

Summary

This chapter contains an overview of structural components, quality types, and construction types. It also provides adjustments that can be made to residential buildings and structures.

The replacement cost new for residential buildings and structures valued by the comparative unit value method may be determined in accordance with the occupancy codes, rate schedules, and calculation procedures in Chapters 5 and 6.

Use of Descriptions and Specifications

The descriptions and specifications do not represent any specific residential building or structure, except as they are indicative of the average or typical of all the buildings or structures represented by the classification. Occupancy code specific costs are averages of final costs including architect's fees and contractor's overhead and profit.

The abbreviated descriptions and specifications for each occupancy code indicate some of the items most generally found in residential buildings or structures represented by the classification. Where a building or structure lacks some of the items or has additional items than those described in the abbreviated descriptions and specifications, it may still fit the classification if the building or structure is represented by the average or typical building or structure.

Use of Photographs

The photographs for each occupancy code are illustrative of construction types and quality classifications for various residential building and structure codes, and do not represent any specific building or structure, except as they are indicative of the average or typical of all the buildings or structures represented by the photograph.

Exterior photographs of residential building and structure occupancy codes are indicative of the average or typical construction type and quality classification only to the extent as can be determined from the exterior of a building or structure. Construction types and quality classifications may vary from that illustrated by the photograph where the abbreviated descriptions or specifications for the classification of residential buildings and structures are indicative of a different construction type or quality classification.

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General

The replacement cost of a standard residential building is the sum of the component costs.

The component costs are as follows:

Building Structure	Air Conditioning	Basement
Plumbing	Masonry	

The component costs reflect all required materials and labour for each installation, a share of all associated fees and costs, and contractors profit and overhead.

All component costs are calculated on a square foot basis of the gross building area, except for plumbing fixtures, fireplaces, hot tubs, and additional unit-in-place items that are added as additional features.

Total building square foot rates are further modified by area, storey and other cost adjustment factors. Adjoining structures may be valued following rules for total rateable area, perimeter and wall height.

Structure

The basic structure costs include the foundation, frame, exterior walls, floor structure, roof structure, partitioning, interior wall and floor finish, electrical, heating, and cabinets.

The foundation costs consider all concrete or masonry piers, footings or pads that support posts or columns and continuous footing or perimeter foundation walls. The foundation material is typically reinforced concrete, formed and poured in place.

The foundation supports the foundation wall or basement wall, or the structure above when no basement is present.

The exterior wall costs consider the complete exterior wall that includes windows, doors, basic wall materials, exterior wall lining and the interior finish in most of the sections.

An appropriate typical cost of insulation in the roof and exterior wall is included in the structure.

Interior finish costs include the costs for partitions, doors, stairs, closets, and as well as ceiling finish and floor finish. Each residential building type and quality has a specific interior finish rate which relates to the amount of interior partitions, the number of interior doors, the amount of hardware, the amount of interior built-ins, the amount of ceiling finish and floor finishing as typically found in each structure.

The floor structure costs consider the horizontal floor framing members and, the subfloor material or decking. In a concrete on grade floor, the costs include the gravel base, vapour barrier, reinforcement, and placement of the concrete.

The roof structure costs include the structural members, trusses and girders, the roof decking or sheathing and the roof cover. In a wood rafter roof, the costs include the rafters, decking, insulation, vapour barrier, gutters and down spouts, and asphalt shingles.

Electrical costs reflect the costs of services, distribution, quality and number of fixtures and receptacles for lighting and convenience outlets.

Heating costs include the costs of a forced hot air heating system, materials and labour in the installation, costs of roughing-in the required utilities and vents, and the contractor's profit and overhead.

Plumbing

Plumbing costs include the complete plumbing installation, the rough-in of water lines, drain and vent system to each fixture, plus the fixture and its installation.

