

SELECTION OF METHOD

METHOD AVAILABLE – The *Michigan Assessor's Manual* offers the user the choice of three methods of computing reproduction or replacement costs of buildings: the Calculator Method, Segregated Cost Method and the Comparative Cost Indexes and Multipliers. In addition there are many Unit-in-Place costs, with which the user may build up or adjust costs or price miscellaneous construction items.

1. **The Calculator Method** – These pages contain average square foot costs for various classes, occupancy types and qualities of buildings, together with modifiers for common deviations from the descriptions of the typical buildings listed. Instructions for the use of the Calculator Method and step-by-step examples are given in "Introduction to the Calculator Method". Modifiers to use with the method are found in each occupancy section. The listed costs are averages including architects' and engineers' fees, contractors' profit and overhead, permits, sales tax, insurance during construction, interest on construction financing and miscellaneous costs.
2. **The Segregated Cost Method** – Sections SEG 1 through SEG 6. These sections give the cost per square foot of the major building components (foundation, frame, floor, walls, etc.). Instructions for the use of the Segregated Cost Method are contained in "Introduction to the Segregated Cost Method", and Unit-in-Place costs are given in Sections UIP 1 through UIP 8 for adjusting or building up component costs and for pricing miscellaneous items. Additional supplemental costs are included in Sections UIP 11 through UIP 17. These costs of component items include labor, material, and a pro rata share of the additional costs of construction, except for architects' fees which are generally excluded, except where noted. If it is desired to include an architect's fee, schedules of typical fees are listed in Appendix C.
3. **Comparative Cost Indexes and Multipliers** – Appendix B. These tables give indexes and multipliers by which known historical costs may be converted directly to present-day costs.

CLASS OF CONSTRUCTION

The Class of Construction is the basic subdivision in the *Michigan Assessor's Manual*, dividing all buildings into five basic cost groups and two subgroups by type of framing (supporting columns and beams), walls, floors and roof structures, and fireproofing.

Class A buildings have fireproofed structural steel frames with reinforced concrete or masonry floors and roofs.

Class B buildings have reinforced concrete frames and concrete or masonry floors and roofs.

Class C buildings have masonry or concrete exterior walls, and wood or steel roof and floor structures, except for concrete slab on grade.

Class D buildings generally have wood frame, floor, and roof structure. They may have a concrete floor on grade and other substitute materials, but are considered combustible construction. This class includes the pre-engineered pole- or post-frame buildings.

Class S buildings have frames, roofs, and walls of incombustible metal. This class includes all the pre-engineered metal buildings.

In each class, there will be variations, combinations, and subclasses, but for purposes of pricing, the major elements of the building should be considered in selecting costs from the tables. Thus, if a building, which is otherwise in Class B, has a wood or steel truss roof, the costs for the Class B building may still be representative, or a Class C building may have concrete plank floors. Interpolations may be made if the assessor feels the building overlaps two classes sufficiently or the Segregated Cost Sections may be used to modify the cost.

In most localities, some buildings are built which are hybrids in construction, such as those with complete Class A framing, including columns and girders, but with wood floor joists and sheathing. In all such hybrids, the assessor must judge whether to adjust the costs or interpolate between classes and qualities.

Further details and sketches of the various construction types will be found on Pages 3 through 7 of this section, as well as in Section UIP 1, which has definitions and sketches of framing types.

