APPENDIX C

RECOMMENDED FASTENING SCHEDULE

Building element	Nail size and type	Number and location
Stud to sole plate	8d common 16d common	4 toe-nail or 2 direct-nail
Stud to cap plate	16d common	2 toe-nail or 2 direct-nail
Double studs	10d common	12" o.c. direct
Corner studs	16d common	24" o.c. direct
Sole plate to joist or blocking	16d common	16" o.c.
Double cap plate	10d common	16" o.c. direct
Cap plate laps	10d common	2 direct-nail
Ribbon strip, 6" or less	10d common	2 each direct bearing
Ribbon strip, 6" or more	10d common	3 each direct bearing
Roof rafter to plate	8d common	3 toe-nail
Roof rafter to ridge	16d common	2 toe-nail or direct nail
Jack rafter to hip	10d common 16d common	3 toe-nail or 2 direct-nail
Floor joists to studs (No ceiling joists)	10d common 10d common	5 direct or 3 direct
Floor joists to studs (With ceiling joists)	10d common	2 direct
Floor joists to sill or girder	3d common	3 toe-nail
Ledger strip	16d common	3 each direct
Ceiling joists to plate	16d common	3 toe-nail
Ceiling joists (laps over partition)	10d common	3 direct-nail
Ceiling joists (parallel to rafter)	10d common	3 direct
Collar beam	10d common	3 direct
Bridging to joists	8d common	2 each direct end
Diagonal brace (to stud & plate)	8d common	2 each direct bearing
Tail beams to headers (When nailing permitted)	20d common	1 each end 4 sq. ft. floor area
Header beams to trimmers	20d common	1 each end 8 sq. ft. floor area
1" roof decking (over 6" in width)	8d common 8d common	2 ea. direct rafter 3 each direct rafter
1 " subflooring (6" or less)	8d common	2 each direct joist
1" subflooring (8" or more)	8d common	3 each direct joist
2" subflooring	16d common	2 each direct joist
1" wall sheathing (8" or less in width)	8d common	2 each direct stud
1" wall sheathing (over 8" in width)	8d common	3 each direct stud
Plywood roof & wall sheathing (½" or less) (_" or greater) (5/16", _",or ½") (_")	 6d common 8d common 16 gauge galvanized wire staples, _" minimum crown; length of 1" plus plywood thickness Same as immediately above	6" o.c. direct edges & 12" o.c intermediate 6" o.c. direct edges & 12" o.c. intermediate 4" o.c. edges & 8" o.c. intermediate 2½" o.c. edges & 5" o.c. intermediate
Plywood subflooring: (½") (_", ¾") (1", 1_") (½") (_")	 6d common or 6d annular or spiral thread 8d common or 8d annular or spiral thread 10d common or 8d ring shank or 8d annular or spiral thread 16d galvanized wire staples _" minimum crown, 1_" length	 6" o.c. direct edges & 10" o.c. intermediate 6" o.c. direct edges & 10" o.c. intermediate 6" o.c. direct edges & 6" o.c. intermediate 4" o.c. edges & 7" o.c. intermediate 2½" o.c. edge 4" o.c. intermediate
Built-up girders and beams	20d common	32" o.c. direct
Continuous header to stud	8d common	4 toe nail

Building element	Nail size and type	Number and location
Continuous header, two pieces	16d common	16" o.c. direct
½" fiber board sheathing	1½" galvanized roofing nail or 16 gauge staple, 1½" long with min. crown of 7/16"	3" o.c. exterior edge 6" o.c. intermediate
25/32" fiber board sheathing	1¾" galvanized roofing nail or 8d common nail or 16 gauge staple, 1½" long with min. crown of 7/16"	3" o.c. exterior edge 6" o.c. intermediate
Gypsum sheathing	12 gauge 1¾" large head corrosion-resistant	4" o.c. on edge 8" o.c. intermediate
Particle board underlayment (¼"-¾")	6d annular threaded	6" o.c. direct edges 10" o.c. intermediate
Particle board roof and wall sheathing ½" or less	6d common	6" o.c. direct edges 12" o.c. intermediate
_" or greater	8d common	6" o.c. direct edges 12" o.c. intermediate
Particle board subflooring (_" or greater)	8d common	6" o.c. direct edges 12" o.c. intermediate
Shingles, wood[a]	No. 14 B&S Gage corrosion resistive	2 each bearing
Weather boarding	8d corrosion	2 each bearing

Note a: Shingle nails shall penetrate not less than ¾" into nailing strips, sheathing or supporting construction except as otherwise provided in 780 CMR 1225.4.4.

