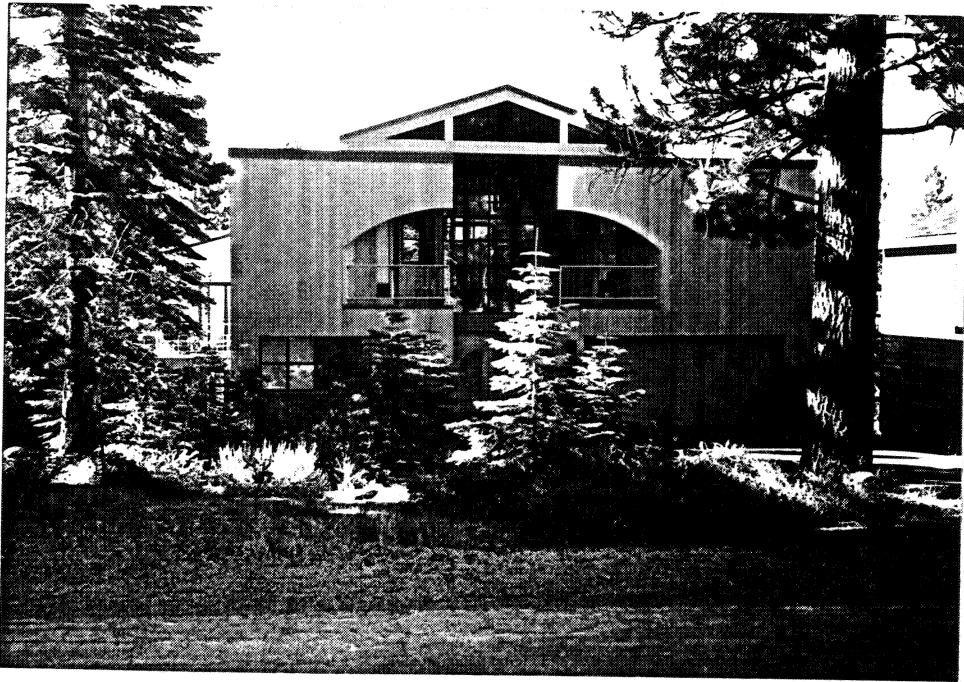
**MOUNTAIN RESIDENCES  
D-8 QUALITY**



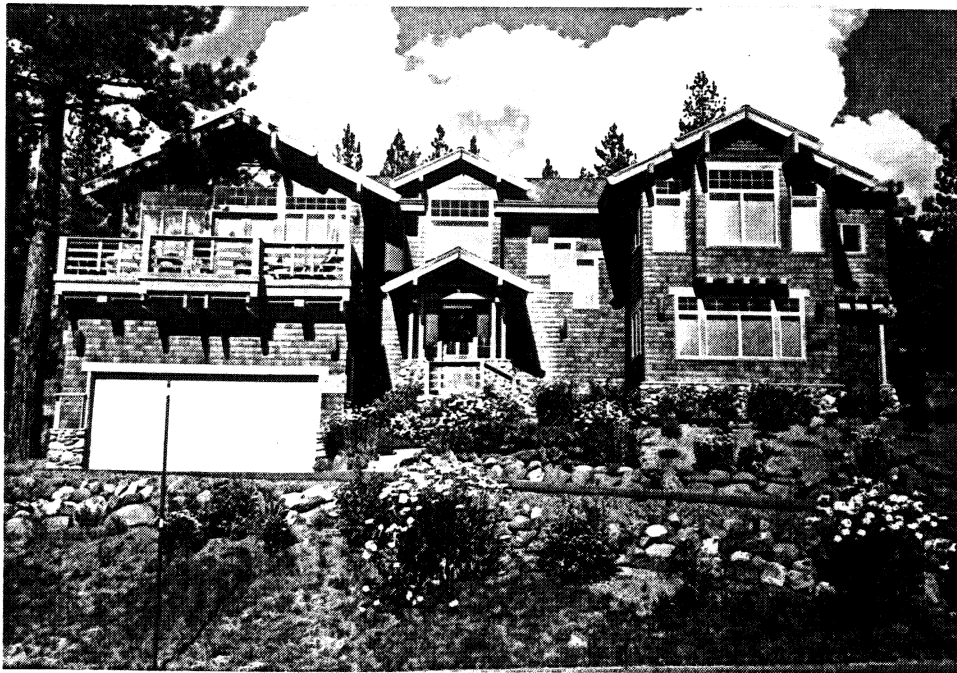
**MOUNTAIN RESIDENCES  
D-8 QUALITY**



**MOUNTAIN RESIDENCES  
D-9 QUALITY**



**MOUNTAIN RESIDENCES  
D-9 QUALITY**



## **AH 531.30: MULTIPLE-FAMILY RESIDENCES**

Multiple-family residences are residential buildings designed and built for permanent and separate occupancy of two or more family units.

Square foot costs include all costs and components described on page 1 of AH 531.10, the *Introduction* section of this handbook. They include only those built-ins described in the building specifications.

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-4 QUALITY**

<b>Foundation</b> Light concrete
<b>Floor Structure</b> Joists: 2" x 6", 24" o.c.; or 4" concrete
<b>Walls and Exterior</b> 6" reinforced or 8" nonreinforced concrete block; painted exterior Windows: Low-cost steel sash
<b>Roof</b> Framing: 2" x 4" rafters, 24" o.c. Cover: 3 ply built-up 15# felt, mopped Overhang: 16", unsealed Gutters: None
<b>Floor Finish</b> Painted concrete or low-cost asbestos tile
<b>Interior Finish</b> Painted concrete block, wall board, or plywood and paint on partition walls
<b>Interior Detail</b> Trim: One member Douglas Fir, painted; or rubber base Closets: One closet per bedroom; minimum shelving
<b>Bath Detail</b> Floors: Painted concrete or low-cost asbestos tile Walls: Painted concrete block, wall board, or plywood and paint on partition walls Shower: None or metal shower in place of tub
<b>Kitchen</b> Base Cabinet: 4' Douglas Fir, painted Wall Cases: Small area Douglas Fir, painted Drain Board: 4' wood or linoleum
<b>Plumbing</b> Fair quality fixtures
<b>Special Features</b> None
<b>Electrical</b> Knob and tube or Romex wiring; simple fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-5 QUALITY**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> 8" reinforced concrete block; painted exterior Windows: Low-cost steel sash
<b>Roof</b> Framing: Standard wood frame Cover: Asphalt shingles or composition tar and pea gravel Overhang: 12" to 16", unsealed Gutters: Over entrances
<b>Floor Finish</b> Asphalt tile or low-cost carpet
<b>Interior Finish</b> Painted concrete block; gypsum board taped, textured, and painted on partitions
<b>Interior Detail</b> Trim: Douglas Fir, painted, or rubber base Closets: Moderate amount; low-cost doors
<b>Bath Detail</b> Floors: Asphalt tile Walls: Gypsum board and enamel Shower: Plastic faced hardboard
<b>Kitchen</b> Base Cabinets: 5' low-cost hardwood veneer Wall Cases: Low-cost hardwood veneer Drain Board: 5' Formica
<b>Plumbing</b> Galvanized pipe; low-cost fixtures
<b>Special Features</b> None
<b>Electrical</b> Romex wiring; low-cost fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-6 QUALITY**