CLASS OF CONSTRUCTION INDICATORS

CLASS	FRAME	FLOOR	ROOF	WALLS
A	Structural steel columns and beams, fireproofed with masonry, concrete, plaster, or other noncombustible material.	Concrete or concrete on steel deck, fireproofed.	Formed concrete, precast slabs, concrete or gypsum on steel deck, fireproofed.	Nonbearing curtain walls, masonry, concrete, metal and glass panels, stone, steel studs and masonry, tile or stucco, etc.
B	Reinforced concrete columns and beams. Fire-resistant construction.	Concrete or concrete on steel deck, fireproofed.	Formed concrete, precast slabs, concrete or gypsum on steel deck, fireproofed.	Nonbearing curtain walls, masonry, concrete, metal and glass panels, stone, steel studs and masonry, tile or stucco, etc.
C	Masonry or concrete load-bearing walls with or without pilasters. Masonry, concrete or curtain walls with full or partial open steel, wood, or concrete frame.	Wood or concrete plank on wood or steel floor joists, or concrete slab on grade.	Wood or steel joists with wood or steel deck. Concrete plank.	Brick, concrete block, or tile masonry, tilt-up, formed concrete, nonbearing curtain walls.
C_{MILL}	Masonry load-bearing walls with or without pilasters. Masonry walls with heavy wood timber frame.	Mill or laminated wood floor or concrete slab on grade.	Wood joists and trusses with wood deck.	Heavy brick, block or tile masonry.
D	Wood or steel studs in bearing wall, full or partial open wood or steel frame, primarily combustible construction.	Wood or steel floor joists or concrete slab on grade.	Wood or steel joists with wood or steel deck.	Almost any material except bearing or curtain walls of solid masonry or concrete. Generally combustible construction.
D_{POLE}	Wood posts or poles and trussed rafters.	Wood joists and deck or concrete slab on grade.	Metal skin on wood purlins or nailers.	Metal skin on wood girts or nailers.
S	Metal bents, columns, girders, purlins and girts without fireproofing, incombustible construction.	Wood or steel deck on steel floor joists, or concrete slab on grade.	Steel or wood deck on steel joists.	Metal skin or sandwich panels. Generally incombustible.

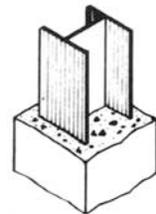
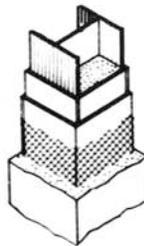
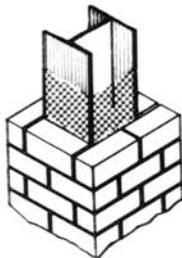
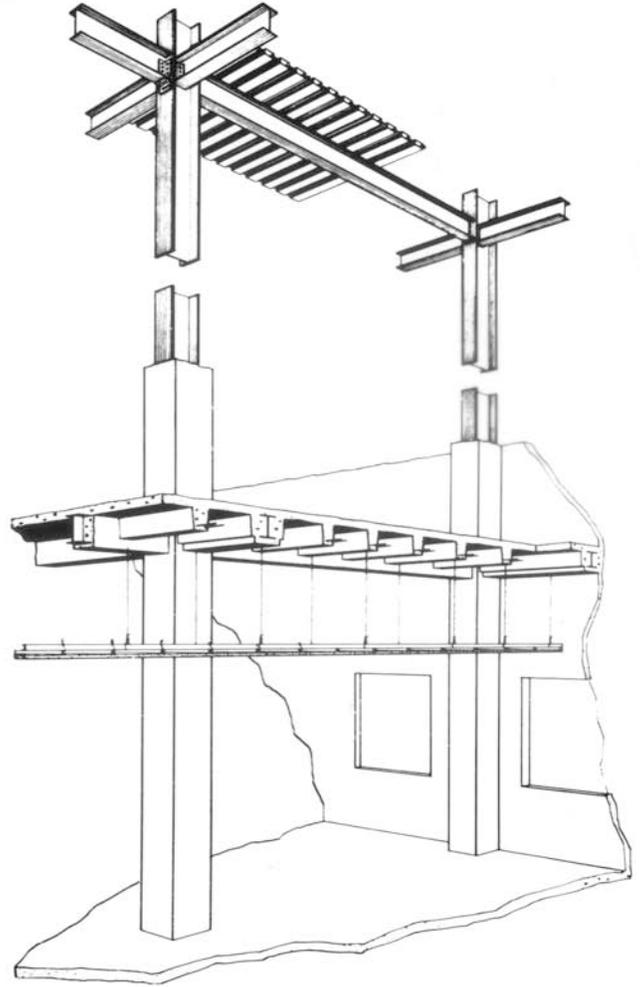
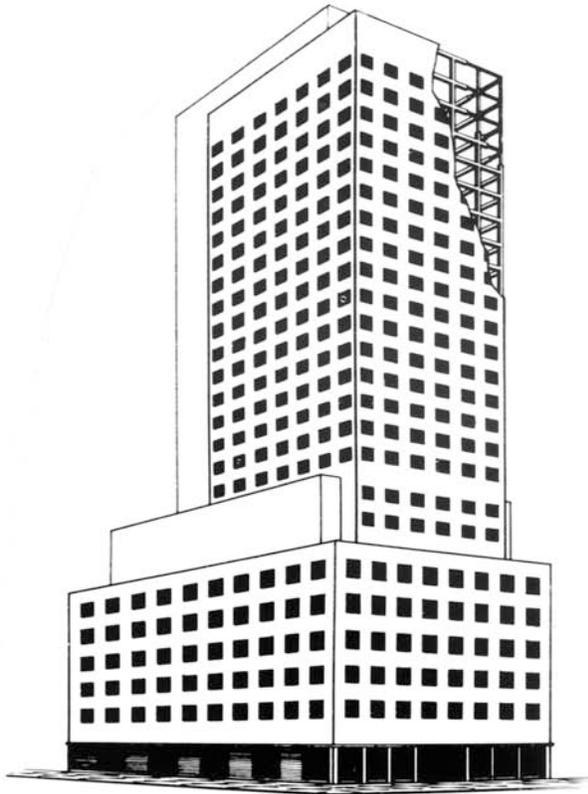
CLASS A BUILDINGS