Air Conditioning

The air conditioning rate includes the costs of the unit, materials and labour in installations of central air conditioning systems, costs of roughing-in the required utilities and vents, and share of the contractor's profit and overhead.

Masonry

The masonry rates account for various exterior wall finishes by type of material, which cover the structural portion of the residential building.

Basement

The basement rates consider the costs of concrete walls that support residential structures. The rates include costs for site preparation, excavation and backfill, forming, placing and finishing of concrete.

Description

Residential construction quality is determined considering the grade and placement of construction components, exterior material treatment, level of workmanship, relative grade of mechanical and electrical, type of ornamentation, intricacy of design, and overall level of finishing and detail. The concept of an average building held by appraisers may differ depending upon the general quality level in the area in which they are working. Usually, in cities with strong building codes, the average building is above the standard code building with some extra trim and refinements, while in an area with less exacting code provisions the average building may be the best building in the community.

It is usually true that a well-framed building is a well-finished building. If the builder cuts corners on framing, the finish and mechanical equipment will also generally be of lower quality. Cheap hardware, lighting fixtures, and millwork often are ornamental, further complicating the quality determination. The comparative quality of building components is an important consideration in classifying quality.

The quality of the construction of residential and miscellaneous buildings will influence the cost. Residential dwellings, in particular, vary considerably in their quality. The overall quality of construction of residential buildings is determined by examining materials and workmanship. The quality of materials and workmanship of individual components may vary, however, the overall quality will tend to be consistent for the entire residential building. The quality of workmanship can be easily observed in residential buildings. Solid and level floor structures, plumb walls, good finishing of masonry and drywall surfaces, clean mitred joints in both exterior and interior woodwork, properly fitted doors and windows are all indicators of better quality workmanship. The quality of materials is considered along with workmanship. The quality of all wood materials, floor covering, finish materials, doors and windows, and fixtures is the main indication of the quality of materials. Design is another indication of the quality of residential buildings, the lower quality utilize stock plans and have a simple floor plan. Higher quality residential buildings are often individually designed with considerable attention to detail.

The general descriptions for the classification of residential buildings provide guidelines for selecting a quality type. There are grades between the given quality types that are reflected in the general quality descriptions for each residential building and have specific rates and factors used to reflect these variations.

Split Quality Classifications

Residential dwellings, mobile home extensions and basements may be classified with split quality classifications where the building exhibits some of the quality features of both quality classifications and cannot be readily classified into either quality classification.

The following split quality classifications may be used:

- AA/A
- A/B
- B/C
- C/D
- AAO/AO
- AO/BO
- BO/CO
- CO/DO

Residential Adjustments

Quality Types

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Where a rate schedule or adjustment factor table does not provide a rate or factor for a split quality classification, use of the lower quality classification should be considered.

Quality Classifications

Quality Type	Description
AA+	The residential buildings of this quality range are typical of those built in high quality developments and are usually individually designed. The buildings are characterized by the quality of design, better quality workmanship and materials, good quality finishing and appointments, and attention to detail.
AA	This quality range represents residential buildings built in good quality developments that are frequently well designed. The buildings are characterized by the attention to interior refinements and detail. Exteriors will display good fenestration with some custom ornamentation.
A	This quality type of residential building may be mass produced in above-average residential developments or built for an individual owner. Good quality standard building materials are used throughout. These buildings generally exceed the minimum construction requirements and residential building codes. Some attention is given to design in both refinements and detail. The interiors are usually well finished. Exteriors have good fenestration and some ornamentation.
B	This quality of residential building will be encountered more frequently than other qualities. The buildings are usually mass produced, meet or exceed minimum construction requirements and residential building codes. The quality of materials and workmanship is adequate, but does not usually reflect custom craftsmanship. Interior finishing is adequate, with average quality cabinets, doors, hardware and plumbing fixtures. Exterior design will be limited with adequate fenestration and some ornamentation on the front elevation.
C	This quality type of residential building is frequently mass produced, and low-cost production is a primary consideration. While overall quality of materials and workmanship is less than average, these buildings will meet minimum building requirements. The interior finish is plain with few refinements. Their design is from stock plans, with limited ornamentation.
D	The residential buildings of this quality type are of low-cost construction and may not meet minimum building code requirements. The interior and exterior finishes are plain and inexpensive.
E	The residential buildings of this quality type are of substandard construction and will not meet minimum building code requirements.
F	The residential buildings of this quality type are inadequate in construction practice, quality of material and workmanship. They do not meet minimum construction or building code.