<b>Foundation</b>	Reinforced concrete
<b>Floor Structure</b>	Standard wood frame or reinforced concrete
<b>Walls and Exterior</b>	8" reinforced concrete block or 8" common brick Windows: Average quality steel sash
<b>Roof</b>	Framing: Standard wood frame Cover: Wood shingle, light shake, good composition shingles, or composition with tar and rock Overhang: 16", unsealed Gutters: 4" galvanized and painted at all eaves
<b>Floor Finish</b>	Good quality vinyl asbestos tile or low-cost carpet; average quality linoleum in kitchen and breakfast room
<b>Interior Finish</b>	Gypsum board taped, textured, and painted; colored interior stucco; some wallpaper
<b>Interior Detail</b>	Trim: Douglas Fir, painted Closets: Average amount; low-cost wood or metal doors
<b>Bath Detail</b>	Floors: Linoleum Walls: Gypsum board taped and enameled Shower: Average ceramic tile or plastic coated hardboard with a glass door
<b>Kitchen</b>	Base Cabinet: 6' low-cost hardwood veneer or average pine Wall Cases: Low-cost hardwood veneer or average pine Drain Board: 6' average ceramic tile
<b>Plumbing</b>	Galvanized pipe; average quality fixtures
<b>Special Features</b>	3' ceramic tile or Formica vanity in bath
<b>Electrical</b>	Romex wiring; average fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-7 QUALITY**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> 8" reinforced colored detailed concrete block Windows: Good quality aluminum or average quality steel sash
<b>Roof</b> Framing: Standard wood frame Cover: Medium shake or composition and large rock Overhang: 30", unsealed Gutters: 6" galvanized and painted at all eaves
<b>Floor Finish</b> Average quality carpet; average quality sheet vinyl or good quality inlaid linoleum in kitchen and breakfast room
<b>Interior Finish</b> Gypsum board taped, textured, and painted; plaster with putty coat finish; some wallpaper; average quality hardwood veneer in family room
<b>Interior Detail</b> Trim: Douglas Fir, painted; some hardwood members Closets: Average amount with average quality wood doors
<b>Bath Detail</b> Floors: Sheet vinyl Walls: Gypsum board or smooth plaster and enamel; average ceramic tile over tub Shower: Average ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 8' average quality hardwood veneer Wall Cases: Average quality hardwood veneer Drain Board: 8' ceramic tile or good Formica
<b>Plumbing</b> Galvanized pipe; good fixtures
<b>Special Features</b> Average quality garbage disposer, range hood and fan; 4' ceramic tile vanity in bath
<b>Electrical</b> Romex wiring; average quality fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"C" CONSTRUCTION**

**C-8 QUALITY**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> 8" reinforced split face or slump stone block Windows: Good quality steel sash
<b>Roof</b> Framing: Standard wood frame Cover: Heavy shake Overhang: 36", unsealed, or 24", sealed Gutters: 8" galvanized and painted at all eaves
<b>Floor Finish</b> Terrazzo or mission tile in entry; good tongue and groove hardwood or carpet in living, dining, and bedrooms; good sheet vinyl in kitchen and breakfast rooms
<b>Interior Finish</b> Gypsum board with heavy texture and paint; plaster with putty coat finish; some good wallpaper or vinyl wall covering; some good hardwood veneer paneling
<b>Interior Detail</b> Trim: Douglas Fir, painted; some hardwood members Closets: Ample space; good wood doors
<b>Bath Detail</b> Floors: Good ceramic tile Walls: Gypsum board or plaster with vinyl or foil wall cover; good ceramic tile over tub Shower: Good ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 10' good hardwood veneer Wall Cases: Ample good hardwood veneer Drain Board: 10' good ceramic tile
<b>Plumbing</b> Copper tubing; good fixtures
<b>Special Features</b> 8' sliding glass door; good quality built-in oven, range, dishwasher, garbage disposer, and range hood and fan; 4' to 6' ceramic tile vanity in bath
<b>Electrical</b> Romex type wiring; good quality fixtures

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"C" CONSTRUCTION - 2 or 3 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
C-4	67.96	64.87	63.18	61.90	60.76	59.78	58.97	58.16	57.56	56.57	55.70
C-4.5	73.51	70.25	68.44	67.03	65.84	64.78	63.91	62.99	62.35	61.24	60.36
C-5	79.67	76.10	74.11	72.60	71.29	70.19	69.18	68.26	67.56	66.36	65.36
C-5.5	86.29	82.44	80.29	78.59	77.15	76.00	74.94	73.87	73.15	71.83	70.75
C-6	93.44	89.27	87.00	85.09	83.60	82.26	81.20	80.03	79.24	77.81	76.61
C-6.5	102.20	97.57	95.06	93.07	91.42	89.92	88.70	87.44	86.65	85.07	83.78
C-7	111.06	106.68	103.92	101.75	99.91	98.36	97.01	95.62	94.66	92.96	91.52
C-7.5	127.60	121.86	118.75	116.26	114.12	112.37	110.82	109.32	108.18	106.22	104.69
C-8	145.50	139.02	135.41	132.62	130.18	128.09	126.35	124.66	123.36	121.12	119.33
C-8.5	165.71	158.24	154.16	150.96	148.16	145.88	143.94	141.82	140.39	137.98	135.90

**"C" CONSTRUCTION - 2 or 3 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
C-4	55.06	54.52	53.96	53.62	53.23	52.82	52.61	52.40	52.16	52.02	51.78
C-4.5	59.62	59.06	58.49	58.07	57.67	57.20	56.96	56.74	56.56	56.33	56.12
C-5	64.57	63.94	63.31	62.88	62.48	61.99	61.67	61.42	61.22	61.00	60.76
C-5.5	69.91	69.22	68.62	68.10	67.66	67.09	66.78	66.58	66.31	66.01	65.88
C-6	75.71	74.95	74.28	73.74	73.26	72.65	72.35	72.11	71.81	71.56	71.33
C-6.5	82.81	81.97	81.20	80.65	80.05	79.49	79.13	78.78	78.52	78.13	77.95
C-7	90.50	89.58	88.72	88.09	87.60	86.81	86.42	86.16	85.80	85.49	85.12
C-7.5	103.39	102.36	101.45	100.72	100.03	99.20	98.80	98.41	98.04	97.70	97.34
C-8	117.89	116.77	115.69	114.82	114.06	113.15	112.64	112.25	111.82	111.49	110.99
C-8.5	134.23	132.95	131.68	130.78	129.89	128.86	128.26	127.74	127.28	126.82	126.35

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**2 or 3 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
C-4	2,671	3,934	5,564
C-5	3,264	5,120	6,307
C-6	3,785	5,713	7,939
C-7	4,156	5,417	8,904
C-8	5,564	8,088	10,238

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"C" CONSTRUCTION - 4 to 9 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
C-4	64.02	61.24	59.66	58.42	57.24	56.34	55.60	54.91	54.36	53.41	52.51
C-4.5	69.36	66.32	64.62	63.26	62.03	61.07	60.17	59.50	58.91	57.88	56.92
C-5	75.06	71.82	69.92	68.53	67.24	66.14	65.14	64.40	63.80	62.66	61.66
C-5.5	81.31	77.81	75.72	74.14	72.72	71.60	70.57	69.79	69.07	67.80	66.77
C-6	88.08	84.28	82.03	80.38	78.78	77.58	76.45	75.62	74.82	73.48	72.28
C-6.5	96.30	92.16	89.66	87.86	86.18	84.74	83.53	82.64	81.78	80.34	79.06
C-7	105.24	100.70	98.08	95.99	94.16	92.70	91.34	90.31	89.48	87.84	86.35
C-7.5	120.31	115.04	112.03	109.69	107.56	105.88	104.39	103.18	102.17	100.33	98.70
C-8	137.17	131.21	127.75	125.11	122.71	120.78	119.03	117.71	116.52	114.41	112.52
C-8.5	156.17	149.41	145.49	142.45	139.72	137.47	135.55	133.98	132.68	130.22	128.21

**"C" CONSTRUCTION - 4 to 9 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
C-4	51.90	51.37	51.00	50.58	50.26	49.90	49.61	49.52	49.24	49.04	48.90
C-4.5	56.21	55.64	55.15	54.73	54.42	53.98	53.72	53.62	53.36	53.11	52.98
C-5	60.85	60.28	59.76	59.30	58.94	58.50	58.22	58.07	57.74	57.50	57.46
C-5.5	65.94	65.33	64.74	64.30	63.89	63.41	62.99	62.90	62.56	62.18	62.14
C-6	71.36	70.62	70.12	69.52	69.13	68.64	68.26	68.10	67.75	67.37	67.28
C-6.5	78.04	77.26	76.61	76.03	75.58	75.00	74.60	74.45	74.05	73.70	73.62
C-7	85.25	84.42	83.77	83.10	82.64	82.03	81.54	81.41	80.99	80.58	80.44
C-7.5	97.44	96.54	95.70	95.02	94.40	93.71	93.18	93.04	92.44	92.05	91.91
C-8	111.18	110.05	109.16	108.31	107.66	106.86	106.28	106.08	105.43	105.02	104.76
C-8.5	126.53	125.29	124.30	123.29	122.59	121.68	121.06	120.72	120.07	119.51	119.30

