

SECTION 18

SMALL BUILDINGS

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SECTION 18

SMALL BUILDINGS

1801

SCOPE

- a) Small buildings are defined as buildings of less than 2,500 square feet in floor area in Occupancy Group E(a) Residential Buildings and Occupancy Group D(b), General Merchandise Stores and of not more than 2 storeys. This Section provides information on the design and construction of small wood framed and steel framed buildings using traditional methods of design.
- b) The latest edition of the Building Guidelines is hereby adopted as an addendum to this Code for the design and construction of buildings falling within the scope of this Section. The Guidelines contain graphical illustrations of the construction principles recommended in this Section. It is intended that the Guidelines be completely prescriptive and can be used for construction of simple buildings. However, where it may be necessary to deviate from the prescriptions given in the Guidelines, reference must be made to this Section and to the other relevant Sections of this Code.
- c) Section 17 provides information on the requirements for the design and construction of light gauge steel structures while outline specifications for the design and construction of small light gauge steel framed buildings (systems) is dealt with in the Section D of the Building Guidelines.
- d) This Section is to be read with the following where appropriate:
 - i) OECS Building Code:
 - Section 14 - Timber Construction
 - Section 15 - Concrete Block Masonry
 - Section 16 - Plain and Reinforced Concrete
 - Section 17 - Structural Steel
 - ii) Caribbean Uniform Building Code (CUBiC):
 - Part 2 Section 8 - Structural Timber
 - Part 5 Section 1 - Small Buildings (Draft only)
 - iii) OECS Building Guidelines:
- e) Information on pre-cast concrete construction is given in Part 2 Section 6 sub-section 16 of CUBiC. Information is provided in that Section on the design of pre-cast wall panels, details of

construction, identification and marking, and transportation, storage and erection.

- f) All materials and systems used shall be based on the requirement to resist the dead and live loads imposed, especially wind and earthquake loads as provided for in Section 12 - Dead and Live Loads. Materials shall also be chosen for their resistance to corrosion and to rot. It is therefore necessary that current methods of corrosion resistance for steel members and wood preservatives for timber be employed. The developer must provide information on the standards being used for corrosion resistance and wood preservation for the approval of the Authority.
- g) Sizes of timber members given in this Section are the recommended minimum sizes. It is the responsibility of the designer to determine the appropriate sizes to be used in any situation based on based on rational calculations. The sizes of timber members given in this Section are nominal sizes.
- h) **The Director reserves the right to ensure that the design and construction of all buildings conform to all of the relevant Sections of the Building Code, and developers and designers shall design and construct all buildings accordingly.**

1802 WOOD-FRAME CONSTRUCTION

1802.1 Scope

The requirements for wood-frame construction shall conform to the provisions of Section 14 - Timber Construction and to Part 2 Section 8 of CUBiC and to this Section.

1802.2 Nails

- a) Nails specified shall be common steel wire nails or common spiral nails. All nails shall be long enough so that they penetrate the second member a distance equal to the thickness of the member being nailed thereto. Splitting of wood members shall be minimised by staggering the nails in the direction of the grain and by keeping nails well in from the edges.
- b) Nailing of framing and wood members shall conform to Part 2 Section 8 of CUBiC.

1802.3 Sizes, Spacing and Allowable Spans

The spans for wood joists, rafters and beams shall conform to the spans shown in Table C-1 of the Building Guidelines, and in Table 2.825.1 in

Part 2 Section 8 of CUBiC for the uniform live loads shown in the Table.

1802.4

Notching and Drilling

- a) Holes drilled in roof, floor or ceiling framing members shall be not larger than $\frac{1}{4}$ of the depth of the member and shall be located not less than 2" from the edges, unless the depth of the member is increased by the size of the hole.
- b) Floor, roof and ceiling framing members may be notched provided the notch is located on the top of the member within $\frac{1}{2}$ of the joist depth from the edge of bearing and is not deeper than $\frac{1}{3}$ the joist depth, unless the depth of the member is increased by the size of the notch.
- c) Wall studs shall not be notched, drilled or otherwise damaged so that the undamaged portion of the stud is less than $\frac{2}{3}$ the depth of the stud if the stud is loadbearing, or 1- $\frac{1}{2}$ " if the stud is non-loadbearing, unless the weakened studs are suitably reinforced.
- d) The top plates in loadbearing walls and partitions shall not be notched, drilled or otherwise weakened to reduce the undamaged width to less than 2" unless the weakened plates are suitably reinforced.
- e) Roof truss members shall not be notched, drilled or otherwise weakened unless such notching or drilling is allowed for in the design of the truss.
- f) Bird mouth connections (rafter to roof plate) are not recommended as the timber rafters are reduced in section and the remaining section may not be adequate to prevent failure by shear.