Summary

This section describes the construction type adjustments that may be applied to single family dwellings, multi-family dwellings and seasonal dwellings.

Construction Type Factors

The construction type factor for dwellings with a ¼, ½ or ¾ storey is not applied when the upper storey has not been finished. The construction type factor for a one, two or three storey, is applied when the upper storey has not been finished.

Type	Description	Factor
1 Storey	Single floor area, typically 1' to 2' above grade. Entry is at main level. Has an unfinished attic. May or may not have a basement.	1.00
Bi-level	Lower floor area 4' below grade and an upper level 4' to 5' above grade, both with full ceilings. Entry is at grade level. Full size windows in lower level make the area suitable for a family room or bedrooms.	1.00
Hillside	A dwelling where part of the basement is 6' to 7' in the ground and part is almost completely exposed with large windows, and/or patio doors, may be covered with brick or stone facing. Extra heavy footings are also required.	1.00
Tri-level -30	Three levels of living area; usually one 4' below grade, one at grade and one 4' above grade, all with full ceiling heights. Area of the upper level is less than 30% of the combined main and upper level areas. The total rateable area is calculated as the area of the foundation perimeter.	1.06
Tri-level +30	Same as Tri-Level -30, except that the area of the upper level is greater than 30% of the combined main and upper levels.	1.12
1 Storey plus Attic	Same as 1 Storey, except has an finished attic with below adequate ceiling height. Only a very small part of the upper level is more than 5' high.	1.10
1¼ Storey	Same as 1 Storey, except has a limited second level. Up to a maximum of 40% of the floor area of the second level is more than 5' high. Access to the upstairs is usually by a partly finished closed stairway.	1.18

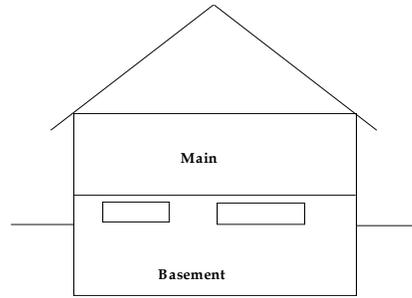
Residential Adjustments

Construction Types

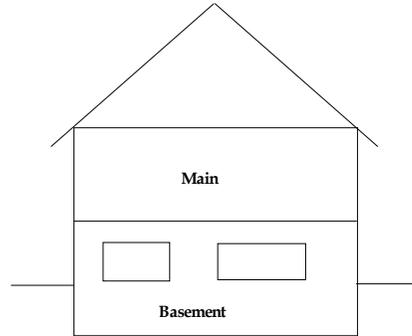
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Type	Description	Factor
1 ½ Storey	Same as 1 Story, except has adequate ceiling height in finished second level. Outside wall height of the second level is usually 3' to 4'. From 41% to a maximum of 65% of the floor area of the second level is more than 5' high. Access to the upstairs is usually by a central, finished, open stairway. At least 3 or 4 exterior walls extend above the first floor area.	1.34
1¾ Storey	Same as 1½ Storey, except outside wall height is usually from 5' to 6'. From 66% to a maximum of 90% of the floor area of the second level is more than 5' high.	1.48
2 Storey	Has 2 levels of living area, one at grade and one above grade, both with full ceiling heights. Newer style have full 8' ceiling and full 8' outside wall in all of the second level. Older style has a 7'7" inside wall and an 8' outside wall in the second level.	1.60
2¼ Storey	Same as 2 Storey, except has a limited third level. Up to a maximum of 40% of the floor area of the third level is more than 5' high.	1.70
2½ Storey	Same as 2 Storey, except has adequate ceiling height in finished third level. From 41% to a maximum of 65% of the floor area of the third level is more than 5' high.	1.79
2¾ Storey	Same as 2 ½ Storey, except from 66% to a maximum of 90% of the floor area of the third level is more than 5' high.	1.87
3 Storey	Full 8' ceiling in both second and third stories.	1.94
3¼ Storey	Same as 3 story, except has a limited fourth level. Up to a maximum of 40% of the floor area of the fourth level is more than 5' high.	2.00