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**4 to 9 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
C-4	2,449	3,630	4,841
C-5	2,968	4,614	5,825
C-6	3,560	5,674	7,036
C-7	3,934	6,430	8,472
C-8	5,120	7,261	10,061

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"C" CONSTRUCTION - 10 OR MORE UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
C-4	60.48	57.88	56.34	55.15	54.20	53.30	52.51	51.90	51.32	50.46	49.63
C-4.5	65.57	62.66	61.07	59.70	58.66	57.68	56.92	56.21	55.62	54.67	53.80
C-5	71.02	67.80	66.14	64.72	63.50	62.50	61.66	60.85	60.18	59.22	58.26
C-5.5	76.90	73.48	71.60	70.12	68.77	67.68	66.77	65.94	65.22	64.09	63.12
C-6	83.24	79.62	77.58	75.94	74.51	73.31	72.28	71.36	70.61	69.44	68.32
C-6.5	90.98	87.05	84.74	82.97	81.42	80.14	79.06	78.04	77.22	75.95	74.71
C-7	99.49	95.10	92.70	90.67	89.04	87.64	86.35	85.25	84.41	82.99	81.61
C-7.5	113.69	108.68	105.88	103.58	101.74	100.09	98.70	97.44	96.49	94.79	93.35
C-8	129.65	124.02	120.78	118.16	116.05	114.18	112.52	111.18	110.02	108.19	106.36
C-8.5	147.64	141.11	137.47	134.56	132.06	130.00	128.21	126.53	125.26	123.11	121.10

**"C" CONSTRUCTION - 10 OR MORE UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
C-4	49.06	48.58	48.10	47.75	47.41	47.15	46.93	46.69	46.55	46.37	46.18
C-4.5	53.14	52.61	52.12	51.73	51.32	51.05	50.78	50.59	50.40	50.24	49.98
C-5	57.52	56.96	56.50	55.97	55.62	55.30	55.04	54.80	54.59	54.35	54.23
C-5.5	62.32	61.67	61.13	60.59	60.18	59.88	59.60	59.32	59.10	58.90	58.67
C-6	67.51	66.78	66.26	65.68	65.22	64.80	64.49	64.34	64.02	63.78	63.50
C-6.5	73.73	73.02	72.40	71.78	71.29	70.87	70.48	70.24	70.00	69.66	69.43
C-7	80.66	79.86	79.13	78.49	77.88	77.44	77.09	76.82	78.46	76.22	75.96
C-7.5	92.15	91.27	90.46	89.72	88.99	88.51	88.09	87.80	87.43	87.04	86.81
C-8	105.07	104.04	103.10	102.29	101.52	100.94	100.44	100.13	99.73	99.30	98.95
C-8.5	119.54	118.44	117.41	116.47	115.62	114.92	114.35	113.94	113.46	113.05	112.67

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**10 OR MORE UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
C-4	2,153	3,338	4,010
C-5	2,598	3,934	5,674
C-6	3,338	5,120	6,430
C-7	3,934	5,935	8,093
C-8	4,526	7,123	9,227

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-4 QUALITY**

<b>Foundation</b> Light concrete
<b>Floor Structure</b> Joints: 2" x 4", 24" o.c.; or 4" concrete
<b>Walls and Exterior</b> Framing: 2" x 4" studs, 16" o.c. Sheathing: None Cover: 1/2" redwood siding painted, or light stucco Windows: Wood casements or double hung, painted
<b>Roof</b> Framing: 2" x 4" rafter, 24" o.c. Cover: 3 ply built-up 15# felt, mopped Overhang: 16", unsealed Gutters: None
<b>Floor Finish</b> 1" x 4" Douglas Fir tongue and groove; print linoleum in kitchen
<b>Interior Finish</b> Two coats of sand plaster on wood or gypsum lath glue size and calcimine
<b>Interior Detail</b> Trim: One member Douglas Fir, painted Closets: One closet per bedroom; minimum shelving
<b>Bath Detail</b> Floors: Print linoleum Walls: Plaster, painted Shower: None or metal shower in place of tub
<b>Kitchen</b> Base Cabinet: 4' Douglas Fir, painted Wall Cases: Small area; Douglas Fir, painted Drain Board: 4' wood or linoleum squares
<b>Plumbing</b> Fair quality fixtures
<b>Special Features</b> None
<b>Electrical</b> Knob and tube or Romex wiring; simple fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-5 QUALITY**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Line wire and paper Cover: Light stucco Windows: Low-cost aluminum, steel, or wood
<b>Roof</b> Framing: Standard wood frame Cover: Asphalt shingles or composition tar and pea gravel Overhang: 12" to 16", unsealed Gutters: Over entrances
<b>Floor Finish</b> Asphalt tile
<b>Interior Finish</b> Gypsum board taped, textured, and painted
<b>Interior Detail</b> Trim: Douglas Fir, painted Closets: Moderate amount; low-cost doors
<b>Bath Detail</b> Floors: Asphalt tile Walls: Gypsum board and enamel Shower: Plastic faced hardboard
<b>Kitchen</b> Base Cabinet: 5' low-cost hardwood veneer Wall Cases: Low-cost hardwood veneer Drain Board: 5' Formica
<b>Plumbing</b> Galvanized pipe; low-cost fixtures
<b>Special Features</b> None
<b>Electrical</b> Romex wiring; low-cost fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-6 QUALITY**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Line wire and paper Cover: Hardboard siding, wood shingles, low-cost wood siding, or average stucco Windows: Average quality aluminum, steel, or wood sash
<b>Roof</b> Framing: Standard wood frame Cover: Wood shingle, light shake, good composition shingles, or composition with tar and rock Overhang: 16", unsealed Gutters: 4" galvanized and painted at all eaves
<b>Floor Finish</b> Average quality 3/8" square edge hardwood or low-cost carpet; average quality linoleum in kitchen and breakfast room
<b>Interior Finish</b> Gypsum board taped, textured, and painted; colored interior stucco; some wallpaper
<b>Interior Detail</b> Trim: Douglas Fir, painted; some low-cost hardwood Closets: Average amount; low-cost wood or metal doors
<b>Bath Detail</b> Floors: Linoleum Walls: Gypsum board taped and enameled Shower: Average ceramic tile or plastic coated hardboard with a glass door
<b>Kitchen</b> Base Cabinet: 6' low-cost hardwood veneer or average pine Wall Cases: Low-cost hardwood veneer or average pine Drain Board: 6' average ceramic tile
<b>Plumbing</b> Galvanized pipe; average quality fixtures
<b>Special Features</b> 3' average ceramic tile or Formica vanity in bath
<b>Electrical</b> Romex wiring; average fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-7 QUALITY**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Gypsum board Cover: Good hardboard or average siding and masonry veneer on front wall; good stucco on sides and rear Windows: Average aluminum; steel or wood
<b>Roof</b> Framing: Standard wood frame Cover: Medium shake or composition and large rock Overhang: 30", unsealed Gutters: 6" galvanized and painted at all eaves
<b>Floor Finish</b> Average quality tongue and groove hardwood or carpet; average quality sheet vinyl or good quality inlaid linoleum in kitchen and breakfast room
<b>Interior Finish</b> Gypsum board taped, textured, and painted; plaster with putty finish; some wallpaper, average quality hardwood veneer in family room
<b>Interior Detail</b> Trim: Douglas Fir, painted; some hardwood members Closets: Average amount with average quality wood doors
<b>Bath Detail</b> Floors: Sheet vinyl or inlaid linoleum Walls: Gypsum board or smooth plaster and enamel; average ceramic tile over the tub Shower: Average ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 12' average quality hardwood veneer Wall Cases: Average quality hardwood veneer Drain Board: 12' average ceramic tile or good Formica
<b>Plumbing</b> Galvanized pipe; good fixtures
<b>Special Features</b> Average quality garbage disposer, range hood and fan; 4' ceramic tile vanity in bath
<b>Electrical</b> Romex wiring; average quality fixtures

