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FLOOR JOISTS

30# LIVE LOAD, 10# DEAD LOAD, /1360

Span (feet and inches)

| Species or Group | Grade | 2 x 6 | | | 2 x 8 | | | 2 x 10 | | | 2 x 12 | | |
|--|--------------|----------------------|-------|-------|----------------------|-------|-------|----------------------|-------|-------|----------------------|-------|-------|
| | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | |
| Doug-Fir Larch (Western) | Sel. Struc. | 12-6 | 11-4 | 9-11 | 16-6 | 15-0 | 13-1 | 21-0 | 19-1 | 16-8 | 25-7 | 23-3 | 20-3 |
| | No.1 & Btr. | 12-3 | 11-2 | 9-9 | 16-2 | 14-8 | 12-8 | 20-8 | 18-9 | 16-1 | 25-1 | 22-10 | 18-8 |
| | No. 1 | 12-0 | 10-11 | 9-7 | 15-10 | 14-5 | 12-4 | 20-3 | 18-5 | 15-0 | 24-8 | 21-4 | 17-5 |
| | No. 2 | 11-10 | 10-9 | 9-1 | 15-7 | 14-1 | 11-6 | 19-10 | 17-2 | 14-1 | 23-0 | 19-11 | 16-3 |
| | No. 3 | 9-8 | 8-5 | 6-10 | 12-4 | 10-8 | 8-8 | 15-0 | 13-0 | 10-7 | 17-5 | 15-1 | 12-4 |
| Doug-Fir South (Western) | Sel. Struc. | 11-3 | 10-3 | 11-10 | 14-11 | 13-6 | 11-10 | 19-0 | 17-3 | 15-1 | 23-1 | 21-0 | 18-4 |
| | No. 1 | 11-0 | 10-0 | 8-9 | 14-6 | 13-2 | 11-6 | 18-6 | 16-10 | 14-3 | 22-6 | 20-3 | 16-6 |
| | No. 2 | 10-9 | 9-9 | 8-6 | 14-2 | 12-10 | 11-2 | 18-0 | 16-5 | 13-8 | 21-11 | 19-4 | 15-10 |
| | No.3 | 9-6 | 8-2 | 6-8 | 12-0 | 10-5 | 8-6 | 14-8 | 12-8 | 10-4 | 17-0 | 14-8 | 12-0 |
| Hem-Fir (Western) | Sel. Struc. | 11-10 | 10-9 | 9-4 | 15-7 | 14-2 | 12-4 | 19-10 | 18-0 | 15-9 | 24-2 | 21-11 | 19-2 |
| | No. 1 & Btr. | 11-7 | 10-6 | 9-2 | 15-3 | 13-10 | 12-1 | 19-5 | 17-8 | 15-5 | 23-7 | 21-6 | 17-10 |
| | No. 1 | 11-7 | 10-6 | 9-2 | 15-3 | 13-10 | 12-0 | 19-5 | 17-8 | 14-8 | 23-7 | 20-9 | 17-0 |
| | No.2 | 11-0 | 10-0 | 8-9 | 14-6 | 13-2 | 11-4 | 18-6 | 16-10 | 13-10 | 22-6 | 19-8 | 16-1 |
| | No.3 | 9-8 | 8-5 | 6-10 | 12-4 | 10-8 | 8-8 | 15-0 | 13-0 | 10-7 | 17-5 | 15-1 | 12-4 |
| Spruce- Pine-fir (South) | Sel. Struc. | 11-0 | 10-0 | 8-9 | 14-6 | 13-2 | 11-6 | 18-6 | 16-10 | 14-8 | 22-6 | 20-6 | 17-11 |
| | No.1 & Btr. | 10-9 | 9-9 | 8-6 | 14-2 | 12-10 | 11-3 | 18-0 | 16-5 | 13-10 | 21-11 | 19-8 | 16-1 |
| | No. 1 | 10-5 | 9-6 | 8-3 | 13-9 | 12-6 | 10-8 | 17-6 | 15-11 | 13-0 | 21-4 | 18-6 | 15-1 |
| | No. 2 | 8-11 | 7-9 | 6-4 | 11-4 | 9-10 | 8-0 | 13-10 | 12-0 | 9-9 | 16-1 | 13-11 | 11-4 |
| | No. 3 | | | | | | | | | | | | |
| Doug Fir Larch North (Canada) | Sle. Struc. | 12-6 | 11-4 | 9-11 | 16-6 | 15-0 | 8-10 | 21-0 | 19-1 | 16-8 | 25-7 | 23-3 | 19-10 |
| | No. 1 | 11-10 | 10-9 | 8-10 | 15-7 | 13-8 | 11-2 | 19-3 | 16-8 | 13-8 | 22-4 | 19-4 | 15-10 |
| | No. 2 | 11-10 | 10-9 | 8-10 | 15-7 | 13-8 | 11-2 | 19-3 | 16-8 | 13-8 | 22-4 | 19-4 | 15-10 |
| | No. 3 | 9-6 | 8-2 | 6-8 | 12-0 | 10-5 | 8-6 | 14-8 | 12-8 | 10-4 | 17-0 | 14-8 | 12-0 |
| Hem-Fir North (Canada) | Sle. Struc. | 12-0 | 10-11 | 9-7 | 15-10 | 14-5 | 12-7 | 20-3 | 18-5 | 16-1 | 24-8 | 22-5 | 19-7 |
| | No. 1 | 11-10 | 10-9 | 9-4 | 15-7 | 14-2 | 12-4 | 19-10 | 18-0 | 15-0 | 24-2 | 21-4 | 17-5 |
| | No. 2 | 11-10 | 10-9 | 9-4 | 15-7 | 14-2 | 12-4 | 19-10 | 18-0 | 15-0 | 24-2 | 21-4 | 17-5 |
| | No. 3 | 10-5 | 9-0 | 7-4 | 13-2 | 11-5 | 9-4 | 16-1 | 13-11 | 11-5 | 18-8 | 16-2 | 13-2 |
| Spruce, Pine, Fir (Canada) | Sle. Struc. | 11-7 | 10-6 | 9-2 | 15-3 | 13-10 | 12-1 | 19-5 | 17-8 | 15-5 | 23-7 | 21-6 | 18-9 |
| | No. 1 | 11-3 | 10-3 | 8-11 | 14-11 | 13-6 | 11-6 | 19-0 | 17-8 | 14-1 | 23-0 | 19-11 | 16-3 |
| | No. 2 | 11-3 | 10-3 | 8-11 | 14-11 | 13-6 | 11-6 | 19-0 | 17-8 | 14-1 | 23-0 | 19-11 | 16-3 |
| | No. 3 | 9-8 | 8-5 | 6-10 | 12-4 | 10-8 | 8-8 | 15-0 | 13-0 | 10-7 | 17-5 | 15-1 | 12-4 |

FLOOR JOISTS

40# LIVE LOAD, 10# DEAD LOAD, 1/360

Span (feet and inches)

| | | 2 x 6 | | | 2 x 8 | | | 2 x 10 | | | 2 x 12 | | |
|-------------------------------|--------------|----------------------|------|------|----------------------|-------|-------|----------------------|-------|------|----------------------|-------|-------|
| Species or Group | Grade | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | |
| Doug-Fir Larch (Western) | Sel. Struc. | 11-4 | 10-4 | 9-0 | 15-0 | 13-7 | 11-11 | 19-1 | 17-4 | 15-2 | 23-3 | 21-1 | 18-5 |
| | No.1 & Btr. | 11-2 | 10-2 | 8-10 | 14-8 | 13-4 | 11-8 | 18-9 | 17-0 | 14-5 | 22-10 | 20-5 | 16-8 |
| | No. 1 | 10-11 | 9-11 | 8-8 | 14-5 | 13-1 | 11-0 | 18-5 | 16-5 | 13-5 | 22-0 | 19-1 | 15-7 |
| | No. 2 | 10-9 | 9-9 | 8-1 | 14-2 | 12-7 | 10-3 | 17-9 | 15-5 | 12-7 | 20-7 | 17-10 | 14-7 |
| | No. 3 | 8-8 | 7-6 | 6-2 | 11-0 | 9-6 | 7-9 | 13-5 | 11-8 | 9-6 | 15-7 | 13-6 | 11-0 |
| Doug-Fir South (Western) | Sel. Struc. | 10-3 | 9-4 | 8-2 | 13-6 | 12-3 | 10-9 | 17-3 | 15-8 | 13-8 | 21-0 | 19-1 | 16-8 |
| | No. 1 | 10-0 | 9-1 | 7-1 | 13-2 | 12-0 | 10-5 | 16-10 | 15-3 | 12-9 | 20-6 | 18-1 | 14-9 |
| | No. 2 | 9-9 | 8-10 | 7-9 | 12-10 | 11-8 | 10-0 | 16-5 | 14-11 | 12-2 | 15-2 | 13-2 | 10-9 |
| | No. 3 | 8-6 | 7-4 | 6-0 | 10-9 | 9-3 | 7-7 | 13-1 | 11-4 | 9-3 | 15-2 | 13-2 | 10-9 |
| Hem-Fir (Western) | Sel. Struc. | 10-9 | 9-9 | 8-6 | 14-2 | 12-10 | 11-3 | 18-0 | 16-5 | 14-4 | 21-11 | 19-11 | 17-5 |
| | No. 1 & Btr. | 10-6 | 9-6 | 8-4 | 13-10 | 12-7 | 11-0 | 17-8 | 16-0 | 13-9 | 21-6 | 19-6 | 16-0 |
| | No. 1 | 10-6 | 9-6 | 8-4 | 13-10 | 12-7 | 10-9 | 17-8 | 16-0 | 13-9 | 21-6 | 18-7 | 15-2 |
| | No. 2 | 10-0 | 9-1 | 7-11 | 13-2 | 12-0 | 10-2 | 16-10 | 15-2 | 12-5 | 20-4 | 17-7 | 14-4 |
| | No. 3 | 8-8 | 7-6 | 6-2 | 11-0 | 9-6 | 7-9 | 13-5 | 11-8 | 9-6 | 15-7 | 13-6 | 11-0 |
| Spruce-Pine-Fir (South) | Sel. Struc. | 10-0 | 9-9 | 8-6 | 13-2 | 12-0 | 10-6 | 16-10 | 15-3 | 13-4 | 20-6 | 18-7 | 16-3 |
| | No. 1 | 9-9 | 8-10 | 7-9 | 12-10 | 11-8 | 10-2 | 16-5 | 14-11 | 12-5 | 19-11 | 17-7 | 14-4 |
| | No. 2 | 9-6 | 8-7 | 7-6 | 12-6 | 11-4 | 9-6 | 15-11 | 14-3 | 11-8 | 19-1 | 16-6 | 13-6 |
| | No. 3 | 8-0 | 6-11 | 5-8 | 10-2 | 8-9 | 7-2 | 12-5 | 10-9 | 8-9 | 14-4 | 12-5 | 10-2 |
| Doug Fir Larch North (Canada) | Sel. Struc. | 11-4 | 10-4 | 9-0 | 15-0 | 13-7 | 11-11 | 19-1 | 17-4 | 15-2 | 23-3 | 21-1 | 17-9 |
| | No. 1 | 10-9 | 9-8 | 7-11 | 14-1 | 12-3 | 10-0 | 17-3 | 14-11 | 12-2 | 20-0 | 17-4 | 14-2 |
| | No. 2 | 10-9 | 9-8 | 7-11 | 14-1 | 12-3 | 10-0 | 17-3 | 14-11 | 12-2 | 20-0 | 17-4 | 14-2 |
| | No. 3 | 8-6 | 7-4 | 6-0 | 10-9 | 9-3 | 7-7 | 13-1 | 11-4 | 9-3 | 15-2 | 13-2 | 10-9 |
| Hem-Fir North (Canada) | Sel. Struc. | 10-11 | 9-11 | 8-8 | 14-5 | 13-1 | 11-5 | 18-5 | 16-9 | 14-7 | 22-5 | 20-4 | 17-9 |
| | No. 1 | 10-9 | 9-9 | 8-6 | 14-2 | 12-10 | 11-0 | 18-0 | 16-5 | 13-5 | 21-11 | 19-1 | 15-7 |
| | No. 2 | 10-9 | 9-9 | 8-6 | 14-2 | 12-10 | 11-0 | 18-0 | 16-5 | 13-5 | 21-11 | 19-1 | 15-7 |
| | No. 3 | 9-4 | 8-1 | 6-7 | 11-9 | 10-3 | 8-4 | 14-5 | 12-6 | 10-2 | 16-8 | 14-6 | 11-10 |
| Spruce, Pine, Fir (Canada) | Sel. Struc. | 10-6 | 9-6 | 8-4 | 13-10 | 12-7 | 11-0 | 17-8 | 16-0 | 14-0 | 21-6 | 20-7 | 15-7 |
| | No. 1 | 10-3 | 9-4 | 8-1 | 13-6 | 12-3 | 10-3 | 17-3 | 15-5 | 12-7 | 19-6 | 17-10 | 17-0 |
| | No. 2 | 10-3 | 9-4 | 8-1 | 13-6 | 12-3 | 10-3 | 17-3 | 15-5 | 12-7 | 19-6 | 17-10 | 17-0 |
| | No. 3 | 8-8 | 7-6 | 6-2 | 11-0 | 9-6 | 7-9 | 13-5 | 11-8 | 9-6 | 15-7 | 13-6 | 11-0 |