1802.5

Anchorage

- a) Building frames shall be suitably anchored to the foundation walls to resist wind and earthquake forces, unless a structural analysis shows that such anchoring is not necessary.
- b) Anchorage shall be provided in conformance with the provisions of 1802.14 and Part 2 Section 8 of CUBiC.

1802.6

Sill Plates (see also 1802.10)

- a) Where sill plates provide bearing for the floor system they shall be not less than 2" by 4" material.
- b) Sill plates shall be levelled by setting them on a full bed of mortar.

1802.7**Beams to Support Floors**

- a) Beams shall have even and level bearing and the length of bearing at end supports shall not be less than 4 inches.
- b) Steel beams shall be shop primed.
- c) Where a beam is made up of individual pieces of lumber that are nailed or otherwise permanently fixed together, the individual members shall be 1-1/2 in. or greater in thickness and installed on edge.
- d) Where the individual members of a beam described in 1802.7 c) are butted together to form a joint, each joint shall occur over a support, except that where the beams are continuous over more than one span, the joints may be located at or within 6" of the end quarter points of the clear span of the beam.
- e) Joints in individual members of beams that are located at or near the end quarter points described in 1802.7 d) shall not occur in adjacent members at the same quarter point and shall not reduce the effective beam width by more than half. Members joined at quarter points shall be continuous over the adjacent supports.
- f) Except as provided in 1802.7 g), where 1-1/2" members are laid on edge to form a built-up beam, individual members shall be nailed together with a double row of nails at least 2-1/2" in length, spaced not more than 18" apart in each row with the end nails located 4" to 6" from the end of each piece.
- g) Where 1-1/2" members in built-up wood beams are not nailed together as provided in 1802.7 f), they shall be bolted together with at least 1/2" diameter bolts equipped with washers and spaced not more than 4 ft. on centres, with the end bolts located not more than 2 ft. from the ends of the members.

1802.8**Floor Joists**

- a) Except when supported on ribbon boards, or when supported by appropriate joist hangers as in 1802.8 c), floor joists shall have not less than 4" length of end bearing. Ribbon boards shall be not less than 1" by 4" lumber let into the studs.
- b) Floor joists may be supported on the top of beams or may be framed into the sides of beams.
- c) When framed into the side of a wood beam, the joists shall preferably be supported on joist hangers or other acceptable mechanical connectors, or on ledger strips of minimum dimensions of 1-1/2" by 3" nailed to the side of the supporting beam.

- d) When framed into the side of steel beams, the joists may be supported on the bottom flange of the beam or on not less than 1-1/2" by 2" lumber bolted to the web with not less than 1/4" diameter bolts spaced not more than 2 ft. apart.
- e) Unless ceiling furring or plywood cladding is installed on the underside of floor joists, floor joists shall be restrained from twisting at the end supports and at intervals between the supports not exceeding 7 ft. End restraint should be provided by a suitably designed steel connection to the support. Restraint at intermediate locations shall be obtained by 1-1/2" by 2" cross bridging.

Blocking tightly fitted between joists and securely nailed in place is also acceptable for restraining joist twisting.

- f) Header joists around floor openings shall be doubled when they exceed 4 ft. in length. The size of header joists exceeding 10 ft. in length shall be determined by calculations.
- g) Trimmer joists around floor openings shall be doubled when the length of the header joist exceeds 32". When the header joist exceeds 6ft. 6in. in length the size of the trimmer joists shall be determined by calculations.
- h) When tail joists and header joists are supported by the floor framing, they shall be supported by suitable joist hangers or nailing.
- i) Non-loadbearing partitions parallel to floor joists shall be supported on beams, loadbearing walls or doubled joists where the partition is over 6 ft. in length and contains openings that are not full ceiling height. Where such partitions contain no openings or openings that are full height, the joists need not be doubled. Non-loadbearing partitions less than 6 ft. in length need not be supported on framing but may be supported by the subfloor.
- j) Doubled joists may be separated not more than 8 in. by blocking, if the blocking is not less than 1-1/2" by 4" lumber spaced not more than 4 ft. apart.
- k) Non-loadbearing partitions at right angles to the floor joists are not restricted as to location.
- l) Loadbearing interior walls parallel to floor joists shall be supported by beams or walls of sufficient strength to transfer safely the design loads to the vertical supports.
- m) Loadbearing interior walls at right angles to floor joists shall be located not more than 3 ft. from the joist support when the wall does not support a floor, and not more than 2 ft. from the

joist support when the wall supports one or more floors, unless the joist size is designed to support such loads.