**MULTIPLE-FAMILY RESIDENCES  
BUILDING SPECIFICATIONS  
"D" CONSTRUCTION**

**D-8 QUALITY**

<b>Foundation</b> Reinforced concrete
<b>Floor Structure</b> Standard wood frame or reinforced concrete
<b>Walls and Exterior</b> Framing: Standard wood frame Sheathing: Gypsum board or 3/8" plywood Cover: Good wood siding with masonry veneer trim on front wall; good stucco on sides and rear Windows: Good aluminum, steel, or wood
<b>Roof</b> Framing: Standard wood frame Cover: Heavy shake Overhang: 30", unsealed, or 24", sealed Gutters: 8" galvanized and painted at all eaves
<b>Floor Finish</b> Good ceramic tile or terrazzo in entry; good quality tongue and groove hardwood or carpet in living, dining, hall, and bedrooms; good quality sheet vinyl or good quality inlaid linoleum in kitchen, breakfast, and utility rooms
<b>Interior Finish</b> Gypsum board with heavy texture and paint; plaster with putty coat finish; some wallpaper or vinyl wall covering; some good hardwood veneer paneling
<b>Interior Detail</b> Trim: Douglas Fir, painted; some hardwood members Closets: Ample space; good wood doors; linen closets
<b>Bath Detail</b> Floors: Good ceramic tile Walls: Gypsum board or plaster with vinyl or foil wall cover; good ceramic tile over tub Shower: Good ceramic tile with glass door
<b>Kitchen</b> Base Cabinet: 16' good hardwood veneer Wall Cases: Ample good hardwood veneer Drain Board: 16' good ceramic tile
<b>Plumbing</b> Copper tubing; good fixtures
<b>Special Features</b> 8' sliding glass door; good quality built-in oven, range, dishwasher, garbage disposer, and range hood and fan; 4' to 6' ceramic tile vanity in bath
<b>Electrical</b> Romex wiring; good quality fixtures

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"D" CONSTRUCTION - 2 OR 3 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
D-4	64.80	61.99	60.42	59.06	58.02	57.06	56.28	55.57	55.04	53.98	53.16
D-4.5	70.21	67.09	65.41	63.94	62.75	61.76	61.00	60.11	59.60	58.50	57.56
D-5	76.03	72.65	70.84	69.22	68.00	66.90	65.99	65.10	64.55	63.41	62.35
D-5.5	82.33	78.68	76.75	74.98	73.63	72.50	71.56	70.52	69.90	68.64	67.56
D-6	89.16	85.18	83.08	81.24	79.78	78.49	77.40	76.43	75.67	74.32	73.15
D-6.5	97.43	93.12	90.86	88.74	87.16	85.80	84.67	83.52	82.72	81.29	79.98
D-7	106.52	101.88	99.30	97.08	95.33	93.74	92.58	91.27	90.43	88.82	87.41
D-7.5	121.74	116.38	113.46	110.86	108.92	107.15	105.78	104.32	103.33	101.47	99.88
D-8	138.82	132.70	129.41	126.46	124.15	122.20	120.66	118.88	117.86	115.75	113.93
D-8.5	158.00	151.10	147.32	143.96	141.40	139.08	137.33	135.32	134.15	131.83	129.68

**"D" CONSTRUCTION - 2 OR 3 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
D-4	52.51	52.02	51.54	51.17	50.81	50.48	50.26	50.00	49.85	49.63	49.52
D-4.5	56.92	56.33	55.86	55.36	55.06	54.71	54.42	54.23	53.95	53.80	53.62
D-5	61.66	61.00	60.43	59.98	59.62	59.26	58.94	58.68	58.44	58.26	58.07
D-5.5	66.77	66.01	65.45	64.94	64.57	64.15	63.89	63.54	63.28	63.12	62.90
D-6	72.28	71.56	70.91	70.32	69.91	69.48	69.13	68.92	68.53	68.32	68.10
D-6.5	79.06	78.13	77.57	76.92	76.44	75.97	75.58	75.31	74.93	74.71	74.45
D-7	86.35	85.49	84.73	84.10	83.58	83.05	82.64	82.26	81.92	81.61	81.41
D-7.5	98.70	97.70	96.80	96.06	95.51	94.91	94.40	94.02	93.61	93.35	93.04
D-8	112.52	111.49	110.36	109.58	108.85	108.22	107.66	107.27	106.75	106.36	106.08
D-8.5	128.21	126.82	125.68	124.75	123.95	123.22	122.59	122.04	121.50	121.10	120.72

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**2 OR 3 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
D-4	2,746	3,934	5,564
D-5	3,338	5,120	6,307
D-6	3,934	5,713	7,939
D-7	4,379	6,901	8,904
D-8	5,564	8,309	10,238

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"D" CONSTRUCTION - 4 TO 9 UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
D-4	61.04	58.32	56.82	55.64	54.59	53.72	53.11	52.33	51.80	50.83	50.00
D-4.5	66.08	63.17	61.61	60.24	59.10	58.16	57.50	56.66	56.15	55.08	54.23
D-5	71.58	68.38	66.72	65.24	64.02	62.99	62.18	61.37	60.83	59.66	58.68
D-5.5	77.57	74.08	72.16	70.62	69.36	68.26	67.37	66.38	65.89	64.62	63.54
D-6	83.96	80.27	78.17	76.50	75.02	73.87	73.02	71.90	71.35	69.92	68.92
D-6.5	91.78	87.71	85.49	83.65	82.09	80.78	79.81	78.66	77.99	76.45	75.31
D-7	100.32	95.92	93.44	91.45	89.76	88.32	87.23	85.96	85.18	83.60	82.26
D-7.5	114.61	109.57	106.74	104.53	102.52	100.92	99.72	98.29	97.43	95.58	94.02
D-8	130.78	124.96	121.75	119.18	116.98	115.09	113.69	112.12	111.10	109.01	107.27
D-8.5	148.79	142.21	138.60	135.66	133.09	131.00	129.42	127.62	126.44	124.01	122.04

**"D" CONSTRUCTION - 4 TO 9 UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
D-4	49.55	49.04	48.58	48.14	47.87	47.58	47.33	47.15	46.93	46.69	46.62
D-4.5	53.64	53.11	52.61	52.14	51.80	51.52	51.24	51.05	50.78	50.59	50.46
D-5	58.09	57.50	56.96	56.51	56.15	55.78	55.57	55.30	55.04	54.80	54.67
D-5.5	62.95	62.18	61.67	61.15	60.79	60.42	60.11	59.88	59.60	59.32	59.22
D-6	68.17	67.37	66.78	66.31	65.89	65.42	65.09	64.80	64.49	64.34	64.10
D-6.5	74.51	73.70	73.02	72.41	72.04	71.58	71.18	70.87	70.48	70.24	70.10
D-7	81.44	80.58	79.86	79.18	78.68	78.19	77.82	77.44	77.09	76.82	76.62
D-7.5	93.06	92.05	91.27	90.50	89.90	89.32	88.91	88.51	88.09	87.80	87.56
D-8	106.10	105.02	104.04	103.20	102.59	101.90	101.39	100.94	100.44	100.13	99.88
D-8.5	120.82	119.51	118.44	117.49	116.76	115.97	115.39	114.92	114.35	113.94	113.69

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**4 TO 9 UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
D-4	2,375	3,560	4,748
D-5	2,968	3,934	5,713
D-6	3,560	5,564	6,901
D-7	4,156	6,307	8,309
D-8	4,972	7,123	9,869