FASTENING SCHEDULE

| BUILDING ELEMENT | NAIL SIZE AND TYPE | NUMBER AND LOCATION |
|---|--|--|
| FLOOR CONSTRUCTION | | |
| Built-up girders and beams | 20d common | 32" o.c. direct |
| Bridging to joists | 8d common | 2 each direct end |
| Floor joist to studs (no ceiling joists) | 10d common | 5 direct |
| Floor joist to studs (with ceiling joists) | 10d common | 2 direct |
| Floor joists to sill or girder | 8d common | 3 toe nail |
| Ledger strip | 16d common | 3 each direct joist |
| 1" subflooring (6" or less) | 8d common | 2 each direct joist |
| 2" subflooring | 16d common | 2 each direct joist |
| Particle board underlayment (1/4"-3/4") | 6d annular threaded | 6" o.c. direct edges and 12" o.c. intermediate |
| particle board subflooring (5/8" or greater) | 8d common | 6" o.c. direct edges and 12" o.c. intermediate |
| Wood structural panel subflooring (19/32"-3/4") | 8d common or 6d annular or spiral thread | 6" o.c. direct edges and 12" o.c. intermediate |

| | | |
|---|---|----------------------|
| Wood structural panel subflooring (7/8" - 1-1/8") | 10 d common or 8d ring shank or 8d annular or spiral thread | 6" o.c. intermediate |
|---|---|----------------------|

CEILING JOISTS

10# LIVE LOAD, 5# DEAD LOAD, 1/240

Use these loading conditions for the following:
 No attic storage. Ceiling where the roof slope
 is not steeper than 3 in 12. Drywall ceilings.

Span (feet and inches)

| Species or Group | Grade | 2 x 4 | | | 2 x 6 | | | 2 x 8 | | | 2 x 10 | | |
|--|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 12" oc | 16" oc | 24" oc | 12" oc | 16" oc | 24" oc | 12" oc | 16" oc | 24" oc | 12" oc | 16" oc | 24" oc |
| Doug-Fir Larch (Western) | Sel. Struc. | 13-2 | 11-11 | 10-5 | 20-8 | 18-9 | 16-4 | 27-2 | 24-8 | 21-7 | 34-8 | 31-6 | 27-6 |
| | No.1 & Btr. | 12-11 | 11-9 | 10-3 | 20-3 | 18-5 | 16-1 | 26-9 | 24-3 | 21-2 | 34-1 | 31-0 | 26-4 |
| | No. 1 | 12-8 | 11-6 | 10-0 | 19-11 | 18-1 | 15-8 | 26-2 | 23-10 | 20-1 | 33-5 | 30-0 | 24-6 |
| | No. 2 | 12-5 | 11-3 | 9-10 | 19-6 | 17-8 | 14-10 | 25-8 | 23-0 | 18-9 | 32-5 | 28-1 | 22-11 |
| | No. 3 | 10-10 | 9-5 | 7-8 | 15-10 | 13-9 | 11-2 | 20-1 | 17-5 | 14-2 | 24-6 | 21-3 | 17-4 |
| Doug-Fir South (Western) | Sel. Struc. | 11-10 | 10-9 | 9-5 | 18-8 | 16-11 | 14-9 | 24-7 | 22-4 | 19-6 | 31-4 | 28-6 | 24-10 |
| | No. 1 | 11-7 | 10-6 | 9-2 | 18-2 | 16-6 | 14-5 | 24-0 | 21-9 | 19-0 | 30-7 | 27-9 | 23-3 |
| | No. 2 | 11-3 | 10-3 | 8-11 | 17-8 | 16-1 | 14-1 | 23-4 | 21-2 | 18-3 | 29-9 | 27-1 | 22-3 |
| | No. 3 | 10-7 | 9-2 | 7-6 | 15-5 | 13-5 | 10-11 | 19-7 | 16-11 | 13-10 | 23-11 | 20-8 | 16-11 |
| Hem-Fir (Western) | Sel. Struc. | 12-5 | 11-3 | 9-10 | 19-6 | 17-8 | 15-6 | 25-8 | 23-4 | 20-5 | 32-9 | 29-9 | 26-0 |
| | No. 1 & Btr. | 12-2 | 11-0 | 9-8 | 19-1 | 17-4 | 15-2 | 25-2 | 22-10 | 19-11 | 32-1 | 29-2 | 25-2 |
| | No. 1 | 12-2 | 11-0 | 9-8 | 19-1 | 17-4 | 15-2 | 25-2 | 22-10 | 19-7 | 32-1 | 29-2 | 23-11 |
| | No. 2 | 11-7 | 10-6 | 9-2 | 18-2 | 16-6 | 14-5 | 24-0 | 21-9 | 18-6 | 30-7 | 27-8 | 22-7 |
| | No. 3 | 10-10 | 9-5 | 7-8 | 15-10 | 13-9 | 11-2 | 20-1 | 17-5 | 14-2 | 24-6 | 21-3 | 17-4 |
| Spruce- Pine-Fir (South) | Sel. Struc. | 11-7 | 10-6 | 9-2 | 18-2 | 16-6 | 14-5 | 24-0 | 21-9 | 19-0 | 30-7 | 27-9 | 24-3 |
| | No. 1 | 11-3 | 10-3 | 8-11 | 17-8 | 16-1 | 14-1 | 23-4 | 21-2 | 18-6 | 29-9 | 27-1 | 22-7 |
| | No. 2 | 10-11 | 9-11 | 8-8 | 17-2 | 15-7 | 13-8 | 22-8 | 20-7 | 17-5 | 28-11 | 26-0 | 21-3 |
| | No. 3 | 10-0 | 8-8 | 7-1 | 14-7 | 12-8 | 10-4 | 18-6 | 16-0 | 13-1 | 22-7 | 19-7 | 16-0 |
| Doug Fir Larch North (Canada) | Sle. Struc. | 13-2 | 11-11 | 10-5 | 20-8 | 18-9 | 16-4 | 27-2 | 24-8 | 21-7 | 34-8 | 31-6 | 27-6 |
| | No. 1 | 12-5 | 11-3 | 9-10 | 19-6 | 17-8 | 14-5 | 25-8 | 22-4 | 18-3 | 31-6 | 27-3 | 22-3 |
| | No. 2 | 12-5 | 11-3 | 9-10 | 19-6 | 17-8 | 14-5 | 25-5 | 22-4 | 18-3 | 31-6 | 27-3 | 22-3 |
| | No. 3 | 10-7 | 9-2 | 7-7 | 15-5 | 13-5 | 10-11 | 19-7 | 16-11 | 13-10 | 23-11 | 20-8 | 16-11 |
| Hem-Fir North (Canada) | Sle. Struc. | 12-8 | 11-6 | 10-0 | 19-11 | 18-1 | 15-9 | 26-2 | 23-10 | 20-10 | 33-5 | 30-5 | 26-6 |
| | No. 1 | 12-5 | 11-3 | 9-10 | 19-6 | 17-8 | 15-6 | 25-8 | 23-4 | 20-1 | 32-9 | 29-9 | 24-6 |
| | No. 2 | 12-5 | 11-3 | 9-10 | 19-6 | 17-8 | 15-6 | 25-8 | 23-4 | 20-1 | 32-9 | 29-9 | 24-6 |
| | No. 3 | 11-7 | 10-1 | 8-3 | 17-0 | 14-9 | 12-0 | 21-6 | 18-8 | 15-3 | 26-4 | 22-9 | 18-7 |
| Spruce, Pine, Fir (Canada) | Sle. Struc. | 12-2 | 11-0 | 9-8 | 19-1 | 17-4 | 15-2 | 25-2 | 22-10 | 19-11 | 32-1 | 29-2 | 25-5 |
| | No. 1 | 11-10 | 10-9 | 9-5 | 18-8 | 16-11 | 14-9 | 24-7 | 22-4 | 18-9 | 31-4 | 28-1 | 22-11 |
| | No. 2 | 11-10 | 10-9 | 9-5 | 18-8 | 16-11 | 14-9 | 24-7 | 22-4 | 18-9 | 31-4 | 28-1 | 22-11 |
| | No. 3 | 10-10 | 9-5 | 7-8 | 15-10 | 13-9 | 11-2 | 20-1 | 17-5 | 14-2 | 24-6 | 21-3 | 17-4 |

CEILING JOISTS

Use these loading conditions for the following:
 Limited attic storage where development of
 future rooms is not possible. Ceilings where the
 roof pitch is steeper than 3 in 12.
 Where the clear height in the attic is greater
 than 30 inches. Drywall ceiling.

Span (feet and inches)

| Species or Group | Grade | 2 x 4 | | | 2 x 6 | | | 2 x 8 | | | 2 x 10 | | |
|--|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | 12" oc | 16" oc | 24" oc | 12" oc | 16" oc | 24" oc | 12" oc | 16" oc | 24" oc | 12" oc | 16" oc | 24" oc |
| Doug-Fir Larch (Western) | Sel. Struc. | 10-5 | 9-6 | 8-3 | 16-4 | 14-11 | 13-0 | 21-7 | 19-7 | 17-1 | 27-6 | 25-0 | 20-11 |
| | No. 1 & Btr. | 10-3 | 9-4 | 8-1 | 16-1 | 14-7 | 12-0 | 21-2 | 18-8 | 15-3 | 26-4 | 22-9 | 18-7 |
| | No. 1 | 10-0 | 9-1 | 7-8 | 15-9 | 13-9 | 11-2 | 20-1 | 17-5 | 14-2 | 24-6 | 21-3 | 17-4 |
| | No. 2 | 9-10 | 8-9 | 7-2 | 14-10 | 12-10 | 10-6 | 18-9 | 16-3 | 13-3 | 22-11 | 19-10 | 16-3 |
| | No. 3 | 7-8 | 6-8 | 5-5 | 11-2 | 9-8 | 7-11 | 14-2 | 12-4 | 10-0 | 17-4 | 15-0 | 12-3 |
| Doug-Fir South (Western) | Sel. Struc. | 9-5 | 8-7 | 7-6 | 14-9 | 13-5 | 11-9 | 19-6 | 17-9 | 15-6 | 24-10 | 22-7 | 19-9 |
| | No. 1 | 9-2 | 8-4 | 7-3 | 14-5 | 13-0 | 10-8 | 19-0 | 16-6 | 13-6 | 23-3 | 20-2 | 16-5 |
| | No. 2 | 8-11 | 8-1 | 7-0 | 14-1 | 12-6 | 10-2 | 18-3 | 15-9 | 12-11 | 22-3 | 19-3 | 15-9 |
| | No. 3 | 7-6 | 6-6 | 5-3 | 10-11 | 9-6 | 7-9 | 13-10 | 12-0 | 9-9 | 16-11 | 14-8 | 11-11 |
| Hem-Fir (Western) | Sel. Struc. | 9-10 | 8-11 | 7-10 | 15-6 | 14-1 | 12-3 | 20-5 | 18-6 | 16-2 | 26-0 | 23-8 | 20-6 |
| | No. 1 & Btr. | 9-8 | 8-9 | 7-8 | 15-2 | 13-9 | 11-6 | 19-11 | 17-10 | 14-7 | 25-2 | 21-9 | 17-9 |
| | No. 1 | 9-8 | 8-9 | 7-6 | 15-2 | 13-5 | 10-11 | 19-7 | 16-11 | 13-10 | 23-11 | 20-8 | 16-11 |
| | No. 2 | 9-2 | 8-4 | 7-1 | 14-5 | 12-8 | 10-4 | 18-6 | 16-0 | 13-1 | 22-7 | 19-7 | 16-0 |
| | No. 3 | 7-8 | 6-8 | 5-5 | 11-2 | 9-8 | 7-11 | 14-2 | 12-4 | 10-0 | 17-4 | 15-0 | 12-3 |
| Spruce- Pine-Fir (South) | Sel. Struc. | 9-2 | 8-4 | 7-3 | 14-5 | 13-1 | 11-5 | 19-0 | 17-3 | 15-1 | 24-3 | 22-1 | 19-3 |
| | No. 1 | 8-11 | 8-1 | 7-1 | 14-1 | 12-8 | 10-4 | 18-6 | 16-0 | 13-1 | 22-7 | 19-7 | 16-0 |
| | No. 2 | 8-8 | 7-11 | 6-8 | 13-8 | 11-11 | 9-8 | 17-5 | 15-1 | 12-4 | 21-3 | 18-5 | 15-0 |
| | No. 3 | 7-1 | 6-1 | 5-0 | 10-4 | 8-11 | 7-4 | 13-1 | 11-4 | 9-3 | 16-0 | 13-10 | 11-4 |
| Doug Fir Larch North (Canada) | Sle. Struc. | 10-5 | 9-6 | 8-3 | 16-4 | 14-11 | 12-9 | 21-7 | 19-7 | 16-2 | 27-6 | 24-3 | 19-9 |
| | No. 1 | 9-10 | 8-6 | 7-0 | 14-5 | 12-6 | 10-2 | 18-3 | 15-9 | 12-11 | 22-3 | 19-3 | 15-9 |
| | No. 2 | 9-10 | 8-6 | 7-0 | 14-5 | 12-6 | 10-2 | 18-3 | 15-9 | 12-11 | 22-3 | 19-3 | 15-9 |
| | No. 3 | 7-6 | 6-6 | 5-3 | 10-11 | 9-6 | 7-9 | 13-10 | 12-0 | 9-9 | 16-11 | 14-8 | 11-11 |
| Hem-Fir North (Canada) | Sle. Struc. | 10-0 | 9-1 | 8-0 | 15-9 | 14-4 | 12-6 | 20-10 | 18-11 | 16-2 | 26-6 | 24-1 | 21-3 |
| | No. 1 | 9-10 | 8-11 | 7-8 | 15-6 | 13-9 | 11-2 | 20-1 | 17-5 | 14-2 | 24-6 | 21-2 | 17-4 |
| | No. 2 | 9-10 | 8-11 | 7-8 | 15-6 | 13-9 | 11-2 | 20-1 | 17-5 | 14-2 | 24-6 | 21-2 | 17-4 |
| | No. 3 | 8-3 | 7-1 | 5-10 | 12-0 | 10-5 | 8-6 | 15-3 | 13-2 | 10-9 | 18-7 | 16-1 | 13-2 |
| Spruce, Pine, Fir (Canada) | Sle. Struc. | 9-8 | 8-9 | 7-8 | 15-2 | 13-9 | 12-0 | 19-11 | 18-2 | 15-10 | 25-5 | 23-2 | 19-5 |
| | No. 1 | 9-5 | 8-7 | 7-2 | 14-9 | 12-10 | 10-6 | 18-9 | 16-3 | 13-3 | 22-11 | 19-10 | 16-3 |
| | No. 2 | 9-5 | 8-7 | 7-2 | 14-9 | 12-10 | 10-6 | 18-9 | 16-3 | 13-3 | 22-11 | 19-10 | 16-3 |
| | No. 3 | 7-8 | 6-8 | 5-5 | 11-2 | 9-8 | 7-11 | 14-2 | 12-4 | 10-0 | 17-4 | 15-0 | 12-3 |