- n) Floor joists supporting roof loads shall not be cantilevered more than 10" beyond their supports where 2" by 8" joists are used, and not more than 2' 6" beyond their supports where 2" by 10" or larger joists are used. The cantilevered portions shall not support floor loads from other storeys unless calculations are provided to show that the allowable design stresses of the cantilevered joists are not exceeded.
- o) Table C-1 in Section C of the Building Guidelines gives the recommended joist sizes for various spans of domestic loading using standard pitch pine lumber available in the OECS. Table 2.825.1 of CUBiC should be read for more precise information on recommended spans for various loadings and spans.
- p) While minimum dimensions are given in 1802.8 n), the designer is responsible for calculating the length of cantilever that can be accommodated safely with various sizes of joists, taking into account the wind loads and other loads on the building.

1802.9

Wall Studs

- a) Studs shall be not less than 2" by 4" and where supporting more than one floor and a roof shall be not less than 2" by 6" or 3" by 4".
- b) Maximum allowable height of 2" by 4" and 3" by 4" stud framing shall be 14 ft., and of 2" by 6" stud framing shall be 20 ft unless the wall is otherwise laterally supported. Solid wood bridging shall be placed at intervals of not over 8 ft.
- c) No studding shall be spaced more than 2 ft on centres unless vertical supporting members in the walls are designed as columns.
- d) Studs in exterior and bearing walls shall be placed with the longer dimension perpendicular to the wall.
- e) Wall studs shall preferably be continuous for the full storey height except at openings
- f) Corners and intersections shall be designed to provide support for the vertical edges of interior and exterior cladding materials and in no instance shall exterior corners be framed with less than the equivalent of two studs. Where the vertical edges of interior cladding at wall intersections are supported at vertical intervals by blocking or other acceptable method, the vertical distance between such supports shall not exceed the maximum distance between supports.

- g) Studs shall be doubled on each side of openings so that the inner studs extend from the lintel to the bottom wall plate and the outer studs extend from the top wall plates to the bottom wall plate.
- h) Single studs may be used on either side of openings in non-loadbearing partitions not required to be fire separations with fire-resistance ratings provided the studs extend from the top wall plate to the bottom wall plate.
- i) Recommended sizes of studs are given in Table 18-1.

Table 18-1

Recommended Sizes of Studs

Size (in.)	Spacing (in.)	Maximum Height (ft-in.)
2 x 4	16	7-6
3 x 4	16	8-0
3 x 6	16	9-0
2 x 4	24	7-0
3 x 4	24	7-6
3 x 6	24	9-0

The recommended sizes and heights given are for standard lumber normally available in the OECS. It is recommended that designers ensure that the specifications of the lumber being used are such that the bending and shear stresses of the lumber can meet the conditions given in the table above.

1802.10

Base Plates

- a) Base plates for wall studs shall conform to the requirements of Part 2 Section 8 of CUBiC.
- b) The following provisions must be made:
 - i) In stud bearing walls:
 - double plates must be used around the entire exterior walls
 - the top plate must be doubled or lapped at each intersection with walls and partitions,
 - joints in the upper or lower members of the top plates must be lapped not less than 4 inches.

- ii) Plates on masonry or concrete walls

Plates or sills resting on masonry or concrete walls must be treated with a suitable preservative and must not be less than 3" by 6", bolted to the masonry or concrete at the corners and at not more than 4 ft intervals with 18 in. long 1/2" bolts.

- iii) Base plates on concrete or masonry must have a suitable damp proof course under the plate.

1802.11 Framing over Openings

- a) Openings in non-loadbearing walls shall be framed with not less than 2" thick material the same width as the studs and securely nailed to adjacent studs.
- b) Openings for doors in non-loadbearing walls required to be fire separations with a fire-resistance rating shall be framed with the equivalent of at least two 2" thick members that are the same width as the wall plates.
- c) All openings in loadbearing walls shall be provided with headers or lintels of not less than 2" nominal thickness placed on edge. Such headers or lintels shall have not less than 2" solid bearing at each end.