**MULTIPLE-FAMILY RESIDENCES  
SQUARE FOOT AVERAGE-UNIT AREA COST TABLES**

**"D" CONSTRUCTION - 10 OR MORE UNITS**

Class	400	450	500	550	600	650	700	750	800	900	1000
D-4	57.67	54.88	53.72	52.61	51.54	50.76	50.00	49.44	48.90	48.06	47.35
D-4.5	62.48	59.46	58.16	56.96	55.86	54.96	54.23	53.50	52.98	52.03	51.29
D-5	67.62	64.37	62.99	61.67	60.43	59.58	58.68	58.02	57.46	56.34	55.60
D-5.5	73.26	69.74	68.26	66.78	65.45	64.42	63.54	62.75	62.14	61.07	60.17
D-6	79.32	75.42	73.87	72.35	70.91	69.80	68.92	68.00	67.28	66.08	65.14
D-6.5	86.71	82.49	80.78	79.13	77.57	76.36	75.31	74.34	73.62	72.28	71.21
D-7	94.78	90.16	88.32	86.42	84.73	83.46	82.26	81.25	80.44	79.02	77.83
D-7.5	108.31	103.07	100.92	98.80	96.80	95.36	94.02	92.80	91.91	90.25	88.98
D-8	123.52	117.52	115.09	112.64	110.36	108.71	107.27	105.88	104.76	103.02	101.45
D-8.5	140.68	133.76	131.00	128.26	125.68	123.74	122.04	120.52	119.30	117.22	115.49

**"D" CONSTRUCTION - 10 OR MORE UNITS**

Class	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2200
D-4	46.78	46.31	45.91	45.54	45.13	44.87	44.74	44.51	44.34	44.12	44.03
D-4.5	50.69	50.23	49.72	49.30	48.89	48.60	48.42	48.23	47.98	47.81	47.66
D-5	54.88	54.32	53.80	53.36	52.96	52.69	52.42	52.16	52.01	51.73	51.65
D-5.5	59.46	58.81	58.31	57.79	57.28	57.06	56.75	56.56	56.28	56.04	55.91
D-6	64.37	63.73	63.12	62.58	62.08	61.76	61.54	61.22	60.95	60.71	60.48
D-6.5	70.40	69.65	69.00	68.44	67.80	67.52	67.26	66.90	66.64	66.34	66.18
D-7	76.90	76.13	75.42	74.77	74.15	73.84	73.48	73.16	72.79	72.50	72.35
D-7.5	87.84	86.96	86.16	85.49	84.80	84.40	84.01	83.62	83.23	82.93	82.62
D-8	100.18	99.18	98.28	97.43	96.71	96.17	95.82	95.34	94.98	94.51	94.26
D-8.5	114.06	112.93	111.83	110.98	110.10	109.51	109.07	108.53	108.07	107.58	107.35

All multiple-family residence costs assume one bath per unit. Use the following table for adding the cost of extra baths.

**10 OR MORE UNITS**

Class	Cost Per Extra Bath		
	2-Fixture Bath	3-Fixture Bath	4-Fixture Bath
D-4	2,375	3,338	3,934
D-5	2,746	3,934	4,124
D-6	3,338	4,972	6,307
D-7	4,156	5,935	7,939
D-8	4,748	6,752	8,904

# AH 531.35: MANUFACTURED HOUSING

## INTRODUCTION

A manufactured home is a structure transportable in one or more sections, designed and equipped to contain not more than two-dwelling units and to be used with or without a permanent foundation. A manufactured home does not include a recreational vehicle or commercial coach.

A manufactured home will usually be 8 to 24 feet wide and up to 64 feet long. Manufactured homes assembled from two or three attached sections are known as *double wide* or *triple wide*. Telescoping and/or attached rooms to the side of a manufactured home are known as *tip-out*, *expando*, or *tag-a-long* units. Include all sections in the total square footage computations.

## BASIS OF COST

Costs in this handbook are based upon a variety of indicators, including dealers' sales and manufacturers' list prices.

The base cost factors are listed as retail square foot costs applicable to single- and multi-unit manufactured housing. The accessory and component costs are based upon retail in-place cost to the consumer.

Often times, the sizes used in the manufactured housing industry are overall length which would include the tow bar. The tow bars are normally about three feet long. The costs in this handbook are *net* lengths and **do not include the tow bar**. We suggest the appraiser measure the manufactured home to be certain that actual dimensions are calculated.

The cost factors in this handbook are to be used only in the valuation of manufactured homes that are in excess of 8 feet wide or in excess of 40 feet long, and/or in excess of 320 square feet.

## MANUFACTURED HOME ACCESSORY AND COMPONENT COSTS

The accessory and component cost listing represents retail in-place costs. A price range is indicated to account for variations in quality. Additional accessory and components are included in the basic cost as described in the applicable specifications. Some costs not included in this section may be found in other sections of this manual, e.g., concrete work or yard improvements. Concrete foundation costs are not included in this handbook. Foundations vary in type and cost. They are generally not included in the purchase price and must be added.

## STANDARD CLASSIFICATION SYSTEMS

The square foot cost tables are constructed and arranged to be used with the Assessors' Standard Classification System. This is a system of tabulating and arranging known costs according to physical variations that cause cost differentials. The manufactured housing classification system is

designed to coincide with the single-family residential quality class system. For example, the lowest class of manufactured home is a 4. This class is not currently in production and will not meet current building codes. The class of 5 is given to the lowest priced manufactured home in current production. The quality of all the features is minimum, similar to those found in a minimum quality tract home. The Class 7 manufactured home is the most common and represents the average priced manufactured home usually found in the majority of manufactured housing parks. It represents the equivalent of the average tract home.

Classes 8 and 9 represent increasing quality, with Class 9 being the highest quality made. Very few Class 9 manufactured homes exist and care must be used before assigning this quality class.

The specifications for each quality class make a distinction between classes. This distinction often shows in the *quality* of a feature and not whether the feature is present. The same feature may exist in different classes, but the quality of the feature will help to determine the classification. Conversely, some features may be included in a particular classification, while in another class, the same feature must be treated as an additive.

### LOCATION ADJUSTMENTS

Costs in this handbook are developed from sources in the Sacramento and San Joaquin Valleys, Southern California, and the San Francisco Bay area. Generally, **no adjustment for location is needed in these areas**. Adjustments for freight may be necessary. Transportation and set-up rates for each unit are negotiable between the dealer and purchaser. Local dealers or purchasers must be contacted for the amount charged which is applicable to a particular location. These charges include transportation fees, mileage charges, set-up, tie down, pilot cars, etc. **For manufactured homes, do not use the location map in Section 531.10, page 25.**

Section 5803(b) of the Revenue and Taxation Code states:

The Legislature finds and declares that, because owners of manufactured homes subject to property taxation on rented or leased land do not own the land on which the manufactured home is located and are subject to having the manufactured home removed upon termination of tenancy, 'full cash value' for purposes of subdivision (a) does not include any value attributable to the particular site where the manufactured home is located on rented or leased land which would make the sale price of the manufactured home at that location different from its price at some other location on rented or leased land. In determining the 'full cash value' of such a manufactured home on rented or leased land, the assessor shall take into consideration, among other relevant factors, sales prices listed in recognized value guides for manufactured homes, including, but not limited to, the Kelly Blue Book Manufactured Housing and Mobilehome Guide and the National Automobile Dealer Association's Mobilehome Manufactured Housing Appraisal Guide.

**MANUFACTURED HOUSING  
BUILDING SPECIFICATIONS**

**QUALITY CLASS 4**

This class of manufactured home is not in current production; however, older manufactured homes may be found which appear to be less than Class 5. No specifications are given for this class because of the great variation possible. Appraisal judgment must be used to estimate this class based on a comparison with Class 5.

## MANUFACTURED HOUSING BUILDING SPECIFICATIONS

### QUALITY CLASS 5

This is the lowest priced manufactured home in current production. The quality of all the features is minimum, similar to those found in a minimum quality tract home.