Table C-1
Maximum Spacing of Gypsum Wallboard Fasteners
(For nonfireresistance rated construction assemblies)

Thickness of gypsum wallboard (inch)	Plane of framing surface	Long dimension of gypsum wall-board sheets in relation to direction of framing members	Maximum spacing of framing members (center-to-center in inches)	Maximum spacing of fasteners (center-to- center in inches) Nails	Screws	Nails to wood
½	Horizontal	Either direction	16	7	12	No. 13 gage, 1_" long, 19/54" head
	Horizontal	Perpendicular	24	7	12	No. 098 gage, 1¼" long, Annular ringed
	Vertical	Either direction	24	8	12	5d cooler nail
_	Horizontal	Either direction	16	7	12	No. 13 gage, 1_" long, 19/64" head
	Horizontal	Perpendicular	24	7	12	No .098 gage, 1_" long, Annual ringed 6d
	Vertical	Either direction	24	8	12	cooler nail
Fastening required with adhesive application						
½ or _	Horizontal	Either direction	16	16	16	As required for ½" and _" gypsum wallboard, see above
		Perpendicular	24	12	16	
	Vertical	Either direction	24			
2 layers each _" (¾" total)	Horizontal	Perpendicular	24	16	16	Base ply nailed as required for ½" gypsum wallboard and face ply placed with adhesive
	Vertical	Either direction	24	24	24	

Notes to Table C-1:
Note a. Where the metal framing has a clinching design formed to receive the nails by two edges of metal, the nails shall be not less than _ inch longer than the wallboard thickness, and shall have ringed shanks. Where the metal framing has a nailing groove formed to receive the nails, the nails shall have barbed shanks or be 5d cooler nail (No. 13 ½ gage, 1_ inches long, 15/64 inch head) for ½ inch gypsum wallboard; 6d cooler (No. 13 gage, 1_ inches long, 15/64 head) for _-inch gypsum wallboard.
Note b. Two nails at 2 inches to 2½ inches apart may be used if the pairs are spaced 12 inches center-to-center except around perimeters.
Note c. Screws shall be No. 6 with tapered head and long enough to penetrate into wood framing not less than _ inch and metal framing not less than ¼ inch
Note d. All nails shall meet ASTM C514 or Federal Specification FF-N-105C.

Note e. For fireresistance rated construction, see the pertinent fire test information.
Note f. 1 inch = 25.4 mm.

Table C-2
Allowable Shear for Wind or Seismic Forces in Pounds Per Foot
For Vertical Diaphragms of Lath and Plaster or Gypsum Board Frame Wall Assemblies

Type of material	Thickness of Material	Wall Construction	Nail spacing maximum (in inches)	Shear value	Minimum nail size
Gypsum lath, plain or perforated	_" Lath and ½" Plaster	Unblocked	5	100	No. 13 gage, 1_" long, 19/64" head, plasterboard blued nail.
Gypsum sheathing board	½" x 2'x 8' ½"x4' ½"x4'	Unblocked Blocked Unblocked	4 7	75	No. 11 gage, 1¼" long, 7/64" head, diamond point, galvanized.
Gypsum Wallboard or Veneer base	1/2"	Unblocked	7	175	5d Cooler nails
			4	100	
		Blocked	7	100	
			4		
			4	125	
	5/8"	Blocked		150	6d cooler nails
		Two ply	Base ply 9		
				175	Base ply-6d cooler nails
			Face ply 7		
				250	Face ply-8d cooler nails

Note a. These vertical diaphragms shall not be used to resist loads imposed by masonry or concrete construction. Values are for short time loading due to wind or earthquake and must be reduced 25% for normal loading

Note b. Applies to nailing at all studs, top and bottom plates and blocking.

Note c. Values shown are for gypsum board applied to one side only. The shear values may be doubled when identical materials are applied to both sides of wall

Note d. 1 inch=25.4 mm.

APPENDIX C

NON-TEXT PAGE