1802.12 Roof and Ceiling Framing

- a) Figures 14 and 18 in the Building Guidelines show typical roof framing for small buildings. Such rafters are generally placed at intervals of 2 ft. depending on the size of purlins and sizes of rafters. Roof framing shall be doubled on each side of openings greater than 2 rafters or joist spacings.
- b) Rafters shall be located directly opposite each other and tied together at the peak, or may be offset by their own thickness if nailed to a ridge board not less than 3/4" thick.
- c) Framing members shall be connected by gusset plates or suitable steel connectors, except that where the roof framing on opposite sides of the peak is assembled separately, such as in the case of factory built houses, the manufacturer shall supply adequate fixings made up of 18 gauge steel plate with bolts or screws to ensure that both sides of the roof structure are firmly attached to each other. The design of the fixings and the procedure for installation of the roof must be approved by the Director
- d) Hip and valley rafters shall be not less than 2" greater in depth than the common rafters and not less than 2" thick, actual dimension.

- e) Dwarf walls and struts may be used to provide intermediate support to reduce the span for rafters and joists. When struts are used they shall be not less than 2" by 4" material extending from each rafter to a loadbearing wall at an angle of not less than 45 degrees to the horizontal
- f) When dwarf walls are used for rafter support, they shall be framed in the same manner as loadbearing walls and securely fastened top and bottom to the roof and ceiling framing to prevent over-all movement. Solid blocking shall be installed between floor joists beneath dwarf walls that enclose finished rooms.
- g) Except as provided in 1802.12 h), the ridge of the roof shall be supported by a loadbearing wall extending from the ridge to suitable bearing or by a ridge beam of not less than 1-1/2" by 6" material. Such ridge beam shall be supported at intervals not exceeding 4ft by not less than 1-1/2" by 4" members extending vertically from the ridge to suitable bearing.
- h) When the roof slope is 1 in 3 or more, the ridge support may be omitted provided the lower ends of the rafters are adequately tied to prevent outward movement. These may consist of tie rods or ceiling joists forming a continuous tie for opposing rafters and nailed in accordance with Part 2 Section 8 of CUBiC.
- i) Roof trusses shall be designed by an experienced engineer or architect in accordance with the appropriate requirements in Part 2 Section 8 of CUBiC.
- j) Roof joists supporting a finished ceiling other than plywood shall be restrained from twisting along the bottom edges by means of furring, blocking, cross bridging or strapping conforming with 1802.8 e).
- k) Ceiling joists support the loads of the ceiling and should not be made to support rafter loads. In general practice, joists supporting a plaster ceiling shall be spaced not more than 16" on centres. They shall be not less than 2" x 2" lumber spanning not more than 24 inches for ceilings of 1/2" plaster board. Where the ceiling joists are used to support fibre board or plywood ceilings the spacing and size of joist shall be as follows:

Table 18-2

Spans and Sizes of Ceiling Joists

Maximum Span (ft. In.)	Maximum Spacing (in.)	Width & Depth (in.)
7-0	16	2 x 4
6-0	24	2 x 4
11-6	16	2 x 6
10-0	24	2 x 8

1802.13 Bearing

Joists and rafters shall bear on wood plates and shall have not less than 4" of bearing except as provided in Part 2 Section 8 of CUBiC.

1802.14 Anchorage

Anchorage for joists and rafters shall conform with the requirements of Part 2 Section 8 of CUBiC. Anchorage must be continuous from the foundations to the roof, to ensure that all parts of the building are securely fastened to the foundations.

The anchorage systems recommended are shown in Figures C-1, C-2 and C-3 , of the Building Guidelines. The anchorage for the base plates consist of bolts fixed into the concrete or masonry as in 1802.10. The anchorage for the roof structure consists of galvanised hurricane straps or steel plates bolted to the rafters and to the plates. The steel plates or patented galvanised hurricane anchors must not be less than 18 gauge thick.

1802.15 Sheathing

- a) Floor sheathing requirements shall conform with the provisions of Sub-Section 1406.4.
- b) Roof sheathing requirements shall conform with the provisions of Sub-Section 1406.2.
- c) Storm sheathing of exterior stud walls shall conform with the requirements of Sub-Section 1406.9c) and d) and to Part 2 Section 8 of CUBiC.

1803 POST, BEAM AND PLANK CONSTRUCTION

1803.1 General

- a) The size and spacing of posts and beams and the span and thickness of floor and roof decking shall be calculated in

conformance with Part 2 Section 8 of CUBiC except when specific dimensions are provided in this Sub-Section.