ROOF RAFTERS
 Flat roof or cathedral ceiling
 with drywall finish.
 Light roof covering

30# SNOW LOAD, 15# DEAD LOAD, 1/240

Span (feet and inches)

| Species or Group | Grade | 2 x 6 | | | 2 x 8 | | | 2 x 10 | | | 2 x 12 | | |
|--|--------------|----------------------|-------|-------|----------------------|-------|-------|----------------------|-------|-------|----------------------|-------|-------|
| | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | |
| Doug-Fir Larch (Western) | Sel. Struc. | 14-4 | 13-0 | 11-4 | 18-10 | 17-2 | 15-0 | 24-1 | 21-10 | 18-3 | 29-3 | 26-0 | 21-2 |
| | No.1 & Btr. | 14-1 | 12-9 | 10-6 | 18-6 | 16-4 | 13-4 | 23-0 | 19-11 | 16-3 | 26-8 | 23-1 | 18-11 |
| | No. 1 | 13-9 | 12-0 | 9-10 | 17-7 | 15-3 | 12-5 | 21-6 | 18-7 | 15-2 | 24-11 | 21-7 | 17-7 |
| | No. 2 | 13-0 | 11-3 | 9-2 | 16-5 | 14-3 | 11-8 | 20-1 | 17-5 | 14-2 | 23-3 | 20-2 | 16-6 |
| | No. 3 | 9-10 | 8-6 | 6-11 | 12-5 | 10-9 | 8-9 | 15-2 | 13-2 | 10-9 | 17-7 | 15-3 | 12-5 |
| Doug-Fir South (Western) | Sel. Struc. | 12-11 | 11-9 | 10-3 | 17-0 | 15-6 | 13-6 | 21-9 | 19-9 | 17-3 | 26-5 | 24-0 | 20-1 |
| | No. 1 | 12-7 | 11-5 | 9-4 | 16-7 | 14-5 | 11-9 | 20-4 | 17-8 | 14-5 | 23-7 | 20-5 | 16-8 |
| | No. 2 | 12-3 | 10-11 | 8-11 | 16-0 | 13-10 | 11-3 | 19-6 | 16-11 | 13-9 | 22-7 | 19-7 | 16-0 |
| | No. 3 | 9-7 | 8-3 | 6-9 | 12-1 | 10-6 | 8-7 | 14-10 | 12-10 | 10-6 | 17-2 | 14-10 | 12-2 |
| Hem-Fir (Western) | Sel. Struc. | 13-6 | 12-3 | 10-9 | 17-10 | 16-2 | 14-2 | 22-9 | 20-8 | 18-0 | 27-8 | 25-1 | 20-10 |
| | No. 1 & Btr. | 13-3 | 12-0 | 10-1 | 17-5 | 15-7 | 12-9 | 22-0 | 19-1 | 15-7 | 25-6 | 22-1 | 18-0 |
| | No. 1 | 13-3 | 11-9 | 9-7 | 17-2 | 14-10 | 12-1 | 20-11 | 18-1 | 14-10 | 24-3 | 21-0 | 17-2 |
| | No. 2 | 12-7 | 11-1 | 9-1 | 16-2 | 14-0 | 11-6 | 19-10 | 17-2 | 14-0 | 22-11 | 19-11 | 16-3 |
| | No. 3 | 9-10 | 8-6 | 6-11 | 12-5 | 10-9 | 8-9 | 15-2 | 13-2 | 10-9 | 17-7 | 15-3 | 12-5 |
| Spruce- Pine-Fir (South) | Sel. Struc. | 12-7 | 11-5 | 10-0 | 16-7 | 15-1 | 13-2 | 21-2 | 19-3 | 16-10 | 25-9 | 23-5 | 20-1 |
| | No. 1 | 12-3 | 11-1 | 9-1 | 16-2 | 14-0 | 11-6 | 19-10 | 17-2 | 14-0 | 22-11 | 19-11 | 16-3 |
| | No. 2 | 11-11 | 10-5 | 8-6 | 15-3 | 13-2 | 10-9 | 18-7 | 16-1 | 13-2 | 21-7 | 18-8 | 15-3 |
| | No. 3 | 9-1 | 7-10 | 6-5 | 11-6 | 9-11 | 8-1 | 14-0 | 12-1 | 9-11 | 16-3 | 14-1 | 11-6 |
| Doug Fir Larch North (Canada) | Sle. Struc. | 14-4 | 13-0 | 11-2 | 18-10 | 17-2 | 14-2 | 24-1 | 21-2 | 17-4 | 28-5 | 24-7 | 20-1 |
| | No. 1 | 12-7 | 10-11 | 8-11 | 16-0 | 13-10 | 11-3 | 19-6 | 16-11 | 13-9 | 22-7 | 19-7 | 16-0 |
| | No. 2 | 12-7 | 10-11 | 8-11 | 16-0 | 13-10 | 11-3 | 19-6 | 16-11 | 13-9 | 22-7 | 19-7 | 16-0 |
| | No. 3 | 9-7 | 8-3 | 6-9 | 12-1 | 10-6 | 8-7 | 14-10 | 12-10 | 10-6 | 17-2 | 14-10 | 12-2 |
| Hem-Fir North (Canada) | Sle. Struc. | 13-9 | 12-6 | 10-11 | 18-2 | 16-6 | 14-2 | 23-2 | 21-1 | 17-4 | 28-2 | 24-7 | 20-1 |
| | No. 1 | 13-6 | 12-0 | 9-10 | 17-7 | 15-3 | 12-5 | 21-6 | 18-7 | 15-2 | 24-11 | 21-7 | 17-7 |
| | No. 2 | 13-6 | 12-0 | 9-10 | 17-7 | 15-3 | 12-5 | 21-6 | 18-7 | 15-2 | 24-11 | 21-7 | 17-7 |
| | No. 3 | 10-6 | 9-1 | 7-5 | 13-4 | 11-7 | 9-5 | 16-3 | 14-1 | 11-6 | 18-11 | 16-4 | 13-4 |
| Spruce, Pine, Fir (Canada) | Sle. Struc. | 13-3 | 12-0 | 10-6 | 17-5 | 15-10 | 13-10 | 22-3 | 20-2 | 17-0 | 27-1 | 24-1 | 19-8 |
| | No. 1 | 12-11 | 11-3 | 9-2 | 16-5 | 14-3 | 11-8 | 20-1 | 17-5 | 14-2 | 23-3 | 20-2 | 16-6 |
| | No. 2 | 12-11 | 11-3 | 9-2 | 16-5 | 14-3 | 11-8 | 20-1 | 17-5 | 14-2 | 23-3 | 20-2 | 16-6 |
| | No. 3 | 9-10 | 8-6 | 6-11 | 12-5 | 10-9 | 8-9 | 15-2 | 13-2 | 10-9 | 17-7 | 15-3 | 12-5 |

ROOF RAFTERS
Roof slope greater than 3 in 12
No ceiling finish

30# SNOW LOAD, 15# DEAD LOAD, 1/180

Span (feet and inches)