<b>Roof</b>	Painted lightweight galvanized steel with minimum pitch; or asphalt shingles
<b>Exterior Walls</b>	Covering is pre-finished aluminum panels with exposed hex-head holding screw fasteners; panels of modified corrugated pattern; panels are not imitation siding or flush type; exterior wall thickness 3" to 4"; lightweight skirting
<b>Trim and Sash</b>	No ornamental trim; minimum window area and sash
<b>Interior</b>	Walls are pre-finished 3/16" fire rated paneling; hardboard or firtex ceiling cover with exposed fasteners and/or stapled holding strips; 7' 6" ceiling heights
<b>Floors</b>	Vinyl; lightweight carpet in living room and master bedroom only
<b>Heating</b>	Forced air furnace; minimum ducting and outlets
<b>Kitchen</b>	10± linear foot Formica counter; minimum quality plywood cabinets; built-in or drop-in range and oven
<b>Baths and Plumbing</b>	One bath; fiberglass tub or shower with curtain; small 4' plastic marble vanity; minimum quality cabinets
<b>Bedrooms</b>	Five to six linear feet of wardrobe; plain plywood sliding doors
<b>Insulation</b>	Fully insulated floors, side walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

**MANUFACTURED HOUSING  
BUILDING SPECIFICATIONS**

**QUALITY CLASS 6**

<b>Roof</b>	One piece fabricated steel; minimum pitch; small overhang in front; or asphalt shingles
<b>Exterior Walls</b>	Covering is pre-finished aluminum siding or flush-type masonite panels with some concealed fasteners; exterior wall thickness is 3" to 4"; skirting is lightweight or masonite hardboard panels
<b>Trim and Sash</b>	No trim; exterior decoration two types of color; coordinated exterior covering; tract house size and quality windows; optional 6' sliding glass door
<b>Interior</b>	Pre-finished fire rated plywood paneling or partial gypsum board; acoustical tile ceiling; 8' eight; drapes in living room, dining room, and bedrooms
<b>Floors</b>	Carpet with 1/2" thick pad in living, dining, and bedrooms; vinyl in other areas
<b>Heating</b>	Forced air furnace; ducting in all rooms; perimeter floor return system; optional air conditioning
<b>Kitchen</b>	12± linear foot Formica counter; average quality plywood cabinets with raised panel doors; built-in range and oven, hood and fan; optional dishwasher
<b>Baths and Plumbing</b>	1 and 3/4 baths; fiberglass shower with glass or plastic door; fiberglass or enameled steel tub; 4 to 5 linear foot plastic marble vanity single basin; average quality cabinets; 30-gallon hot water heater
<b>Bedrooms</b>	8± linear feet wardrobe; pre-finished and grooved plywood doors; mirrored wardrobe door in master bedroom
<b>Insulation</b>	Fully insulated floors, side walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

## MANUFACTURED HOUSING BUILDING SPECIFICATIONS

### QUALITY CLASS 7

This is the average priced manufactured home of the price range usually found in the majority of modern manufactured housing parks.

<b>Roof</b>	One piece white baked enamel metal; asphalt shingles on gable accented roof
<b>Exterior Walls</b>	Pre-finished aluminum (shipload) siding and/or flush-type masonite panels with concealed fasteners; designer coordinated exterior colors; 4" exterior wall thickness; aluminum skirting
<b>Trim and Sash</b>	Little or no trim; two-tone exterior coverings; large, good, house-type sash; some picture windows; optional 6' sliding glass door
<b>Interior</b>	Pre-finished and grooved hardwood, plywood paneling, or gypsum board; 8' acoustical plank-type ceilings; decorator coordinated drapes in all rooms except kitchen and baths; optional cathedral ceilings with decorative beams
<b>Floors</b>	Carpet with 1/2" thick pad in all rooms except baths and kitchen; vinyl in kitchen and baths
<b>Heating</b>	80,000 BTU upflow or downflow forced air furnace; ducting to all rooms; optional air conditioning and fireplace
<b>Kitchen</b>	14± linear foot Formica counter; good quality cabinets; built-in range and oven with a hood and fan; optional dishwasher and pantry
<b>Baths and Plumbing</b>	2 baths; vent fans; fiberglass shower with glass or plastic door; fiberglass or enameled steel tub; 6 to 8 linear foot plastic marble vanity, twin basin master bath; good cabinets; 30 to 40 gallon water heater
<b>Bedrooms</b>	10± linear foot wardrobe; floor to ceiling mirrored sliding doors in master bedroom
<b>Insulation</b>	Fully insulated floors, walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

**MANUFACTURED HOUSING  
BUILDING SPECIFICATIONS**

**QUALITY CLASS 8**

This is the highest priced manufactured home of the price range usually found in the majority of modern home parks. This is a luxury type manufactured home. It not only has extensive features, but of more importance, they are of a good quality.

<b>Roof</b>	One piece white baked enamel metal; asphalt shingles on gable accented roof; residential-type front and rear overhangs
<b>Exterior Walls</b>	Pre-finished shiplap aluminum siding and/or flush-type masonite panels with concealed fasteners; designer coordinated exterior colors; exterior walls 4" thick; aluminum skirting
<b>Trim and Sash</b>	Painted aluminum and/or imitation stone (fiberglass) trim; large, good, house-type sash; picture windows; sliding glass door; recessed entry
<b>Interior</b>	Pre-finished and grooved hardwood paneling or gypsum board; careful workmanship throughout; cathedral, decorative beam, and/or acoustical plank-type ceilings; 8' to 8' 6" ceiling height; floor to ceiling drapes over sheer underlays in living room and dining room; raised panel doors; window sills
<b>Floors</b>	Carpet with 1/2" thick pads in all rooms except guest bath and utility room; vinyl floor covering in kitchen, utility, and guest bath
<b>Heating</b>	80,000 to 110,000 BTU upflow or downflow air condition ready furnace with exterior door; ducting to all rooms; optional air conditioning and fireplace
<b>Kitchen</b>	Circular or elaborate kitchen; walk-in pantry; 16± linear foot Formica counter; good quality pre-finished wood cabinets with special hardware; lazy susan corner shelves; built-in range and oven, hood and fan, and dishwasher; dropped luminous ceiling with fluorescent lighting; island work space; microwave oven
<b>Baths and Plumbing</b>	2 baths; vent fans; master bath will have two basins, sunken tub, and stall shower; good quality medicine cabinets and fixtures; 6± linear foot plastic marble vanities; good cabinets; one piece fiberglass shower in guest bath; 30 to 40 gallon water heater; separate commode closet
<b>Bedrooms</b>	9 to 14 linear foot floor to ceiling mirrored sliding wardrobe doors in master bedroom, or walk-in closets
<b>Utility Room</b>	220 volt wiring or gas for dryer and plumbing for washer; built-in utility table; laundry sink
<b>Insulation</b>	Fully insulated floors, walls, and ceilings
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

## MANUFACTURED HOUSING BUILDING SPECIFICATIONS

### QUALITY CLASS 9

This quality class is the most luxurious manufactured home listed. Care should be used before assigning this class because only a few manufacturers make a manufactured home of this high overall quality.