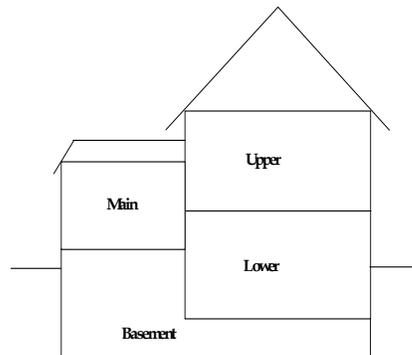
1 Storey



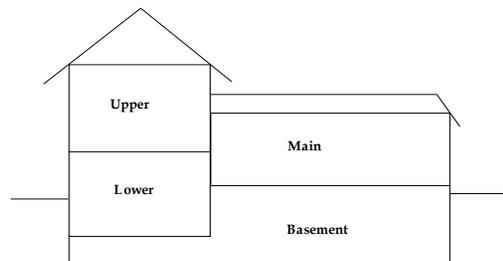
Bi-level



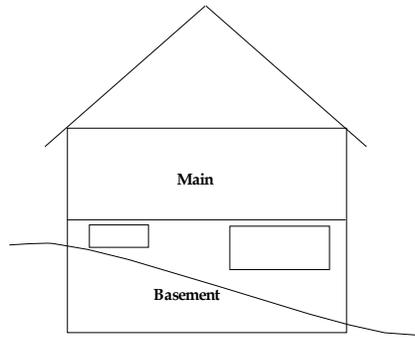
Tri-level +30



Tri-level -30



Hillside



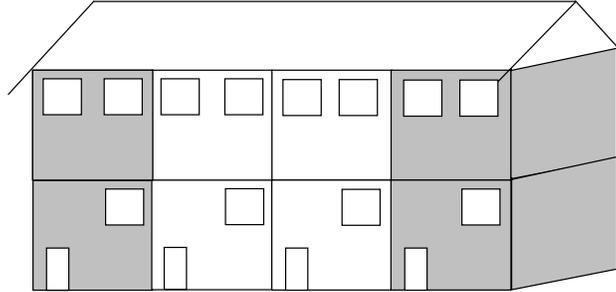
Summary

Multiple Unit Types

This section describes the multiple unit type adjustments that may be applied to residential multi-family dwellings.

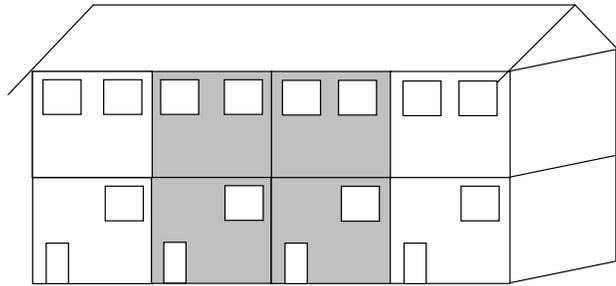
Outside Row

An end unit that has another unit attached to only one side of it and does not have a unit attached behind it.



Inside Row

An inside unit that has other units attached on both sides of it but does not have a unit attached behind it.