| Species or Group | Grade | 2 x 6 | | | 2 x 8 | | | 2 x 10 | | | 2 x 12 | | |
|--|--------------|----------------------|-------|-------|----------------------|-------|-------|----------------------|-------|-------|----------------------|-------|-------|
| | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | | 12" oc 16" oc 24" oc | | |
| Doug-Fir Larch (Western) | Sel. Struc. | 15-9 | 14-4 | 11-10 | 20-9 | 18-4 | 15-0 | 25-10 | 22-5 | 18-3 | 30-0 | 26-0 | 21-2 |
| | No.1 & Btr. | 14-11 | 12-11 | 10-6 | 18-10 | 16-4 | 13-4 | 23-0 | 19-11 | 16-3 | 26-8 | 23-1 | 18-11 |
| | No. 1 | 13-11 | 12-0 | 9-10 | 17-7 | 15-3 | 12-5 | 21-6 | 18-7 | 15-2 | 24-11 | 21-7 | 17-7 |
| | No. 2 | 13-0 | 11-3 | 9-2 | 16-5 | 14-3 | 11-8 | 20-1 | 17-5 | 14-2 | 23-3 | 20-2 | 16-6 |
| | No. 3 | 9-10 | 8-6 | 6-11 | 12-5 | 10-9 | 8-9 | 15-2 | 13-2 | 10-9 | 17-7 | 15-3 | 12-5 |
| Doug-Fir South (Western) | Sel. Struc. | 14-3 | 12-11 | 11-2 | 18-9 | 17-0 | 14-2 | 23-11 | 21-2 | 17-4 | 28-5 | 24-7 | 20-1 |
| | No. 1 | 13-2 | 11-5 | 9-4 | 16-8 | 14-5 | 11-9 | 20-4 | 17-8 | 14-5 | 23-7 | 20-5 | 16-8 |
| | No. 2 | 12-7 | 10-11 | 8-11 | 16-0 | 13-10 | 11-3 | 19-6 | 16-11 | 13-9 | 22-7 | 19-7 | 16-0 |
| | No. 3 | 9-7 | 8-3 | 6-9 | 12-1 | 10-6 | 8-7 | 14-10 | 12-10 | 10-6 | 17-2 | 14-10 | 12-2 |
| Hem-Fir (Western) | Sel. Struc. | 14-10 | 13-6 | 11-7 | 19-7 | 17-10 | 14-8 | 25-0 | 22-0 | 18-0 | 29-6 | 25-6 | 20-10 |
| | No. 1 & Btr. | 14-3 | 12-4 | 10-1 | 18-0 | 15-7 | 12-9 | 22-0 | 19-1 | 15-7 | 25-6 | 22-1 | 18-0 |
| | No. 1 | 13-6 | 11-9 | 9-7 | 17-2 | 14-10 | 12-1 | 20-11 | 18-1 | 14-10 | 24-3 | 21-0 | 17-2 |
| | No. 2 | 12-10 | 11-1 | 9-1 | 16-2 | 14-0 | 11-6 | 19-10 | 17-2 | 14-0 | 22-11 | 19-11 | 16-3 |
| | No. 3 | 9-10 | 8-6 | 6-11 | 12-5 | 10-9 | 8-9 | 15-2 | 13-2 | 10-9 | 17-7 | 15-3 | 12-5 |
| Spruce- Pine-Fir (South) | Sel. Struc. | 13-10 | 12-7 | 11-0 | 18-3 | 16-7 | 14-2 | 23-4 | 21-2 | 17-4 | 28-5 | 24-7 | 20-1 |
| | No. 1 | 12-10 | 11-1 | 9-1 | 16-2 | 14-0 | 11-6 | 19-10 | 17-2 | 14-0 | 22-11 | 19-11 | 16-3 |
| | No. 2 | 12-0 | 10-5 | 8-6 | 15-3 | 13-2 | 10-9 | 18-7 | 16-1 | 13-2 | 21-7 | 18-8 | 15-3 |
| | No. 3 | 9-1 | 7-10 | 6-5 | 11-6 | 9-11 | 8-1 | 14-0 | 12-1 | 9-11 | 16-3 | 14-1 | 11-6 |
| Doug Fir Larch North (Canada) | Sel. Struc. | 15-9 | 13-8 | 11-2 | 20-0 | 17-4 | 14-2 | 24-6 | 21-2 | 17-4 | | | |
| | No. 1 | 12-7 | 10-11 | 8-11 | 16-0 | 13-10 | 11-3 | 19-6 | 16-11 | 13-9 | | | |
| | No. 2 | 12-7 | 10-11 | 8-11 | 16-0 | 13-10 | 11-3 | 19-6 | 16-11 | 13-9 | | | |
| | No. 3 | 9-7 | 8-3 | 6-9 | 12-1 | 10-6 | 8-7 | 14-10 | 12-10 | 10-6 | | | |
| Hem-Fir North (Canada) | Sel. Struc. | 15-2 | 13-8 | 11-2 | 20-0 | 17-4 | 14-2 | 24-6 | 21-2 | 17-4 | | | |
| | No. 1 | 13-11 | 12-0 | 9-10 | 17-7 | 15-3 | 12-5 | 21-6 | 18-7 | 15-2 | | | |
| | No. 2 | 13-11 | 12-0 | 9-10 | 17-7 | 15-3 | 12-5 | 21-6 | 18-7 | 15-2 | | | |
| | No. 3 | 10-6 | 9-1 | 7-5 | 13-4 | 11-7 | 9-5 | 16-3 | 14-1 | 11-6 | | | |
| Spruce, Pine, Fir (Canada) | Sel. Struc. | 14-7 | 13-3 | 11-0 | 19-2 | 17-0 | 13-11 | 24-0 | 20-9 | 17-0 | | | |
| | No. 1 | 13-0 | 11-3 | 9-2 | 16-5 | 14-3 | 11-8 | 20-1 | 17-5 | 14-2 | | | |
| | No. 2 | 13-0 | 11-3 | 9-2 | 16-5 | 14-3 | 11-8 | 20-1 | 17-5 | 14-4 | | | |
| | No. 3 | 9-10 | 8-6 | 6-11 | 12-5 | 10-9 | 8-9 | 15-2 | 13-2 | 10-9 | | | |

FASTENING SCHEDULE

BUILDING ELEMENT NAIL SIZE AND TYPE NUMBER AND LOCATION

| | | |
|---------------------------------------|--------------------------|-----------------------------|
| Roof and ceiling construction | | |
| 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 nail |
| Collar beam | 10d common | 3 direct |
| 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 or 16d common | 3 toe nail or 2 direct nail |
| 1" roof decking (6" or less in width) | 8d common | 2 each direct rafter |
| 1" roof decking (over 6" in width) | 8d common | 3 each direct rafter |

FASTENING SCHEDULE

| BUILDING ELEMENT | NAIL SIZE AND TYPE | NUMBER AND LOCATION |
|--|--|---|
| ROOF COVERINGS | | |
| MATERIAL | FASTENER STYLE 2 | SPACING SPECIFICATIONS 4 |
| Base ply and roofing plies | 12 ga. Roofing nail 6 | Nails driven through tin discs, spaced maximum 12" o.c. |
| Asphalt shingles | 12 ga. 3/8" HD roofing nail | 2 nails per each 36" - 40" section of shingle |
| Asphalt hip and ridge shingles | 12 ga. 3/8" HD roofing nail | 2 nails are required for each hip and ridge shingle |
| Wood shingles 3 | .076 shingle nail .080 T-nail | 24" shingle 2 fasteners per shingle |
| Wood shingle 3 | .080 shingle nail .080 T-nail | 24" shingle 2 fasteners per shingle |
| Wood shakes 3 | .0915 shingle nail .0915 to .099 T-nail | 2 nails per shake |
| Particle board roof and wall sheathing (1/2" or less) | 6d common | 6" o.c. direct edges and 12" o.c. intermediate |
| 5/8" or greater | 8d common | 6" o.c. direct edges and 12" o.c. intermediate |
| Wood structural panel roof and wall sheathing (1/2" or less) | 6d common | 6" o.c. direct edges and 12" intermediate |

| | | |
|---------------------|------------------------|---|
| (19/32" or greater) | 8d common | 6" o.c. direct edges and 12" o.c. intermediate |
| Weatherboarding | 8d corrosion resistant | 2 each bearing |

1. Shingles and shakes attached to roof sheathing having the underside of the sheathing exposed to visual view may be attached in these locations with nails having shorter lengths than specified so as not to penetrate the exposed side of the sheathing.
2. All nails shall be corrosion resistant.
3. Nails may have T-heads, clipped round heads or standard heads.
4. Roof coverings shall be fastened in an approved manner.
5. Nails shall be long enough to penetrate into the sheathing 3/4" or through the thickness of the sheathing, whichever is less.
6. Annularly threaded nails with minimum 1" diameter heads shall be used for plywood decks.
 - a. Shingle nails shall penetrate not less than 3/4" into nailing strips, sheathing or supporting construction except as otherwise provided for in Section 1507.0.

FASTENING SCHEDULE

| BUILDING ELEMENT | NAIL SIZE AND TYPE | NUMBER AND LOCATION |
|---|--|---|
| Wall and Roof Sheathing | | |
| 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 |
| Diagonal wall sheathing (seismic bracing) | See Table 2306.4.5 | |
| ½" fiberboard sheathing | 1 ½" galvanized roofing nail or 6d common nail | 3" o.c. exterior edge 6" o.c. intermediate |
| 25/32" fiberboard sheathing | 1 ¾" galvanized roofing nail or 8d common nail | 3" o.c. exterior edge 6" o.c. intermediate |
| Gypsum sheathing | 12 ga. 1 ¼" large head, corrosion resistant | 4" o.c. on edge 8" o.c. intermediate |
| Gypsum sheathing (seismic bracing) | 11 ga. 1 ¾" long 7/16" head, diamond point, galvanized | 4" o.c. all bearing points |

FASTENING SCHEDULE

| BUILDING ELEMENT | NAIL SIZE AND TYPE | NUMBER AND LOCATION |
|---|--------------------|---------------------------------|
| WALL CONSTRUCTION | | |
| Stud to sole plate | 8d 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. |
| Interior-braced wall sole plate to parallel joist | 16d common | 12" o.c. |
| Double cap plate | 10d common | 12" o.c. |
| 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 |
| Diagonal brace (to stud and plate) | 8d common | 2 each direct bearing |
| Interior-braced wall top plate to joist or blocking | 10d common | 12" o.c. |
| Tall beams to headers (where nailing is permitted) | 20d common | 1 each end 4 sq. ft. floor area |
| Header beams to trimmers (where nailing is permitted) | 20d common | 1 each end 8 sq. ft. floor area |
| Continuous header to stud | 8d common | 4 toe nail |
| Continuous header two pieces | 16d common | 16" o.c. direct |

OTHER GYPSUM INSTALLATION (NAILS)

| Thickness of gypsum wall-board inches | Plane of framing surface | Long dimension of gypsum wallboard 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 (a) to wood |
|---------------------------------------|--------------------------|---|---|---|---|
| 1/2" | Horizontal | Either direction | 16 | 7 | No. 13 ga., 1 5/8" long, 19/64" head, .098" diameter, 1 3/8" long, annular ringed, 6d cooler nail |
| | Horizontal | Perpendicular | 24 | 7 | |
| | Vertical | Either Direction | 24 | 8 | |
| 1/2" or 5/8" with adhesive | Horizontal | Either direction | 16 | 16 | As required for 1/2" and 5/8" gypsum wallboard, see above |
| | Horizontal | Perpendicular | 24 | 12 | |
| | Vertical | Either direction | 24 | 16 | |

| | | | | | |
|---------------------------------------|------------|--|----|----|---|
| 2 layers each 3/8" (3/4" total) | Horizontal | Perpendicular or Either Direction | 24 | 16 | Base ply nailed as required for 1/2" gypsum wallboard and face ply placed with adhesive |
| | Vertical | | 24 | 24 | |

a. Where the metal framing has a clinching design formed to receive the nails by two edges of metal, the nails shall not be less than 5/8" 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 nails (No. 13-1/2 ga., 1-5/8" long, 15/16" head). For 1/2" gypsum wallboard; 6d cooler (No. 13 ga., 1-7/8" long, 15/64" head) for 5/8" gypsum wallboard.

b. Two nails at 2" to 2-1/2" apart are permitted to be used if the pairs are spaced 12" center-to-center except around perimeters.

c. For fire-resistance rated construction assemblies, see the pertinent fire test information.

d. One inch equals 25.4 mm.

OTHER GYPSUM INSTALLATION (SCREWS)

| Thickness of gypsum wall board inches | Plane of framing surface | Long dimension of gypsum wallboard 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)a) to wood |
|---------------------------------------|--------------------------|---|---|---|---|
| 1/2" | Horizontal | Either direction | 16 | 12 | No. 13 ga., 1-3/8" long, 19/64" head .098" diameter, 1-1/4" long, annular ringed 5d cooler nail |
| | Horizontal | Perpendicular | 24 | 12 | |
| | Vertical | Either direction | 24 | 12 | |
| 5/8" | Horizontal | Either direction | 16 | 12 | no. 13 ga., 1-5/8" long, 19/64" head, .098" diameter, 1'3/8" long, annular ringed, 6d cooler nail |
| | Horizontal | Perpendicular | 24 | 12 | |
| | Vertical | Either Direction | 24 | 12 | |
| 1/2" or 5/8" with adhesive | Horizontal | Either direction | 16 | 16 | As required for 1/2" and 5/8" gypsum wallboard, see above |
| | Horizontal | Perpendicular | 24 | 16 | |
| | Vertical | Either direction | 24 | 24 | |

| | | | | | |
|---------------------------------------|------------|--|----|----|---|
| 2 Layers each 3/8" (3/4" total) | Horizontal | Perpendicular or Either direction | 24 | 6 | Base ply nailed as required for 1/2" gypsum wallboard and face ply placed with adhesive |
| | Vertical | | 24 | 24 | |

- a. Screws shall be No. 6 with tapered head and long enough to penetrate into wood framing not less than 5/8" and metal framing not less than 1/4".
- b. For fire-resistance rated construction assemblies, see the pertinent fire test information.
- c. One inch equals 25.4 mm.

THICKNESS OF PLASTER
FINISHED THICKNESS OF PLASTER FROM FACE OF LATH,
MASONRY, CONCRETE

| PLASTER BASE | GYPSUM PLASTER | PORTLAND CEMENT MORTAR |
|---------------------------------------|------------------|--|
| Expanded metal lath | 5/8" minimum (1) | 5/8" minimum (1) |
| Wire lath | 5/8" minimum (1) | 3/4" minimum (interior) (2) 7/8" minimum (exterior) (2) |
| Gypsum lath | 1/2" minimum | |
| Masonry walls (3) | 1/2" minimum | 1/2" minimum |
| Monolithic concrete walls (3,4) | 5/8" maximum | 7/8" maximum |
| Monolithic concrete ceilings (3,4) | 3/8" maximum (5) | 1/2" maximum |
| Gypsum veneer base (6) | 1/16" minimum | |

For SI: 1 inch + 25.4 mm.