- b) Requirements for nails, lumber, notching and drilling, anchorage and sill plates shall conform to Sub-section 1802.

1803.2 Decking

- a) Floor and roof decking shall consist of not less than 1" lumber laid on the flat or on edge.
- b) Plank floor decking laid on the flat shall be not more than 8" wide and shall be tongued-and-grooved or splined, unless a separate underlay is installed or the flooring consists of wood strips at right angles to the decking.

1803.3 Beams

- a) Loadbearing beams shall be solid, built-up, glued-laminated or plywood web beams. Where glued assemblies extend to the exterior waterproof glue shall be used, except that where the exposed portion is adequately protected against wetting water-resistant glue may be used.
- b) Loadbearing roof beams shall be securely connected to the exterior wall framing and the centre loadbearing wall or centre beams to resist adequately the uplift forces due to wind.
- c) The length of end bearings for loadbearing beams shall not be less than 4".
- d) When loadbearing beams are supported by mechanical connectors, the connectors shall be capable of supporting the design loads.
- e) Joints in loadbearing beams occurring not over solid supports shall be designed in accordance with the provisions of CUBiC Part 2 Section 8.
- f) Opposing loadbearing beams shall be tied together at the joints by means of splices or suitable mechanical connectors.

1803.4 Posts (see 1406.5)

- a) Posts shall be solid, built-up or laminated.
- b) Where wall sheathing does not provide suitable anchorage, exterior wall columns shall be anchored to the wall plate by suitably engineered anchors of not less than 16 gauge thick steel angles.

- c) Solid posts and individual members in built-up posts shall extend in one piece the full height of the wall storey.
- d) Intermediate studs or blocking shall be provided between posts in post and beam walls for the support of exterior and interior cladding.

1803.5

Plank Frame Wall Construction

- a) Thickness of plank framing in plank frame walls shall conform to Table 18-1. The unsupported height of 1-1/2" vertical plank non-loadbearing partitions shall not exceed 12 ft.
- b) Vertical framing in plank frame walls shall consist of not less than 10" wide planks spaced not more than 8 ft. on centres.
- c) Vertical framing in plank frame walls shall not bear on wood members with the grain at right angles to the vertical framing except where bearing on sills.

Table 18-3

Nominal Thickness of Plank Framing

Supported Load (Including dead load and ceiling)	Minimum Plank Thickness, (in)
Roof with or without attic storage	1-1/2
Roof with or without attic storage plus 1 floor	1-3/4
Roof with or without attic storage plus 2 floors	2-1/2

- d) Corners of plank frame walls shall be formed by butting and fastening together the face and edge of 2 planks.
- e) Vertical framing in plank frame walls shall be provided on each side of every opening, except that a window opening not more than 2ft. 6in. in width may be supported on one side only by a vertical member. In such cases the opposite jamb of the window or short upright to which it is attached shall bear on the filler wall plank immediately below, which in turn shall be notched into the vertical structural members on each side.
- f) Where horizontal planks act as loadbearing lintels or headers they shall be framed into vertical members by dovetailing so that not less than a 2" length of bearing is provided.
- g) Openings in loadbearing plank frame walls shall be bridged with lintels designed to carry superimposed loads to adjacent vertical members.

- h) In buildings of residential occupancy where spans of supported joists do not exceed 16 ft and the spans of trusses do not exceed 32 ft, the spans for wood lintels shown in Table 18-2 may be used for plank frame walls.
- i) Planks laid diagonally will reduce the tendency of the building to be pushed out of shape by lateral forces. Such planking shall be trimmed at the edges to fit the wall or floor plate or vertical edge framing members and nails should not be closer to the edge of the plank than 1 inch.
- j) Non-loadbearing horizontal members (fillers) in plank frame walls shall be securely fastened to the vertical framing.

Table 18-4

Lintel Spans

Lintel Size, (in.) (nominal)	Maximum Span, (ft)
2 x 6	5.0
2 x 8	6.0
2 x 10	7.0
3 x 8	7.0
3 x 10	9.0

1804 SHEET STEEL STUD WALL FRAMING

1804.1 Application

This Sub-section applies to sheet steel studs for use in non-loadbearing exterior walls and interior partitions. Information on the design and construction of steel framed structures using cold formed steel sections can also be found in the Cold Formed Steel Design Manual, August 1986 Edition, with December 11, 1989 Addendum, published by the American Iron and Steel Institute.