The primary feature of Class A buildings is the fireproofed, protected structural steel frame, which may be welded, bolted, or riveted together. The fireproofing may be masonry, poured concrete, plaster, sprayed fiber, or any other type which will give a high fire-resistance rating.

Floors and roofs in Class A structures are normally reinforced concrete on steel decking or formed slabs resting on the frame or poured so as to become integral with it. They may also be composed of prefabricated panels and may be mechanically stressed.

Exterior walls will be curtain walls of masonry, concrete, steel studs and masonry, tile or stucco, or one of the many types of panels of metal, glass, concrete, and other materials. Interior partitions will frequently be of masonry or gypsum block although many movable and lightweight partitions are used.

Included in this classification are Uniform, Basic and Standard Building Code construction, Types I and II (noncombustible). This class is also referred to as Modified Fire Resistive or Two – Four-hour construction.

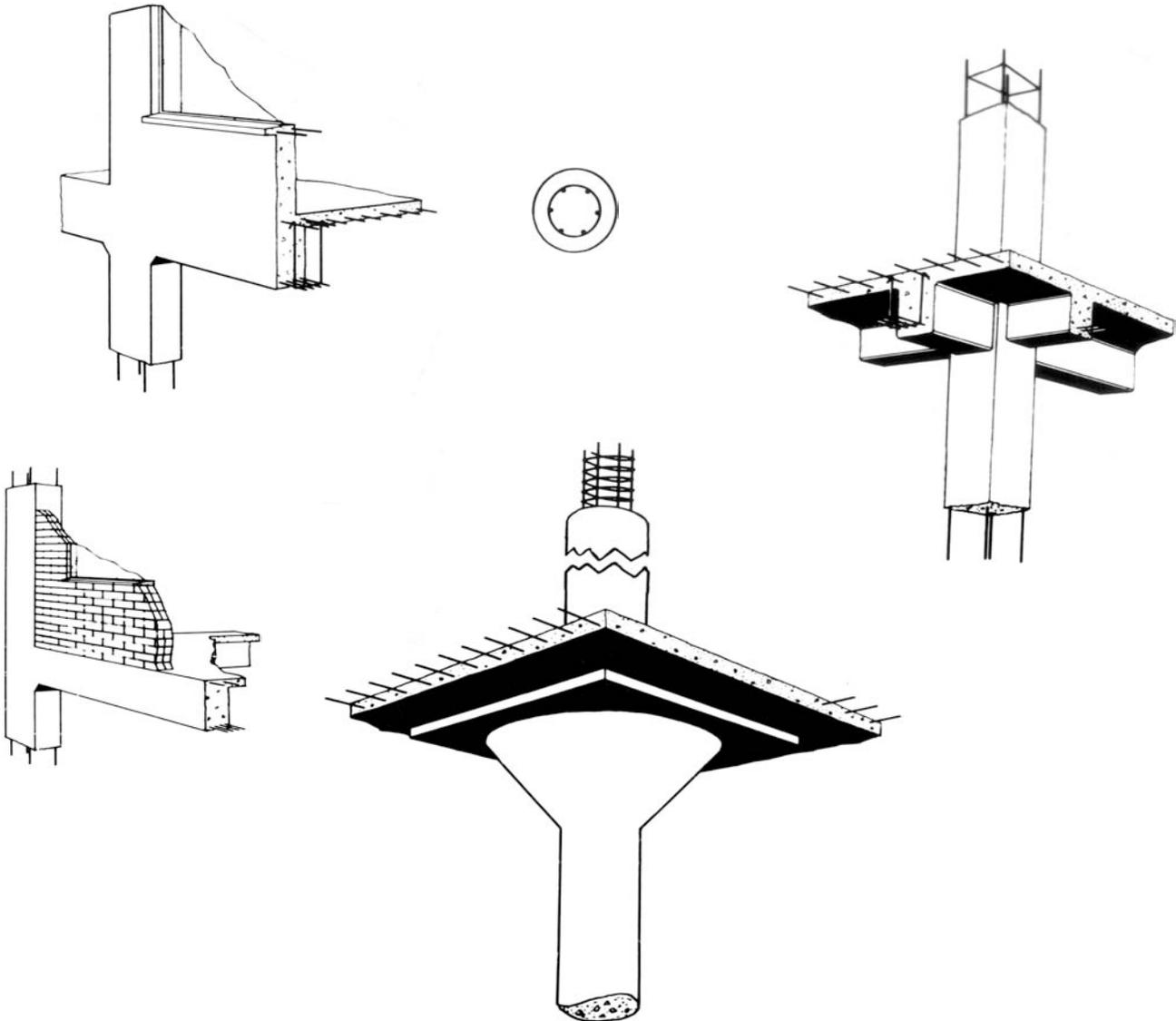
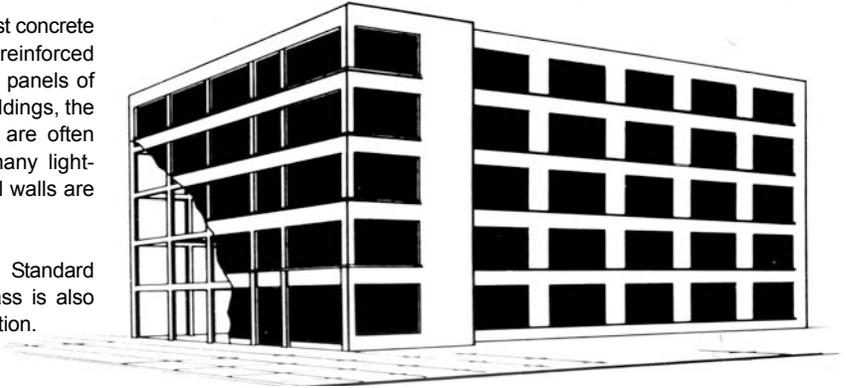


CLASS B BUILDINGS

The primary characteristic of a Class B building is the reinforced concrete frame in which the columns and beams can be either formed or precast concrete. They may be mechanically stressed. It is a fire-resistant structure.

Floors and roofs in Class B structures are formed or precast concrete slabs. The exterior walls will generally be masonry or reinforced concrete curtain walls or any of the many types of wall panels of concrete, metal, glass or stone, etc. In some Class B buildings, the walls may be partially load-bearing. Interior partitions are often masonry, reinforced concrete or gypsum block, but many light-weight and movable partitions are used where structural walls are not needed.