Outside Back-to-Back

An end unit that has another unit attached to only one side of it. It also has a unit attached behind it.

Unit 1	Unit 2	Unit 3	Unit 4
Unit 5	Unit 6	Unit 7	Unit 8

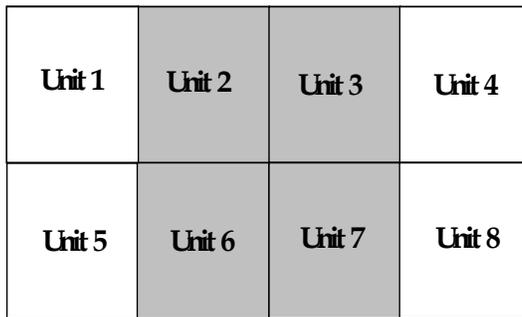
Residential Adjustments

Multiple Units

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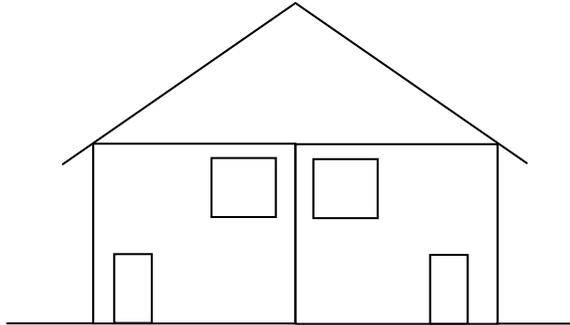
Inside Back-to-Back

An inside unit that has other units attached on both sides of it. It also has a unit attached behind it.



Semi-Detached

A house split in half by a common wall where one family lives in one half and another family in the other half. Each half has a separate entry, heating system, and water, electrical and gas meters.



Multiple Unit Factors

Description	Factor
Outside Row	0.92
Inside Row	0.85
Outside Back-to-Back	0.87
Inside Back-to-Back	0.81
Semi-Detached	0.92
Hillside	1.00

Residential Adjustments

Foundation

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Description

The cost of the foundation is included in the structure rate for:

- single and multi-family dwelling,
- seasonal dwelling,
- mobile home extension,
- swimming pool enclosure.

The following schedule is used to make a square foot adjustment when foundation area is missing.

Total Rateable Area (sq. ft.)	Rate (\$/sq. ft.)
≤400	6.24
500	5.74
600	5.32
700	4.97
800	4.68
900	4.43
1,000	4.22
1,100	4.04
1,200	3.88
1,300	3.75
1,400	3.62
1,500	3.51
1,600	3.41
1,700	3.31
1,800	3.22
2,000	3.07
2,200	2.93
2,400	2.82
2,600	2.73
2,800	2.66
3,000	2.59
3,200	2.49
Extension Rate	2.42

Description

This section describes the floor structure adjustment for various types of residential and miscellaneous buildings and structures where either the floor structure is missing or the floor material is gravel, dirt, boards over dirt, or polyethylene film.

Application

A floor structure adjustment is applied to the following buildings and structures:

- garage
- basement
- porch or closed verandah
- open verandah
- carport
- shed
- breezeway
- solarium

The floor structure adjustment is applied as an additional features value adjustment.

Floor Structure Adjustment

A floor structure adjustment of \$3.98 per square foot is applied to the floor area of the missing floor structure or to the floor area of those buildings or structures with the following floor structure types:

- . Gravel
- . Dirt
- . Boards over dirt
- . Poly film

Description

This section describes the roof structure adjustment for two types of residential and miscellaneous buildings and structures where a portion of the roof structure is missing.

Application

A roof structure adjustment is applied to the following buildings and structures:

- garage
- second storey porch, closed or open verandah

A roof structure adjustment is applied as an additional feature value adjustment.