- (1) When measured from back plane of expanded metal lath, exclusive of ribs, or self-furring lath, plaster thickness shall be 3/4" minimum.
- (2) When measured from face of support or backing.
- (3) Because masonry and concrete surfaces may vary in plane, thickness of plaster need not be uniform.
- (4) When applied over liquid bonding agent, finish coat may be applied directly to concrete surface.
- (5) Approved acoustical plaster may be applied directly to concrete or over base coat plaster, beyond the maximum plaster thickness shown.
- (6) Attachment shall be in accordance with table (APPLICATION AND MINIMUM THICKNESS OF GYPSUM WALLBOARD).

GYPSUM PLASTER PROPORTIONS (1)

MAXIMUM VOLUME

AGGREGATE PER
100 POUNDS MEAT PLASTER (2)

| NUMBER | COAT | PLASTER BASE OR LATH | DAMP LOOSE SAND | PERLITE OR VERMICULITE |
|-----------------|---------------------------|----------------------------|--------------------|---------------------------|
| Two-coat work | Base coat | Gypsum lath | 2 ½ | 2 |
| Two-coat work | Base coat | Masonry | 3 | 3 |
| Three-coat work | First coat | Lath | 2 (4) | 5 |
| Three-coat work | Second coat | lath | 3 (4) | 2 (5) |
| Three-coat work | First and Second coats | Masonry | 3 | 3 |

For SI: 1 inch = 25.4 mm. 1 cubic foot = 0.0283 m to the third power, 1 pound = 0.454 kg.

- (1) Wood-fibered gypsum plaster may be mixed in the portions of 100 pounds of gypsum to not more than 1 cubic foot of sand where applied on masonry or concrete.
- (2) When determining the amount of aggregate in set plaster, a tolerance of 10 percent shall be allowed.
- (3) Combinations of sand and lightweight aggregate may be used, provided the volume and weight relationship of the combined aggregate to the gypsum plaster is maintained.
- (4) If used for both first and second coats, the volume of aggregate may be 2 ½ cubic feet.
- (5) Where plaster is 1 inch or more in total thickness, the proportion for the second coat may be increased to 3 cubic feet.

MORTAR PROPORTIONS

| PROPORTIONS BY VOLUME (Cementitious Materials) | | | | | | | |
|--|------|--|----------------|---|---|--|---|
| Mortar | Type | Portland Cement or Bleached Cement | Masonry Cement | | | Hydrated Lime or Lime Putty | Aggregate Ratio Measured in Damp, Loose Condition |
| | | | M | S | N | | |
| Cement-Lime | M | 1 | — | — | — | 1/4 Over 1/4 to 1/2 Over 1/2 to 1 1/4 Over 1 1/4 to 2 1/2 | Not less than 2 1/4 and not more than 3 times the sum of separate volumes of lime, if used, and cement |
| | S | 1 | — | — | — | | |
| | N | 1 | — | — | — | | |
| | O | 1 | — | — | — | | |
| Masonry Cement | M | 1 | — | — | 1 | | Not less than 2 1/4 and not more than 3 times the sum of separate volumes of lime, if used, and cement |
| | M | — | 1 | — | — | | |
| | S | 1/2" | — | — | 1 | | |
| | S | — | — | 1 | — | | |
| | O | — | — | — | 1 | | |

For SI: 1 cubic foot = 0.0283 m to the third power, 1 pound = 0.454kg

1. For the purpose of these specifications, the weight of 1 cubic foot of the respective materials shall be considered to be as follows:

| | |
|------------------------|---------------------------|
| Portland Cement | 94 lb. |
| Masonry Cement | Weight printed on the bag |
| Hydrated Lime | 40 lb. |
| Lime Putty (Quicklime) | 80 lb. |
| Sand, damp and loose | 80 lb. |

2. Two air-entraining materials shall not be combined in mortar

GROUT PROPORTIONS BY VOLUME FOR MASONRY CONSTRUCTION

AGGREGATE MEASURED IN A DAMP, LOOSE CONDITION

| Type | Portland Cement or Blended Concrete Slag Cement | Hydrate Lime or Lime Putty | Fine | Coarse |
|--------|---|----------------------------------|---|---|
| Fine | 1 | 0 to 1/10 | 2 1/4 to 3 times the sum of the volume of the cementitious materials | — |
| Coarse | 1 | 0 to 1/10 | 2 1/4 to 3 times the sum of the volume of the cementitious materials | 1 to 2 times the sum of the Volumes of the cementitious materials |

Siding

TYPE OF SUPPORTS FOR SIDING MATERIAL
AND FASTENERS

| Siding Material | Normal Thickness (Inches) | Plywood Particle board | Fiberboard | Gypsum |
|---|---------------------------|------------------------|------------------|------------------|
| Horizontal Aluminum siding Without insulation | .019 | .120 nail-1-1/2" | .120 nail-2" | .120 nail-2" |
| | .024 | .120 nail-1-1/2" | .120 nail-2" | .120 nail-2" |
| With insulation | .019 | .120 nail-1-1/2" | .120 nail-2-1/2" | .120 nail-2-1/2" |

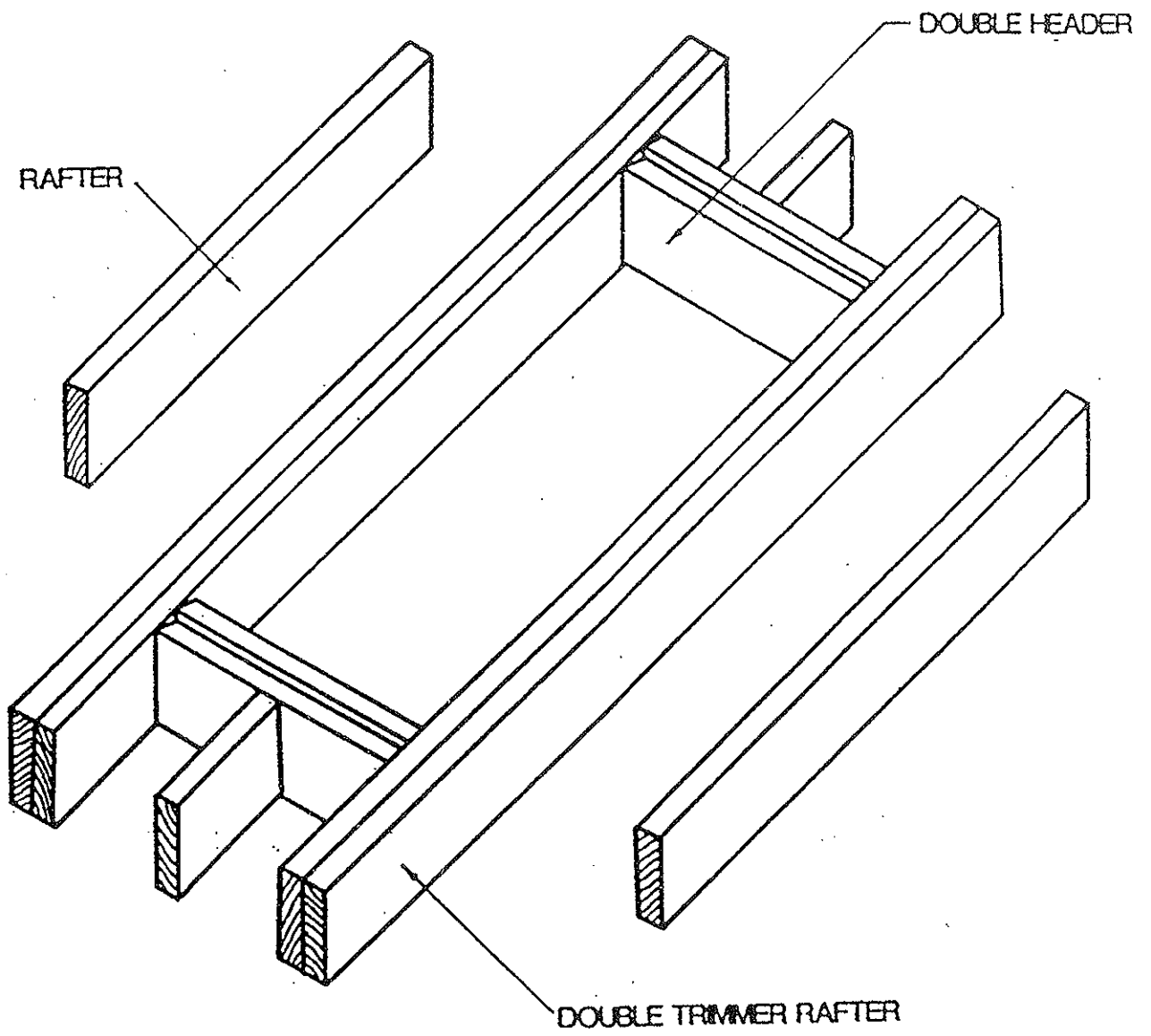
GYPSUM PLASTER PROPORTIONS (1)

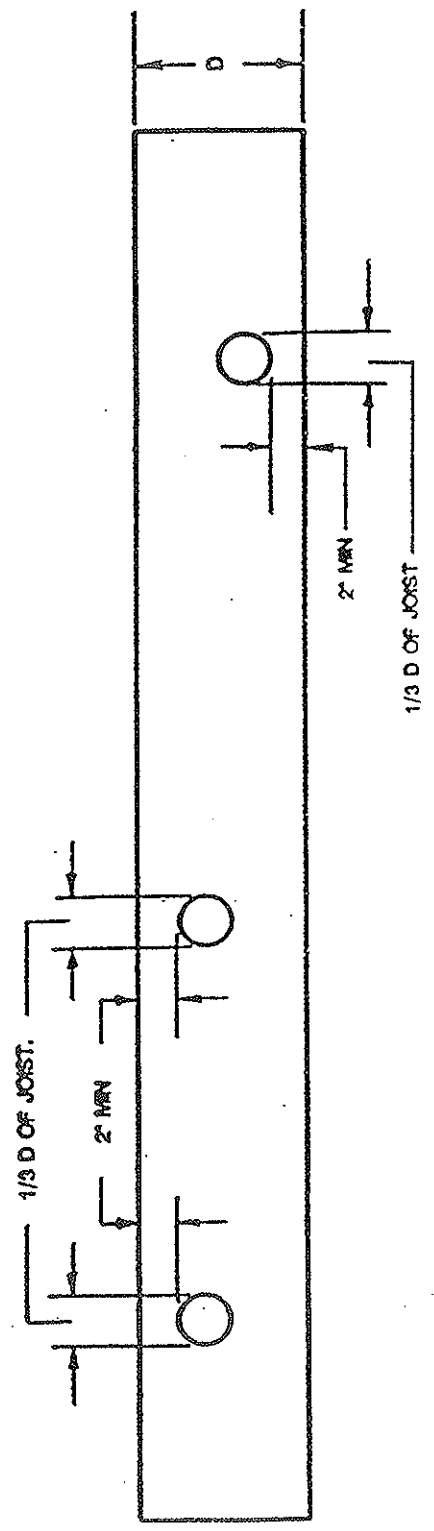
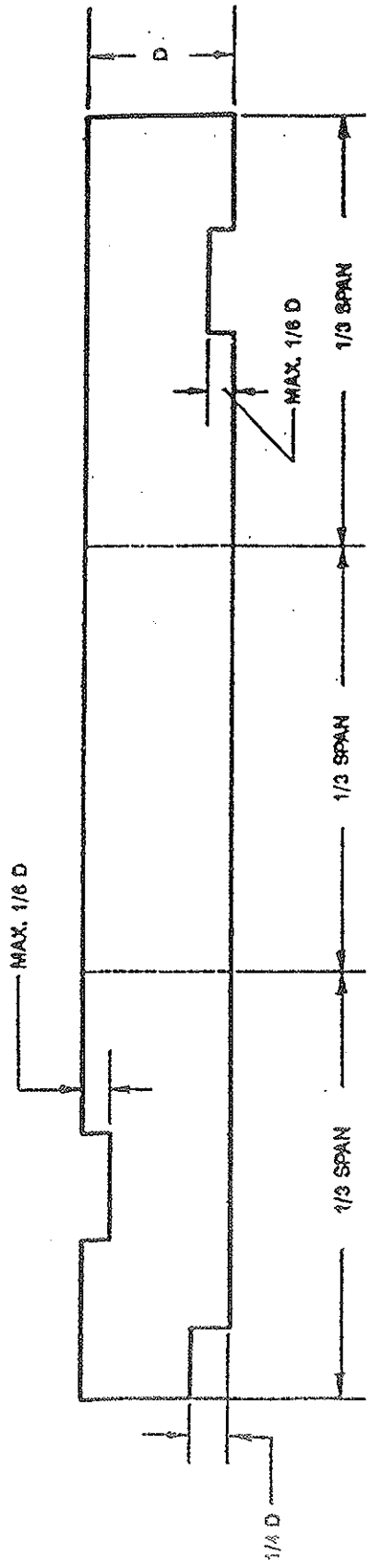
MAXIMUM VOLUME AGGREGATE PER
100 POUNDS MEAT PLASTER (2)