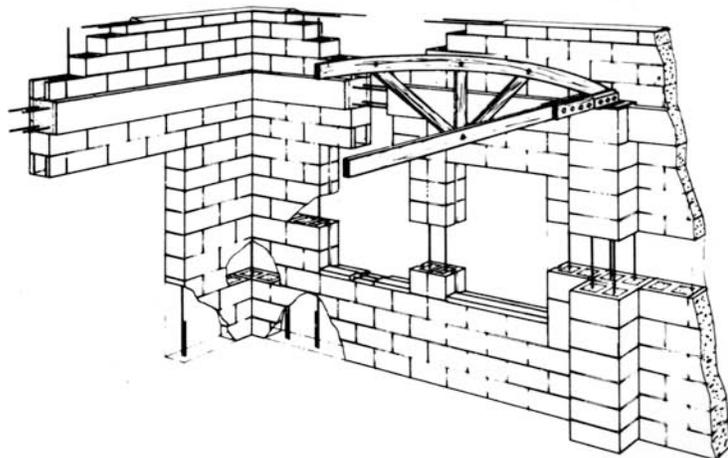
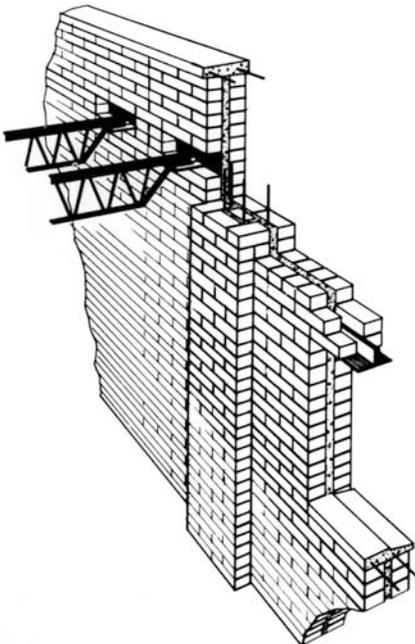
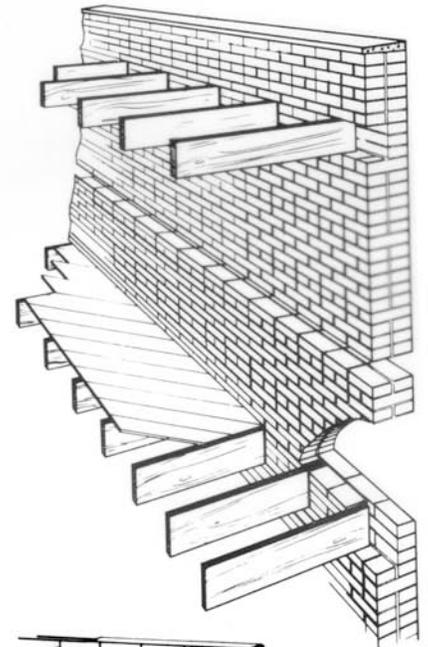
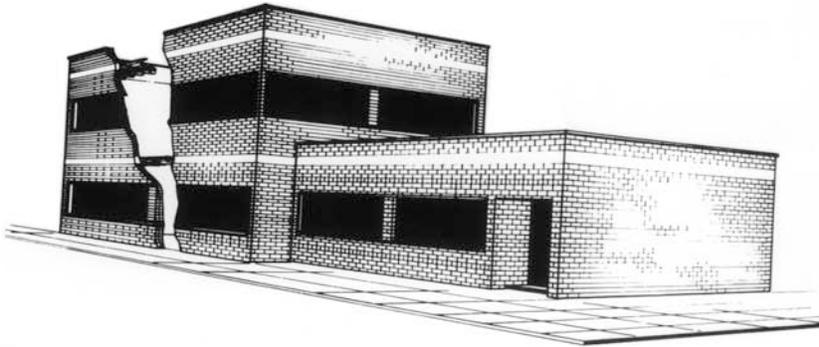
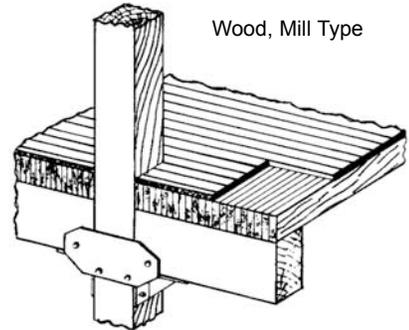
Included in this classification are Uniform, Basic and Standard Building Code Types I and II (noncombustible). This class is also referred to as Fire Resistant or Two – Four-hour construction.