Roof Structure Adjustment

A roof structure adjustment may be applied to the floor area of the missing roof structure by the following rate schedule:

Quality	Rate (\$/sq. ft.)
AA	8.94
A	7.02
B	6.21
C	5.53
D, E	5.03

Description

This section describes the wall height adjustment for various types for one-storey residential and miscellaneous buildings and structures.

Application

A wall height adjustment is applied to the following buildings and structures:

- residential dwelling
- summer cottage
- mobile home extension
- swimming pool enclosure

The wall height adjustment is determined by calculating the height from the top of the floor to the top of the exterior wall in a one storey structure. For unusual or high pitched roofs, the effective wall height may be calculated by dividing the cubic interior area of the building by the floor area.

Wall Height Adjustment

Wall Height (ft.)	Factor
≤5	0.91
6	0.94
7	0.97
8	1.00
9	1.03
10	1.06
11	1.09
12	1.12
13	1.15
14	1.18
15	1.21
16	1.24
17	1.27
18	1.30
19	1.33
≥20	1.36

Description

This section describes the masonry wall adjustment for various types of masonry exterior wall materials.

A masonry wall adjustment may be applied to the following buildings and structures:

- residential dwelling
- seasonal dwelling
- mobile home extension
- swimming pool enclosure
- garage
- shed
- closed verandah
- porch
- mobile home porch

Application

Masonry Construction

The exterior walls of some residential structures are partially or completely constructed of a masonry material. To adjust for this additional cost, a masonry factor is applied to the structure rate. This factor varies depending upon quality of construction and type of material from the masonry adjustment table.

Brick Veneer and Masonry Trim

When determining the quality of a residential structure, the amount of ornamentation, roof overhangs, and exterior design should be considered when deciding on the quality classification, therefore, no additional value needs to be added for decorative areas of masonry trim.

Frame Upper Storeys Over Masonry Lower Levels

Calculate the percentage adjustment according to the percentage the masonry cover is of the total building and make the appropriate adjustment in the masonry percentage rate.

Masonry Factor

The masonry factor is determined by application of the following calculation procedure:

1. Determine the percentage of the exterior wall area that is covered with masonry.
2. Determine the base masonry factor for the type of masonry and the quality classification of the building.
3. Calculate the masonry factor as follows:

$$MF = 1.0 + (MF_{\text{base}} \times \% \text{ masonry})$$

where: MF = adjusted masonry factor
MF_{base} = base masonry factor
% masonry = percentage of exterior wall surface area covered with masonry

Residential Adjustments

Masonry Walls

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Base Masonry Factors

Quality	Face Brick	Common Brick	Brick Veneer - Face - Used	Brick Veneer - Common	Common Block
AA+, AAO+, AA, AAO	0.150	0.100	0.080	0.050	0.010
A, AO	0.155	0.105	0.085	0.055	0.015
B, BO	0.160	0.110	0.090	0.060	0.020
C, CO	0.165	0.115	0.095	0.065	0.025
D, DO	0.170	0.120	0.100	0.070	0.030
E, F	0.180	0.130	0.110	0.080	0.040

Quality	Concrete - Concrete - Precast - Tilt-Up	Field Stone	Cut Stone	Stucco over - Concrete Block	Stucco over - Common Brick - Common Brick Veneer
AA+, AAO+, AA, AAO	0.070	0.170	0.190	0.030	0.120
A, AO	0.075	0.175	0.195	0.035	0.125
B, BO	0.080	0.180	0.200	0.040	0.130
C, CO	0.085	0.185	0.205	0.045	0.135
D, DO	0.090	0.190	0.210	0.050	0.140
E, F	0.100	0.200	0.220	0.060	0.150

Description

This section describes the plumbing rates for various plumbing fixtures, and sewer and water connections.

Application

Add the number of fixtures found. Common plumbing fixtures include: sinks, toilets, shower stalls, tubs and water heaters.

Plumbing fixtures and connections are rated as an additional feature adjustment.

Plumbing Fixture Rates

The following plumbing quality descriptions and rates are used.