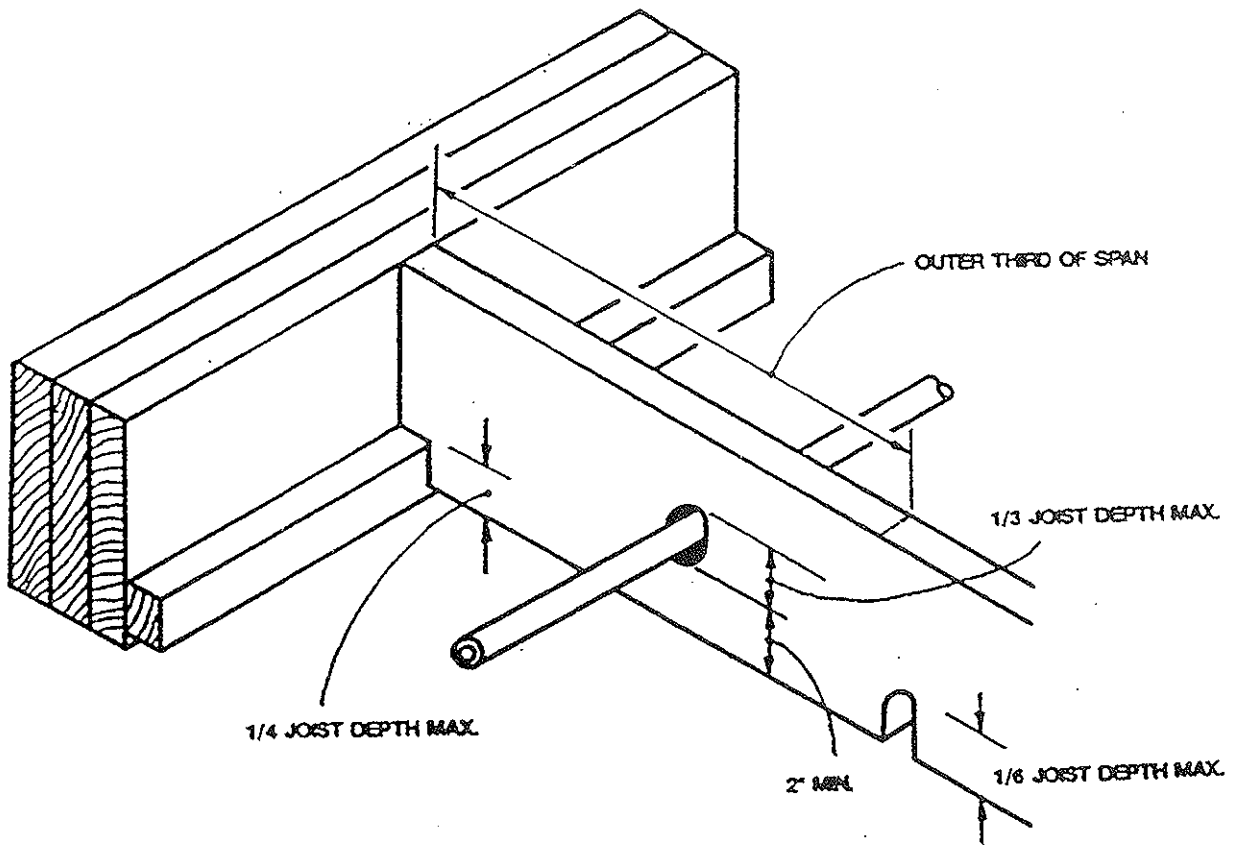
| NUMBER | COAT | PLASTER BASE OR LATH | DAMP LOOSE SAND | PERLITE OR VERMICULITE |
|-----------------|------------------------|----------------------|-----------------|------------------------|
| Two-coat work | Base coat | Gypsum lath | 2 1/2 | 2 |
| Two-coat work | Base coat | Masonry | 3 | 3 |
| Three-coat work | First coat | Lath | 2 (4) | 5 |
| Three-coat work | Second coat | lath | 3 (4) | 2 (5) |
| Three-coat work | First and Second coats | Masonry | 3 | 3 |

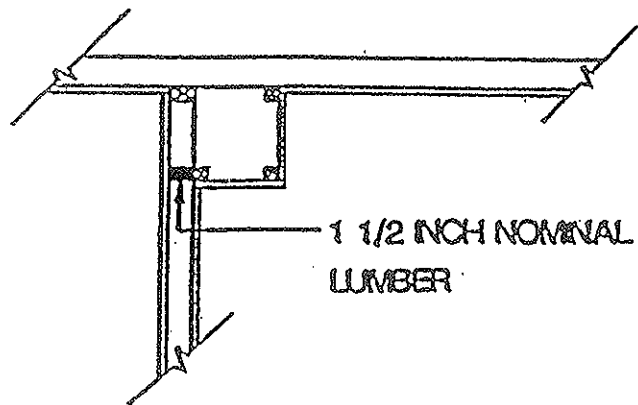
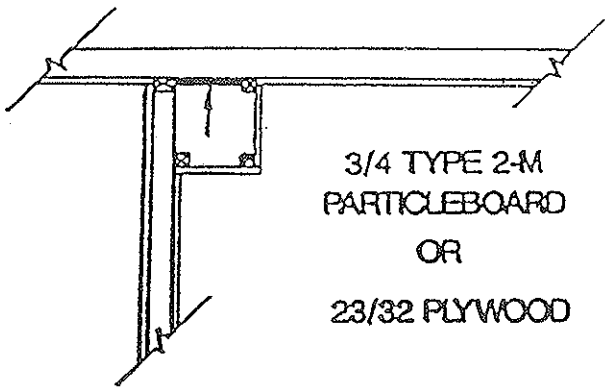
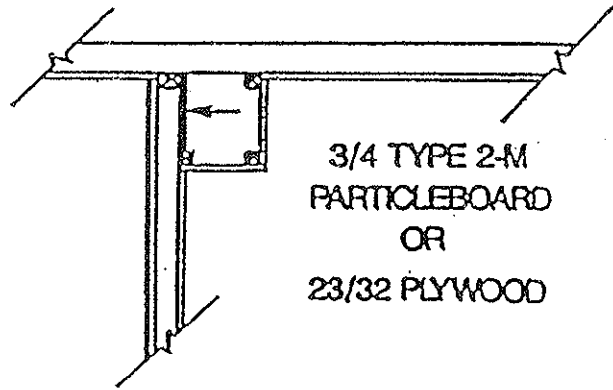
For SI: 1 inch = 25.4 mm. 1 cubic foot = 0.0283 m to the third power, 1 pound = 0.454 kg.

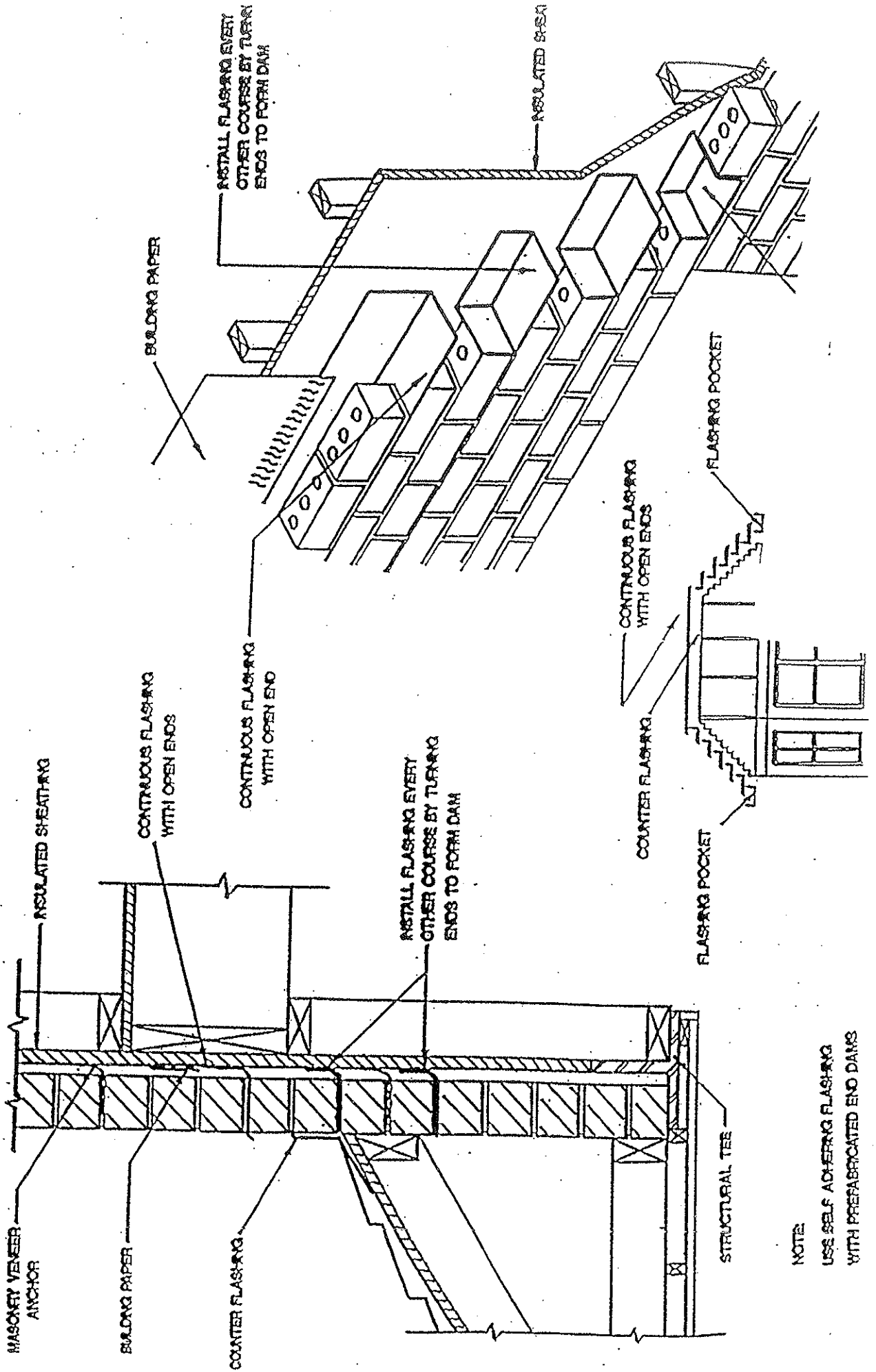
- (1). Wood-fibered gypsum plaster may be mixed in the portions of 100 pounds of gypsum to not more than 1 cubic foot of sand where applied on masonry or concrete.
- (2). When determining the amount of aggregate in set plaster, a tolerance of 10 percent shall be allowed.
- (3). Combinations of sand and lightweight aggregate may be used, provided the volume and weight relationship of the combined aggregate to the gypsum plaster is maintained.
- (4). If used for both first and second coats, the volume of aggregate may be 2 1/2 cubic feet.
- (5). Where plaster is 1 inch or more in total thickness, the proportion for the second coat may be increased to 3 cubic feet.