CLASS C BUILDINGS

Class C buildings are characterized by masonry or reinforced concrete (including tilt-up) construction. The walls may be load-bearing, i.e., supporting roof and upper floor loads, or non-bearing with open concrete, steel, or wood columns, bents or arches supporting the load. Floors and roofs are supported on wood or steel joists or trusses, or the floor may be a concrete slab on the ground. Upper floors or roofs may be of concrete plank, steel deck, or wood. Bearing walls are frequently strengthened by concrete bond beams and pilasters. Included in this classification are Uniform and Basic building Code Type III (noncombustible wall) Standard Code Type V. This class is also referred to as Masonry or Unprotected Noncombustible, Joisted or Unprotected Masonry, or Ordinary or Unprotected One-hour and to include certain Two-hour or Mill construction (heavy timber).

Class C_{Mill} type construction is characterized by thick masonry walls with heavy timber frames and laminated wood floors or concrete slab on the ground.

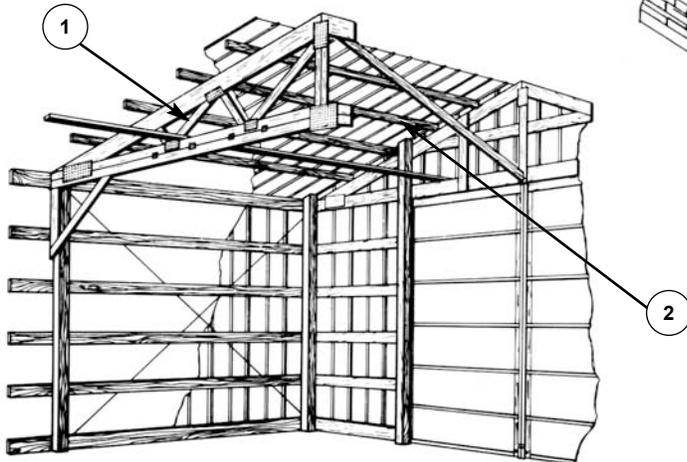
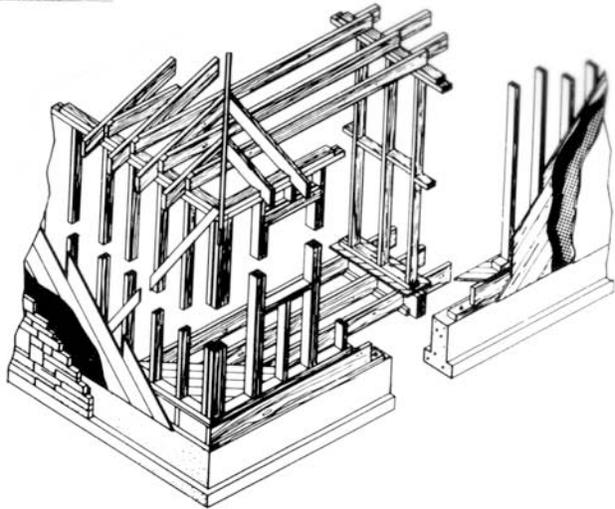


CLASS D BUILDINGS

Class D buildings are characterized by combustible construction. The exterior walls may be made up of closely spaced wood or steel studs, as in the case of a typical frame house, with an exterior covering of wood siding, shingles, stucco, brick or stone veneer, or other materials. Otherwise, they may consist of an open-skeleton wood frame on which some form of curtain wall is applied including the pre-engineered pole- or post-frame buildings.