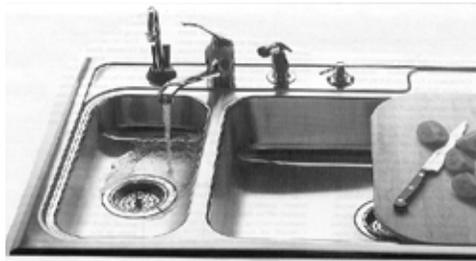
Quality	Description	Rate (\$/unit)
A	Good modern	1,110
B	Average modern	920
C	Fair modern	720
AO	Good old style	1,110
BO	Average old style	920
CO	Fair old style	720

Sewer and Water Connection Rates

Residential Type	Rate (\$/connection)
Single and Multi-Family Dwellings	1,360
Summer Cottage, A-Frame Summer Cottage	950
Mobile Homes	950
Travel Trailers	950



“A” Quality



“B” Quality



“C” Quality



“B” Quality



“BO” Quality



“CO” Quality

Description

A forced hot air heating system with duct work is included in the structure rate for the following buildings and structures:

- single and multi-family dwelling,
- seasonal dwelling,
- mobile home extension,
- swimming pool enclosure.

The following square foot adjustments are made for heating types other than forced hot air or for no heating:

Heating Type	Abbreviation	Rate (\$/ sq. ft.)
None	NIL	- 5.18
Space Heater; Floor or Wall Furnace	SPHTR; FLRFN; WALLFN	- 2.46
Gravity Furnace	GRVTY	- 0.98
Electric Heat	ELEC	0
Hot Water or Steam Heat	HW; STEAM	+ 3.09
Radiant Floor Heat; Solar Heat; Geothermal Heat	RFHT; SOLAR; GEOTHM	+ 3.80

Heating Types

Type	Abbreviation	Description
None	NIL	No heat source is present.
Forced Hot Air	FHA	A warm air furnace, outfitted with blower that heats an area by transmitting air through the furnace and connection ducts.
Electric Heat	ELEC	Thermostatically controlled electric baseboard radiators that are connected to an electrical power source.
Space Heater	SPHTR	A small heating unit, sometimes equipped with a fan, intended to supply heat to a room. The energy source may be electrical or a fuel.
Floor Furnace	FLRFN	A warm air heating source located in the floor of the space that is heated, usually without a fan or blower to circulate the heated air.
Wall Furnace	WALLFN	A warm air heating source located in the wall of the space that is heated, heat may be gravity or circulated by a small blower.

Residential Adjustments

Heating

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Type	Abbreviation	Description
Gravity Heat	GRVTY	A warm air heating source that heats an area by the natural rising of warm air, will not usually have a large duct system.
Hot Water	HW	A liquid heating system where water is heated in a boiler before being circulated by pumping through connection pipes to radiators.
Steam Heat	STEAM	A heating system in which heat is transferred from a boiler or other source, through pipes, to a heat exchanges or radiator. The steam can be below, at, or above atmospheric pressure.
Radiant Floor Heat	RFHT	A heating system in which heat is transferred from a boiler, and circulated by pumping through a series of looped connecting lines attached to or located within the main floor.
Solar Heat	SOLAR	An assembly of components, including collectors, heat exchanges, piping, storage system, controls and supplemental heat source, used to provide heat and/or hot water to a building.
Geothermal Heat	GEOTHM	A heating source provided by a groundwater energy system.

Description

This section describes the central air conditioning rate and calculation procedure.

Air Conditioning Rate Adjustment

The adjusted air conditioning rate is determined by application of the following calculation procedure:

1. Determine the construction type factor in accordance with No. 4.4.
2. Calculate the adjusted air conditioning rate by multiplying the air conditioning rate by the construction type factor.

Air Conditioning Rate

\$1.43 per square foot is used for the air conditioning rate.