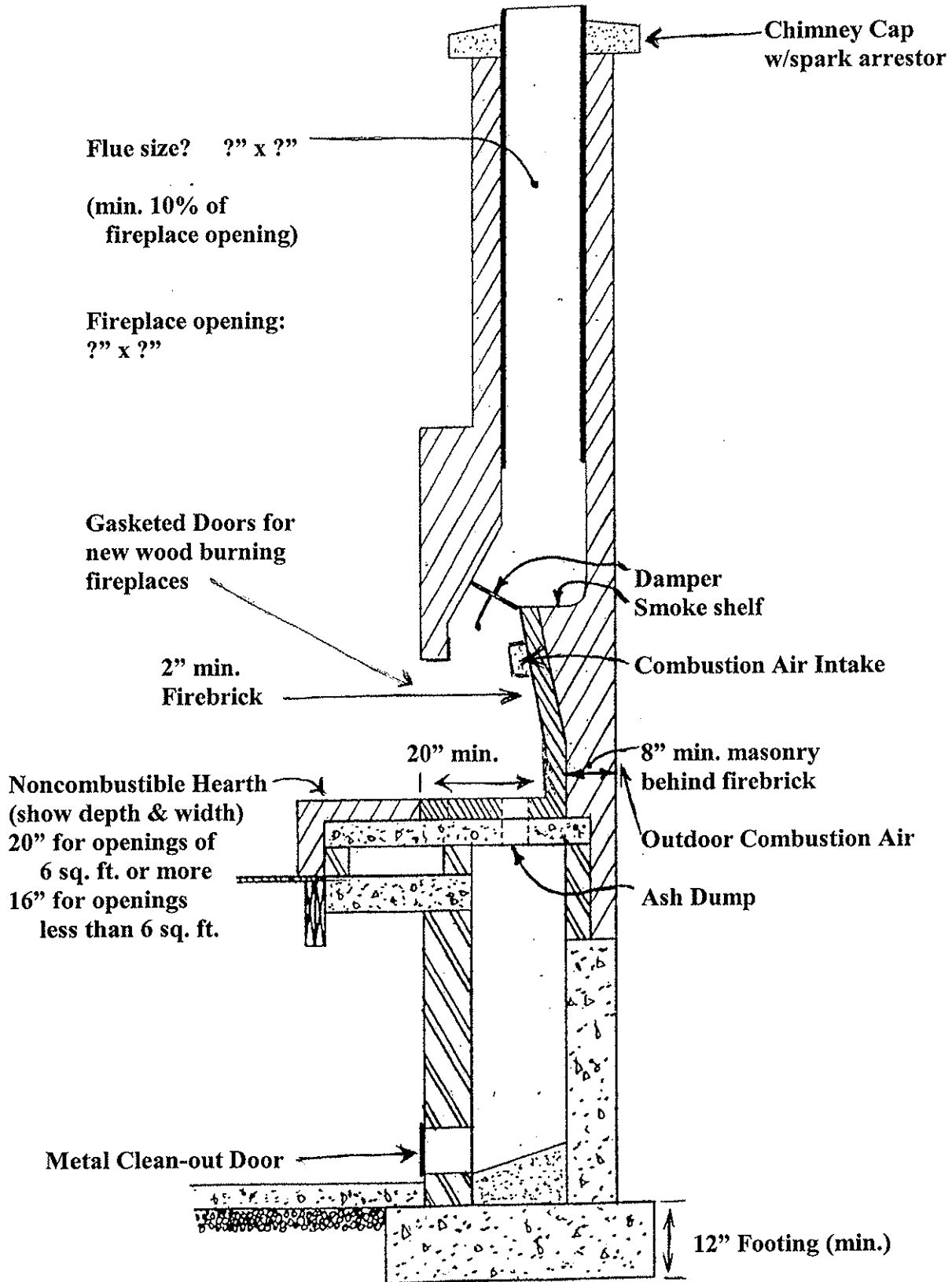


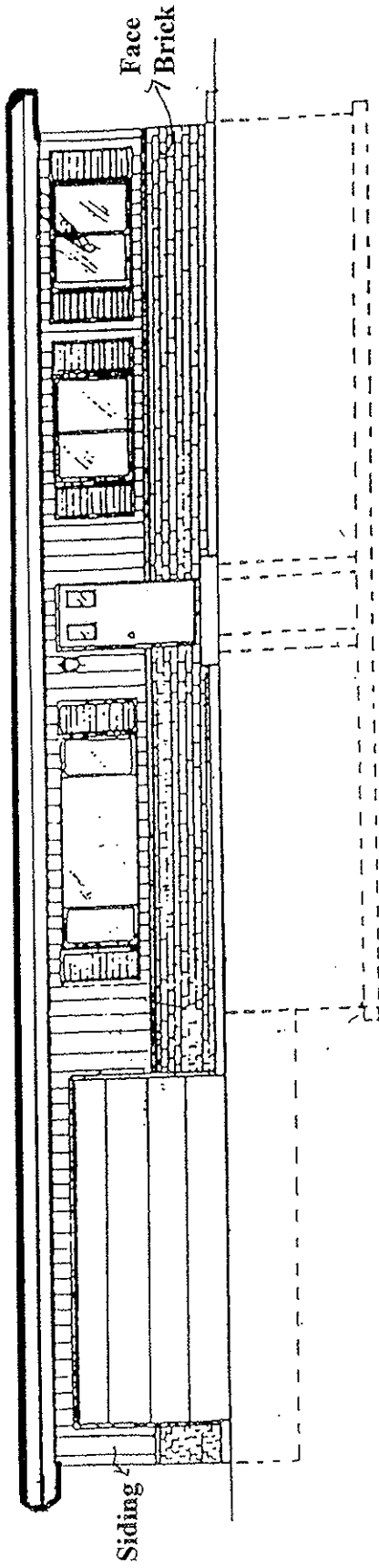


NOTE
 USE SELF ADHERING FLASHING
 WITH PREFABRICATED END DAMS

FIREPLACE SECTION

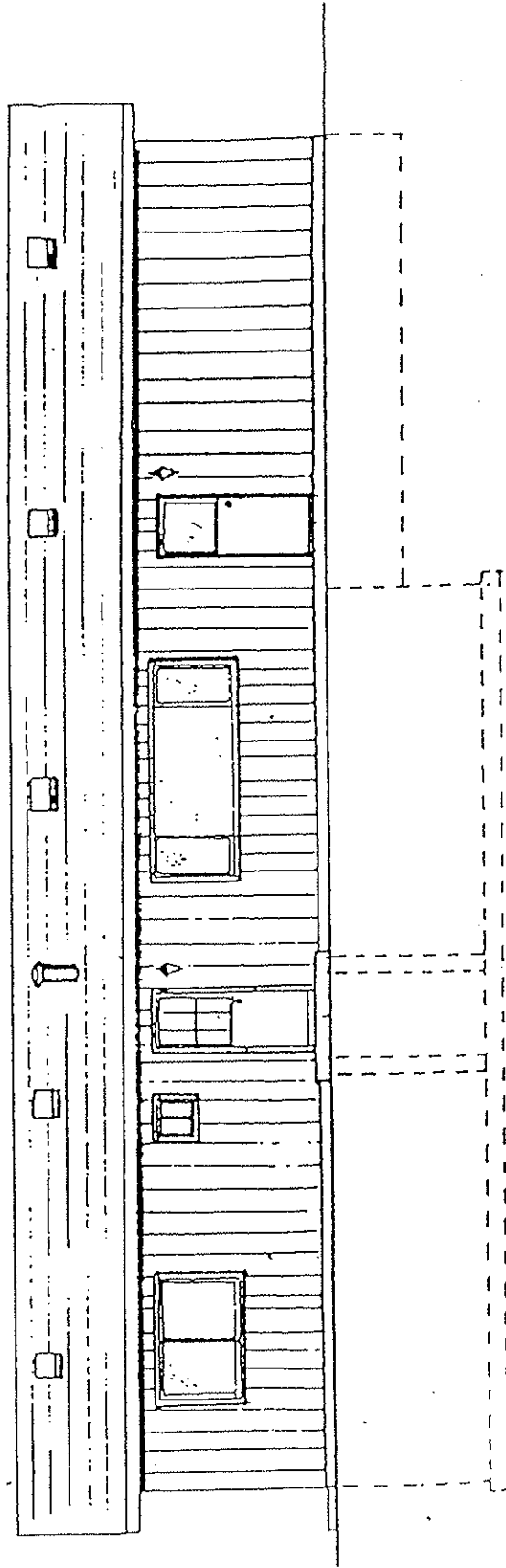
SAMPLE ONLY





FRONT ELEVATION

Scale: 1/8" = 1'0"

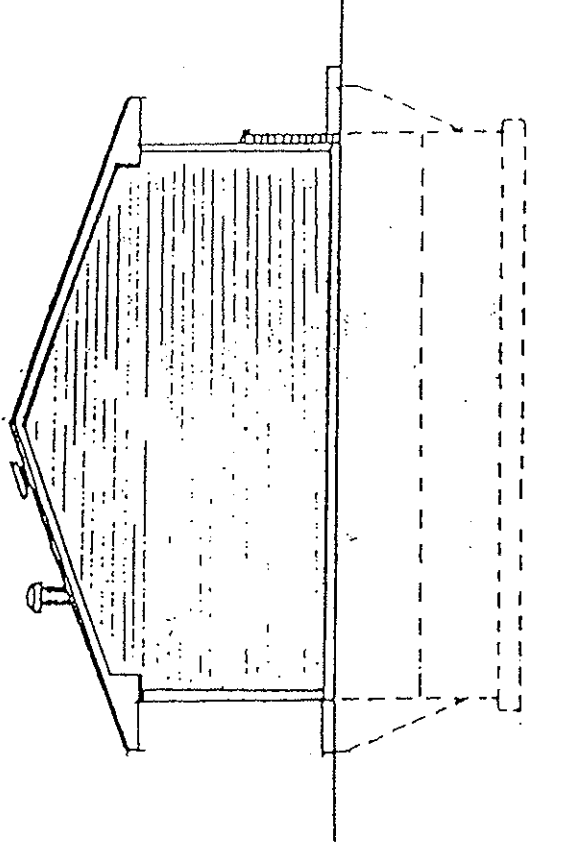


REAR ELEVATION

Scale: 1/8" = 1'0"

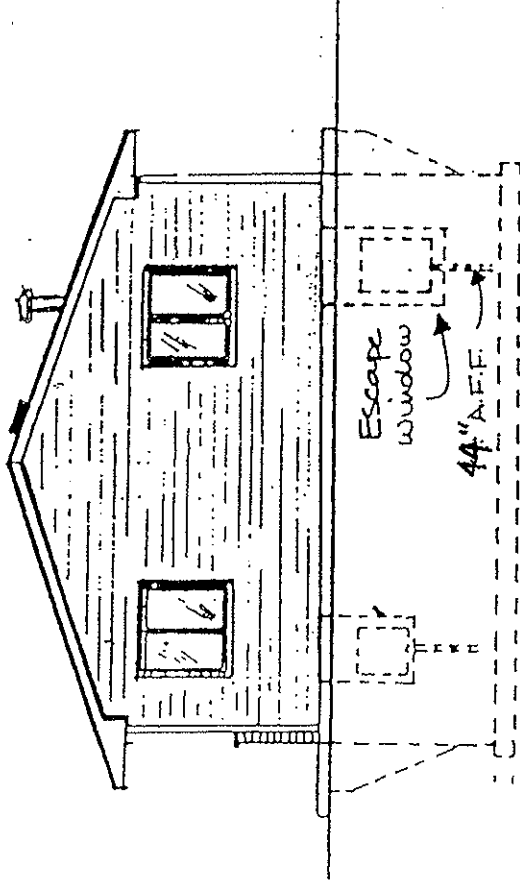
SAMPLE ONLY

SAMPLE ONLY



LEFT ELEVATION

Scale: 1/8" = 1' 0"

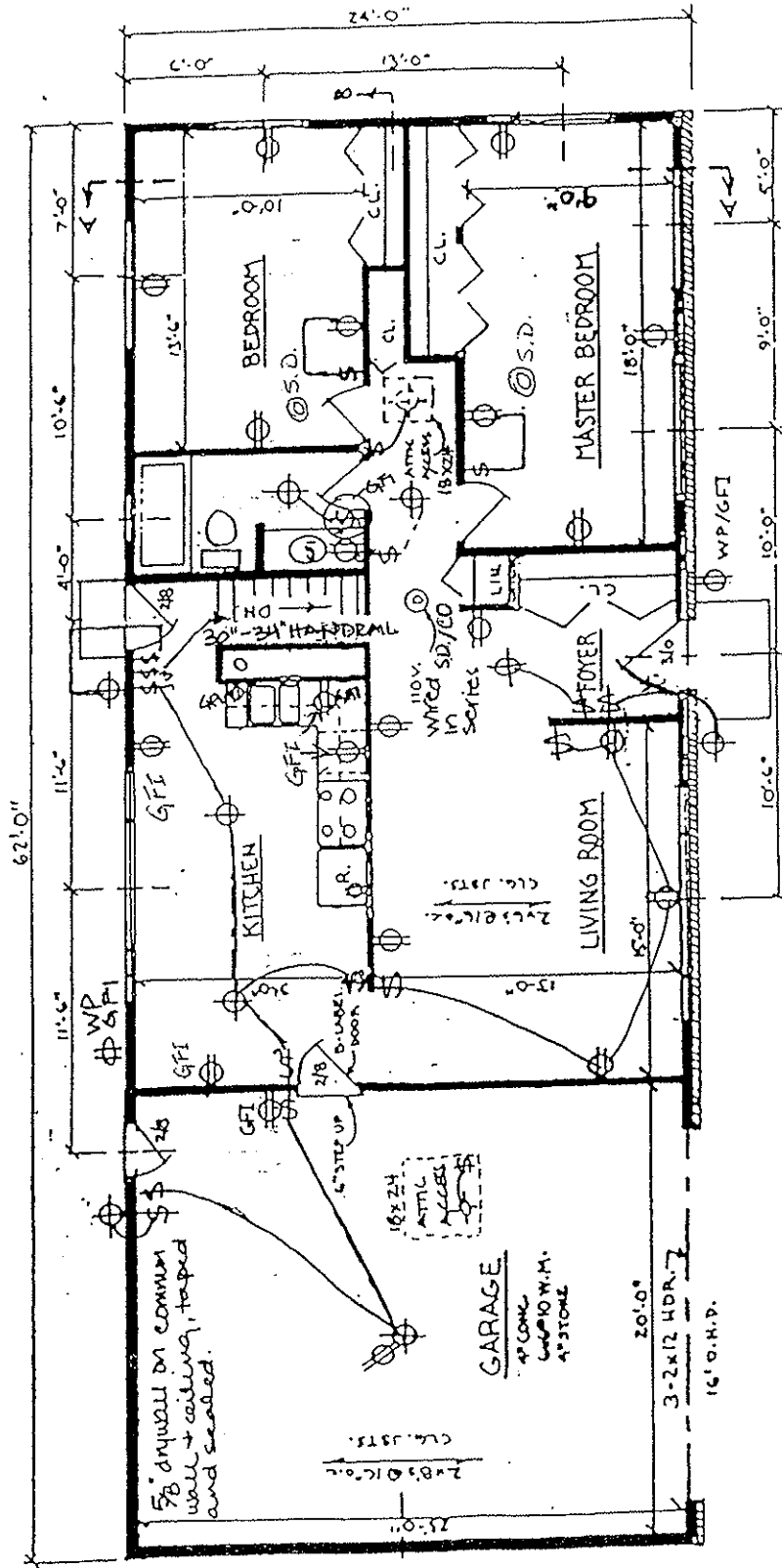


RIGHT ELEVATION

Scale: 1/8" = 1' 0"