<b>Roof</b>	Gable accented roof; asphalt shingles; roof pitch of 3" in 12" or more; residential-type front and rear overhangs
<b>Exterior Walls</b>	Pre-finished shiplap aluminum (house type) horizontal siding or 1/2" masonite hardwood siding; decorative stone accent; skirting matches exterior wall material; designer coordinated exterior colors; 6" exterior wall construction
<b>Trim and Sash</b>	Painted aluminum and/or imitation stone (fiberglass) trim; large amount of good house-type sash; picture/bay windows; sliding glass doors; recessed entry; porch lights at exterior doors; dual glazed vinyl windows
<b>Interior</b>	Expensive hardwood paneling or gypsum board; careful workmanship throughout; coffered or cathedral ceiling with beams in living, dining, and family rooms; plant-type acoustical tile ceilings in bedrooms and utility room; 8' to 10' ceiling; wet bar; mirrored walls; built-in buffet cabinet in family and/or living rooms; custom drapes with sheer under-curtains in living room, dining room, and master bedroom; raised panel doors; skylights; window sills
<b>Floors</b>	Tile entry, deluxe carpet with foam padding in bedrooms, dining, living, and family rooms; vinyl floor covering in utility and guest bath. Tile or hardwood flooring in kitchen.
<b>Heating</b>	110,000 BTU upflow air condition ready forced air furnace with exterior access door; ducting to all rooms; optional air conditioning and fireplace; dual zone heating in larger units
<b>Kitchen</b>	18± linear foot of circular Formica or tile counter top; good quality pre-finished wood cabinets; special hardware; lazy susan corner shelves; dropped luminous ceiling; built-in range and oven, hood and fan, microwave over, and dishwasher; broom and storage cabinets; island work space; walk-in pantry; may have tile flooring
<b>Baths and Plumbing</b>	2 to 2 ¼ baths; 8 fixtures; master bath has two basins, garden or sunken tub, one-piece fiberglass shower with glass door; good quality medicine cabinets; 4± linear feet of mirror over 8± linear feet of cultured marble or tile lavatory top; decorative faucets; 40 gallon water heater; separate commode closet
<b>Bedrooms</b>	Sliding mirrored wardrobe doors, or spacious walk-in closets
<b>Utility Room</b>	220 volt wiring or gas for dryer and plumbing for washer; built-in utility table; laundry sink
<b>Insulation</b>	Fiberglass insulation; R-22 to R-33 in ceilings; R-15 to R-22 in floors and walls
<b>Exterior Components</b>	Set on concrete and/or metal piers; axle and wheel assembly for each towable section

**MANUFACTURED HOUSING  
SQUARE-FOOT AREA COST TABLE**

	321-	501-	701-	901-	1101-	1301-	1501-	1701-	1901-	2101-	2301-
Class	500	700	900	1100	1300	1500	1700	1900	2100	2300	2500
4	37.14	36.29	35.44	32.07	31.29	30.44	29.64	28.86	28.07	27.28	26.47
4.5	39.03	38.20	37.33	33.83	33.05	32.24	31.44	30.65	29.85	29.06	28.23
5	41.20	40.36	39.50	35.84	35.03	34.24	33.46	32.63	31.85	31.06	30.27
5.5	43.77	42.90	42.07	39.33	37.42	36.63	35.84	35.03	34.24	33.46	32.63
6	46.58	45.74	44.87	42.02	40.02	39.23	38.42	37.61	36.83	36.02	35.23
6.5	50.02	49.14	48.32	45.30	43.20	42.41	41.60	40.81	40.02	39.23	38.42
7	53.45	52.62	51.70	48.56	46.39	45.57	44.80	44.00	43.20	42.41	41.60
7.5	57.35	56.44	55.61	52.25	51.42	50.60	49.78	48.97	48.16	47.32	46.54
8	61.38	60.53	59.68	57.19	56.37	55.55	54.68	53.88	53.00	52.20	51.38
8.5	65.49	64.61	63.77	62.94	62.04	61.18	60.29	59.47	58.59	57.75	56.89
9	69.56	68.70	67.85	66.97	66.11	65.25	64.40	63.53	62.69	61.83	60.97

**NOTE:** The above cost factors are to be used only in the valuation of manufactured homes that are in excess of 8 feet in width or in excess of 40 feet in length, and/or in excess of 320 square feet. To compute square footage, measure the exterior perimeter of the unit(s) at the floor level. **DO NOT INCLUDE THE TOW BAR.**

**FOUNDATION**

<b>Single Story</b>		
For units on permanent foundations	1,000 sq. ft. to 1,800 sq. ft.	\$8,000 to \$15,000
	1,800 sq. ft. to 3,000 sq. ft.	\$15,000 to \$25,000
<b>Two Story</b>		
Use the footprint of the first story for square foot calculation of foundation.		

**MANUFACTURED HOUSING  
MANUFACTURED HOUSING ACCESSORY AND COMPONENT COST**

**AIR CONDITIONING**

<u>Type</u>	<u>Cost</u>
Central Air for Ready Furnace Using Existing Ducts	
2 Ton           Approximately 800 - 1100 sq. ft.	2,048
2 1/2 - 3 Ton   Approximately 1100 - 1600 sq. ft.	2,352
4 - 5 Ton       Approximately 1600 - 2500 sq. ft.	2,582   -   3,038
	<u>Cost per Unit</u>
Thru-wall Small Unit (1/2 H.P. 6,000 BTU)	715
Thru-wall Large Unit (1 H.P. 1,200 BTU)	945
Evaporative Cooler--Roof Mounted	844   -   1,058
Wired Only for Air Conditioning	130   -   271

**BUILT-INS**

<u>Type</u>	<u>Cost Each</u>
Dishwasher (included in Class 7, 8; or 9)	591   -   732
Garbage Disposal (included in all base cost, deduct if missing)	118   -   732
Built-in Microwave Oven	467   -   933
Trash Compactor	536   -   675
Wet Bar (walk-up--if not included in class)	473   -   563
Wet Bar (walk behind--if not included in class)	1,541   -   1,687
Separate Shower Master Bath	536   -   675
One-half Bath: Toilet, Sink, and Pullman	1,064   -   1,126
Bathroom Sink or Laundry Sink	225
Fireplace (permanent--includes flue)	2,071   -   2,813
Fireplace (free standing--includes flue)	945   -   1,687
Built-in Buffet-Hutch (1 hutch included in Class 8 and 9)	715   -   900
Whirlpool Tub in Master Bath	866   -   1,058

**SKIRTING**

<u>Type</u>	<u>Cost Per Linear Foot</u>
Lightweight Aluminum Panels	5.90
Lap Aluminum Siding	11.18
Painted Masonite Panels	11.80
Flagstone-type Aluminum Panels	11.18
Concrete Composit Panels	14.44   -   17.85
Vinyl Panels	9.45
Brick or Stone - Cost per Surface Foot	15.60

**STORAGE BUILDINGS (Floor Included)**

<u>Type</u>	<u>Cost Per Square Foot</u>
Aluminum Exterior	13.24
Enameled Steel Exterior	10.41
Masonite	20.80

**TIE DOWNS**

<u>Type</u>	<u>Cost</u>
Cork Screw Anchors and Straps	66   -   100 Each

## MANUFACTURED HOUSING

### STEPS AND RAILS

	<u>Cost</u>	
Fiberglass Steps	163	249
Rail	35	55

### UPGRADED COMPONENTS

<u>Type</u>	<u>Cost</u>	
Upgraded Carpets	945	2,363
Upgraded Drapes	945	2,010

### PORCHES AND DECKS (No Roofs Included)

<u>Type</u>	<u>Cost Per Square Foot</u>	
Wooden Deck with Outdoor Carpet, Handrails, Skirting, and Steps (manufactured home floor level)	11.71	15.60

### CARPORT, PORCH, AND DECK ROOFS

<u>Type</u>	<u>Cost Per Square Foot</u>	
Aluminum Supports and Roof Cover - Free Standing	9.11	11.71
Aluminum Supports and Roof Cover - Attached to House	5.79	8.24
Wooden Supports and Enameled Steel Cover	10.41	13.01

### SCREEN WALLS FOR PORCHES AND DECKS

<u>Type</u>	<u>Cost Per Linear Foot</u>	
Wood Frame with Screen Walls and Door	41.38	
Wood or Aluminum Frame with Screen and Glass Walls and Door	72.12	

### EXTRA INSULATION PACKAGE

<u>Type</u>	<u>Cost Per Square Foot</u>	
Minimum Fiberglass	0.65	0.96
R-11 Floor, R-11 Sidewall, R-22 Ceiling	0.91	0.98
R-22 Floor, R-19 Sidewall, R-33 Ceiling	1.04	1.43

### ROOF SNOWLOAD CAPABILITY

<u>Pounds Per Square Foot</u>	<u>Cost Per Square Foot</u>	
30 lbs.	0.42	0.68
40 lbs.	0.68	1.23
50 lbs.	1.23	1.63
60 lbs.	1.63	2.17
80 lbs.	2.05	3.26
100 lbs.	2.72	3.75
175 lbs.	3.39	4.07

### MISCELLANEOUS

	<u>Cost</u>	
Hot Water Recirculating System (per unit)	489	515
Solar Tube Skylight	258	309
Foundation Ready	464	618

## MANUFACTURED HOUSING

### DEPRECIATION

The depreciation table in this handbook is suggested as a guide to appraisers. The percentage rates are applicable to the replacement cost estimates and no minimum percent good is intended. They are averages based upon an analysis of actual market purchase price information, and revisions to the table may be necessary as more market data become available.