Summary

This section describes the specifications, quality classifications and rates for the various types of fireplaces and wood burning stoves

Application

Fireplaces and wood burning stoves are valued as an additional features value adjustment.

Description

Type/Quality	Description
Franklin	Outdated cast iron, round or square, wood burning firebox that is not a sealed combustion system. Usually requires a minimum of 36 inches from combustible surface.
Acorn	Inexpensive steel open firebox with hood over for ventilation of smoke.
Natural Gas	Quality description is similar to heatilator fireplaces. The fireplaces are designed for a natural gas burner and a natural gas supply.
Heatilator (or Fresh-air, or Metal)	How to recognize a heatilator (or fresh-air, or metal) fireplace: Look for air vents along the top and/or sides and/or bottom of the firebox. The firebox itself will be constructed of metal and will often be enclosed behind glass doors. A check of the exterior of the house will reveal an air intake vent.
AA – Very Good	All masonry exterior enclosure construction. May have firebrick lining inside steel firebox, masonry finished interior facing and hearth. Best quality heatilator or fresh air fireplace and equipment.
A – Good	Full fresh air heatilator fireplace (vent in top only) with glass doors, brass ornamentation, natural or cultured stone facing. 10 feet or more finished inside area. Chimney usually enclosed in chase, with finish to match home exterior, mantle.
B – Average	Fresh air fire box, inside air for ventilator, glass door usually, brick or good quality wood facing, 7-10 feet finished inside, may have mantle.
C - Fair	Inside air used. May have metal lined firebox. Wood finish. Small hearth, no mantle, 6 feet finished inside. Chimney exposed outside. No glass door.
Air Tight Stove	A sealed wood-burning firebox that has controlled air outlets. They typically have baffles around a firebrick-lined firebox. Usually have minimal clearance to combustible surface because they provide more complete burning with lower flue temperatures.

Residential Adjustments

Fireplaces and Wood Burning Stoves

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Type/Quality	Description
Masonry	One fireplace completely constructed of masonry material in residences. Quality rating is usually influenced by the type of lining, exterior finish, size of firebox and hearth, and mantle finish. Old masonry fireplaces of modest appointments should be classified as B quality. These will usually be brick, with an interior brick chimney and small masonry or ceramic hearth. Old masonry fireplaces, which exceed or fall short of this standard, should be adjusted accordingly. The most elaborate old masonry fireplaces made of field or art stone with large hearths and mantles, exterior finishing, and masonry interior chimneys from grade to roof, may be classified as AA quality. Such fireplaces will usually be found in the best quality of older homes.
Double	Two fireplaces directly above the other using a common chimney. Quality rating is usually influenced by the type of lining, exterior finish, size of firebox, and hearth and mantle finish.
Back to Back	Two fireplaces located back to back using a common chimney. Quality rating is usually influenced by the type of lining, exterior finish, size of firebox and hearth and mantle finish.

Fireplace and Wood Burning Stove Rates

Type	Quality (\$/unit)			
	AA	A	B	C
Natural Gas	2,300	1,750	1,050	850
Heatilator; Air Tight (Stove); Masonry	4,750	3,900	2,700	2,250
Double; Back to Back	6,200	5,050	3,500	2,900
Franklin; Acorn	2,100	1,750	1,250	1,050



Masonry "AA"



Masonry "B"



Heatilator "A"



Heatilator "B"

Summary

This section describes the specifications, quality classifications and rates for various types of hot tubs.

Application

Hot tubs are valued as an additional features value adjustment.

Residential bathtubs with pumps should not be rated as hot tubs.

Description

Fibreglass or redwood cedar construction with pumps and heaters. Better quality hot tubs will have a greater number of jets and often more than one pump.

Hot Tub Rates

Quality	Description	Rate (\$/unit)
A	Capacity for 6 or more people	6,500
B	Capacity adequate for 4 to 6 people	4,550
C	Capacity adequate for 2 to 4 people	2,600