1804.2 Design Criteria

- a) Where loadbearing steel studs are used they shall be designed in conformance with Part 2 Section 7 of CUBiC.
- b) Steel studs and runners shall conform to ASTM C645-76, "Non-load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screws", or equivalent standard.

- c) Screws for the application of cladding materials to steel studs, runners and furring channels shall conform to ASTM C 646-78a, "Steel Drill Screws for the Application of Gypsum Sheet Material to Light Gauge Steel Studs", or equivalent standard.
- d) Steel stud framing shall be clad on both sides with lath and plaster or sheet-type material, fastened with screws or other acceptable fasteners at the appropriate spacing as required for interior finishes. Screws used for attaching wall finishes shall penetrate at least 3/8" through the metal.
- e) Except as required in 1804.2 g), steel studs in non-load bearing partitions shall have a metal thickness of not less than 24 gauge.
- f) Runners for interior and exterior non-loadbearing walls shall have a thickness of at least 24 gauge exclusive of coatings and shall have at least 1" flanges. Note that except otherwise approved by the Director, where the runners and other members are required to resist lateral loads the minimum thickness of the material shall be as set forth in Section 17.
- g) Where openings for doors in non-loadbearing fire separations required to have fire-resistance rating do not exceed 4ft in width, the width of steel studs shall be at least 2-1/2". Where openings exceed 4 ft in width, the stud width shall be at least 3-1/2". The metal thickness of the studs must be adequate for the size of stud being used.
- h) The distance of the first stud beyond the jamb of any door opening in a fire separation required to have a fire-resistance rating shall not exceed 16". Where the distance between the framing over the opening at the top runner exceeds 16" in such walls, intermediate support shall be installed at intervals of not more than 16" above the opening.
- i) The size of spacing of non-loadbearing steel studs for exterior walls shall be in conformance with Table 18-6.

Table 18-5**Steel Studs for Non-Loadbearing Partitions**

Minimum Stud Size (in.)	Maximum Stud Spacing (in.)	Maximum Wall Height (ft-in)
1-1/4 x 1-1/2	16 24	9-6 8-6
1-1/4 x 2-1/2	16 24	13-0 11-6
1-1/2 x 3-1/2	16 24	17-0 16-0

1804.3 Size of Framing

Except as required in 1804.2 f) and h) the size and spacing of steel studs for non-loadbearing partitions shall conform to Table 18-5.

1804.4 Installation

- a) Runners shall be provided at the top and bottom of walls and partitions. Such runners shall be securely attached to the building at approximately 2" from the end of the runners, and at intervals of not more than 2 ft on centres for interior studs and 12" for exterior studs. Such fasteners shall consist of the equivalent of 2-1/2" nails or 1" screws.
- b) Studs at openings and which are not full wall height shall be supported by a runner at the ends of the studs, securely fastened to the full length studs at the sides of the opening.
- c) Steel studs used in walls required to have a fire-resistance rating shall be installed so that there is at least a 1/2" clearance between the top of the stud and the top of the runner to allow for expansion in the event of fire. Except as provided in 1804.2, studs in such walls shall not be attached to the runners in a manner that will prevent such expansion.
- d) Door openings in non-loadbearing fire separations required to have a fire-resistance rating shall be framed with 2 runner sections back to back.
- e) Steel studs shall be installed with webs at right angles to the wall face and except at openings shall be continuous for the full wall height.
- f) Corners and intersections of walls and partitions shall be constructed to provide support for cladding materials.

- g) Studs shall be doubled on each side of every opening where such openings involve more than one stud piece, and shall be tripled where the openings in exterior walls exceed 7ft. 9in. in width. Such studs shall be suitably tied together to act as a single structural unit in resisting transverse loads.
- h) Studs shall be attached to runners by screws, crimping, welding or other suitable method around wall openings, and elsewhere where necessary to keep the studs in alignment during construction.

Table 18-6

Steel Studs for Non-loadbearing Exterior Walls

Minimum Stud Dimensions (in.) (Nominal)	Minimum Metal Thickness (excluding coatings) (in)	Minimum Stud Length (ft-in)		
		Spacing of Studs (in) - centre to centre.		
		12	16	24
1-1/4 x 4	0.021	9-6	8-0	-
1 -1/4 x 4	0.027	11-0	8-10	7-10
&1-1/4 x 4	0.033	11-6	10-0	8-10
1-1/4 x 4	0.039	13-0	10-10	10-0