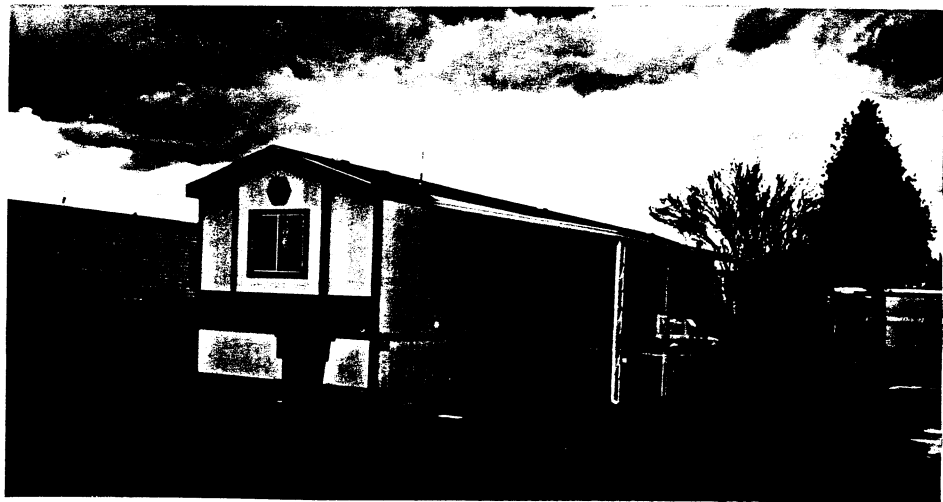
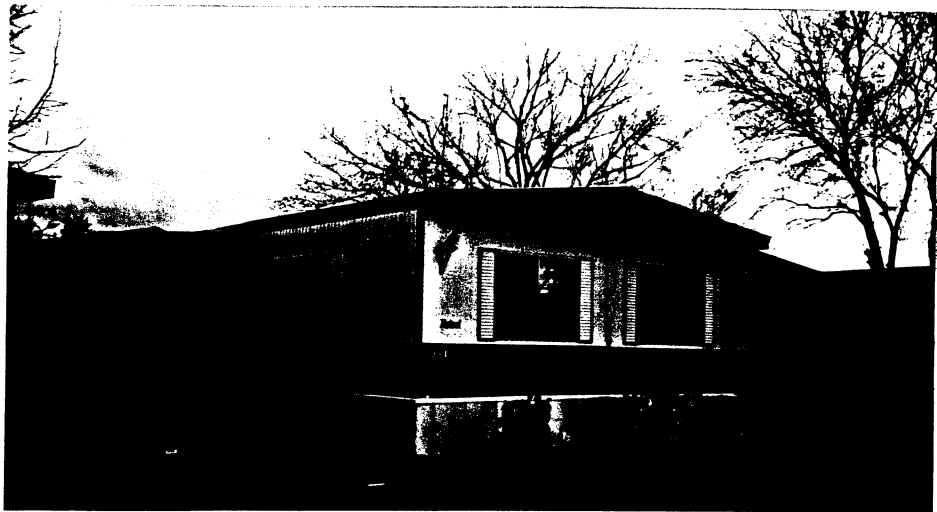
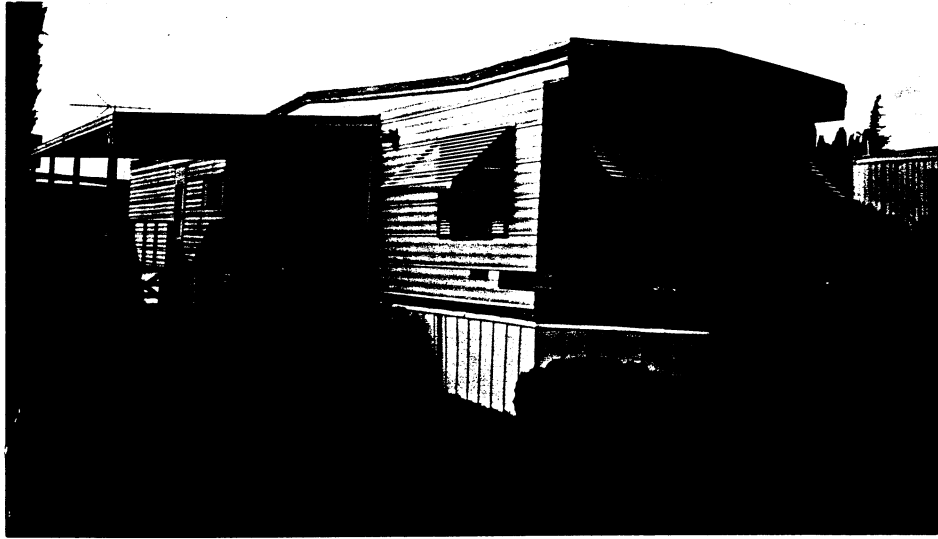
The percentages only apply to manufactured housing in average condition. A separate adjustment should be considered for deferred maintenance (cost to cure). It is strongly suggested that the appraiser carefully evaluate the *effective age* of the manufactured home. This is a critical adjustment that will dramatically affect the cost approach. Investigation has shown that the condition of the manufactured home may have a greater influence on value than age.

#### PERCENT GOOD TABLE

<u>Effective Age (Years)</u>	<u>Percent Good</u>
0	100%
1	100%
2	98%
3	95%
4	91%
5	87%
6	84%
7	80%
8	76%
9	71%
10	66%
11	63%
12	61%
13	59%
14	56%
15	54%
16	52%
17	51%
18	50%
19	50%
20	49%
21	48%
22	47%
23	46%
24	45%
25	44%

No minimum percent good is intended.

**MANUFACTURED HOUSING  
QUALITY CLASS 5**



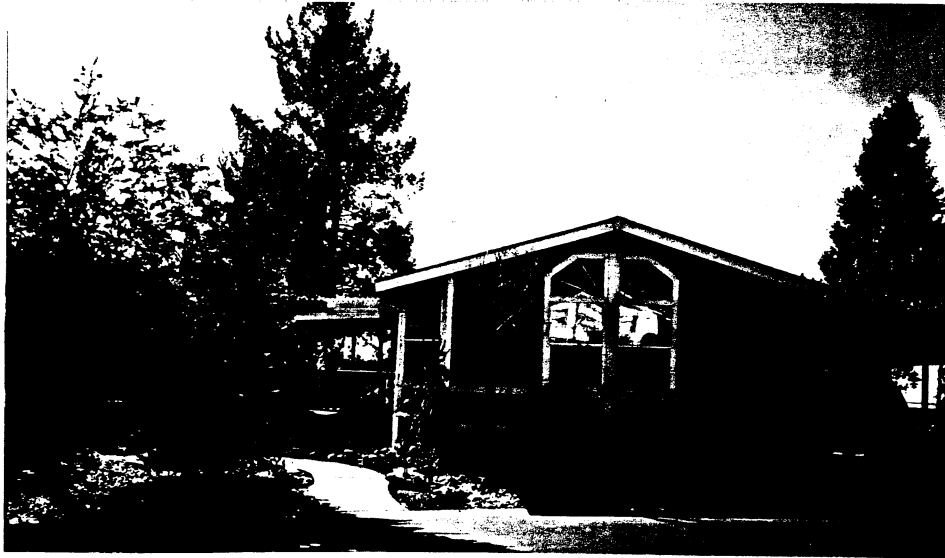
**MANUFACTURED HOUSING  
QUALITY CLASS 6**



**MANUFACTURED HOUSING  
QUALITY CLASS 7**



**MANUFACTURED HOUSING  
QUALITY CLASS 8**



**MANUFACTURED HOUSING  
QUALITY CLASS 9**