Floors or roofs are supported on wood or steel joists or trusses or the floor may be a concrete slab on the ground. Upper floors or roofs may consist of wood or metal deck, prefabricated panels or sheathing.

Construction Type V (wood-frame) of the Uniform, Type IV Basic and Type VI Standard Building Code are included in this classification. This class is also referred to as Unprotected-protected One-hour Construction.

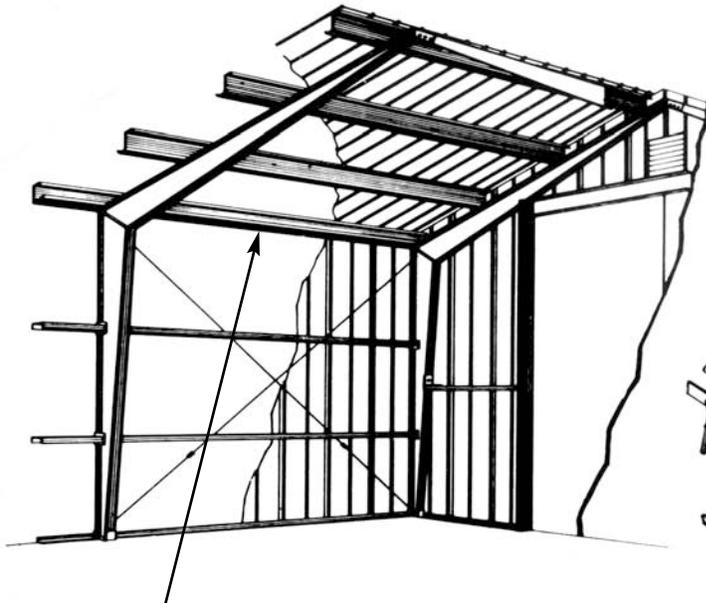
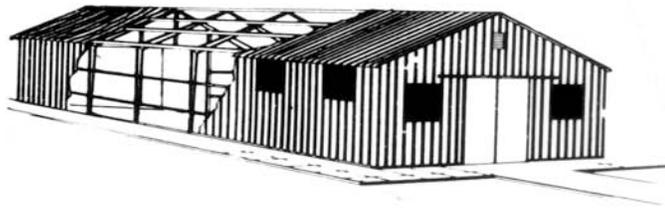
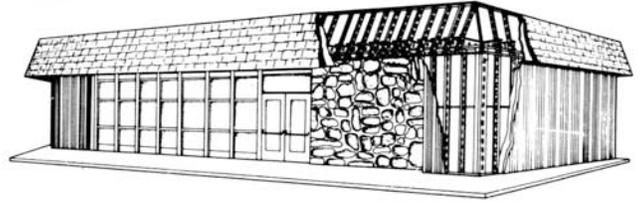


- NOTES:** (1) The cost of roof trusses such as these is included in the price of the frame costs for "wood, light pole-type construction".
- (2) The costs of purlins such as these can be found under the heading "light purlin supports only". If these were heavier members, they would be costed as "open-wood system for corrugated metal".

CLASS S BUILDINGS

Class S buildings are characterized by incombustible construction and prefabricated structural members. The exterior walls may be steel studs or an open-steel skeleton frame with exterior single or sandwich wall coverings consisting of prefabricated panels or sheet siding. Floors and roofs are supported on steel joists or beams, or the floor may be concrete slab on grade. Upper floors or roofs may consist of metal deck, prefabricated panels or sheathing. Class S buildings can range from simple storage buildings to large "heavy" manufacturing buildings.

Included in this classification are Uniform and Standard Building Code construction, Type IV (noncombustible) Basic Code Type V. This class is also referred to as Noncombustible and can be One-hour Type II construction.



NOTE: These purlins are heavy enough to be priced as an "open-steel system for corrugated metal".