SAMPLE ONLY

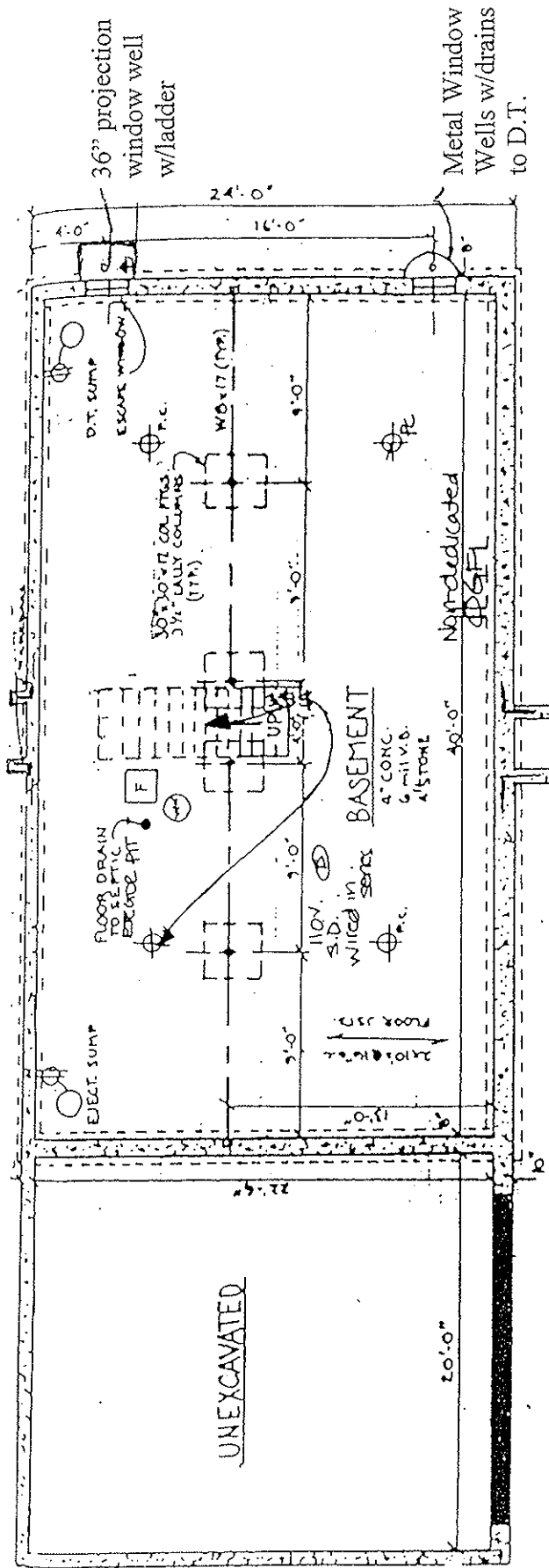
For diagrammatic purposes only! May not illustrate every code requirement.
See appropriate sections in building code book.



FLOOR PLAN
Scale: 1/8" = 1'0"

SAMPLE ONLY

For diagrammatic purposes only! May not illustrate every code requirement.
See appropriate sections in building code book.



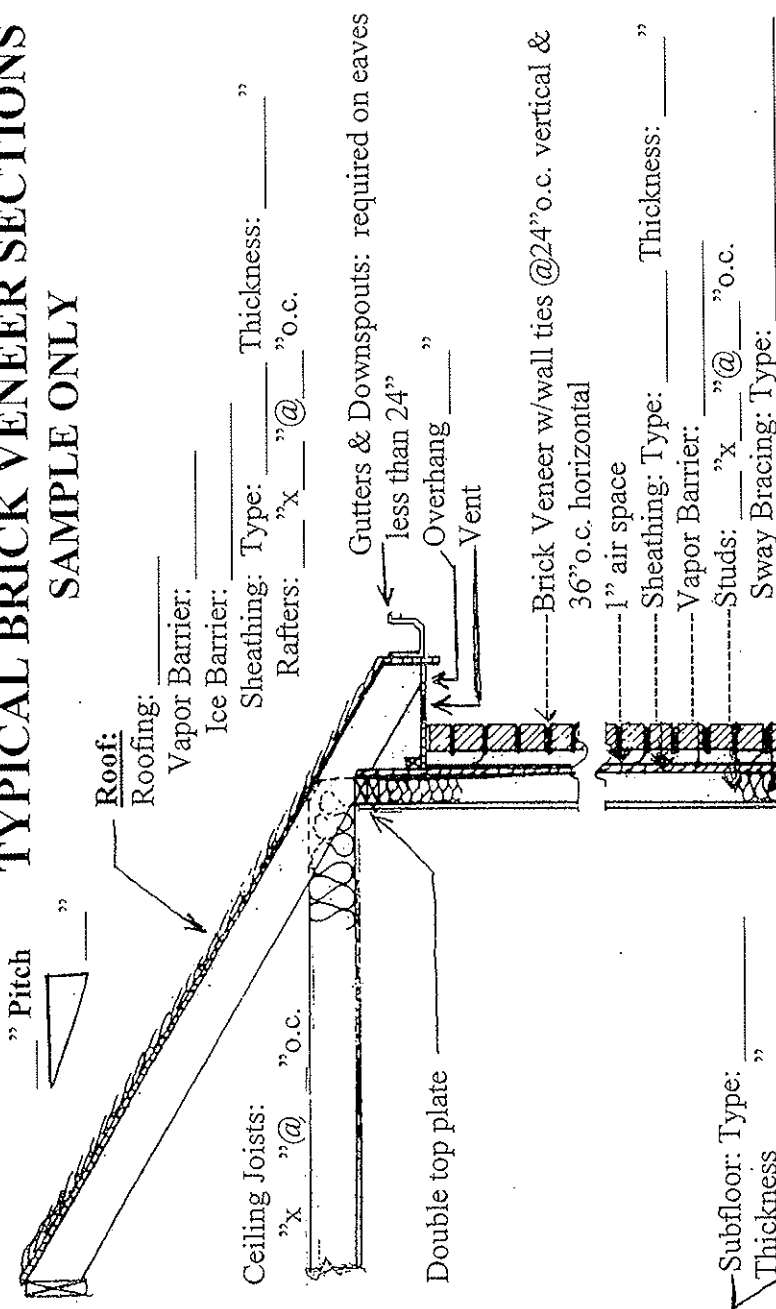
Depress Foundation 6"

Wing Walls

FOUNDATION PLAN

Scale: 1/8" = 1'0"

TYPICAL BRICK VENEER SECTIONS SAMPLE ONLY



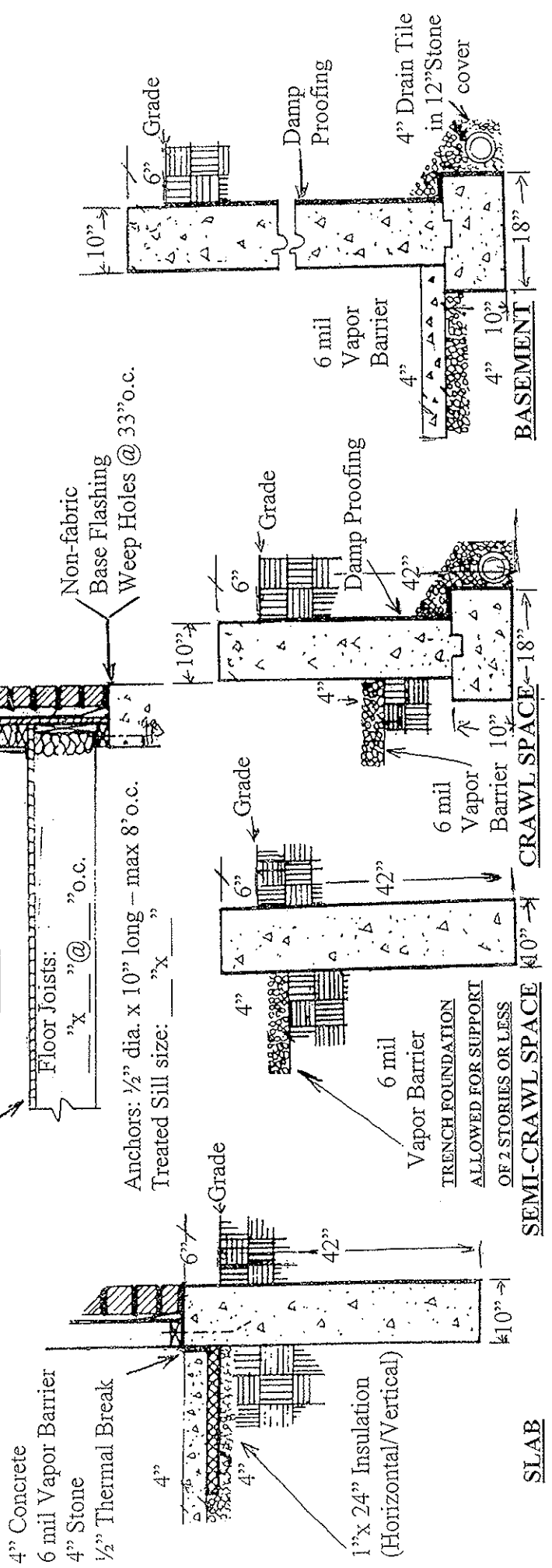
Ridge "x" " (one size larger than rafters)

ROOF TYPE:

- Truss _____
- Gable _____
- Hip _____
- Gambrel (barn) _____
- Flat _____

INSULATION:

- Ceiling: R- _____
- Wall: R- _____
- Floor: R- _____



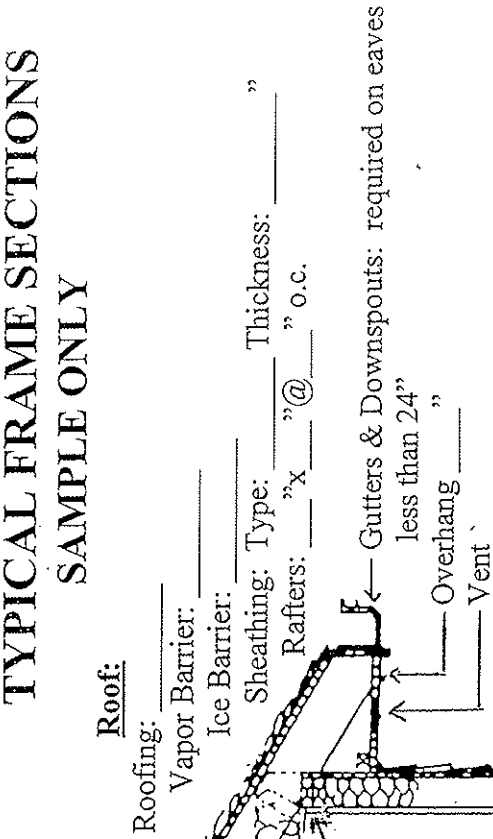
SLAB

TYPICAL FRAME SECTIONS

SAMPLE ONLY

Ridge "x" " (one size larger than rafters)

" Pitch



Ceiling Joists: "x" @ " o.c.
 Double top plate

ROOF TYPE:
 Truss _____
 Gable _____
 Hip _____
 Gambrel (barn) _____
 Flat _____

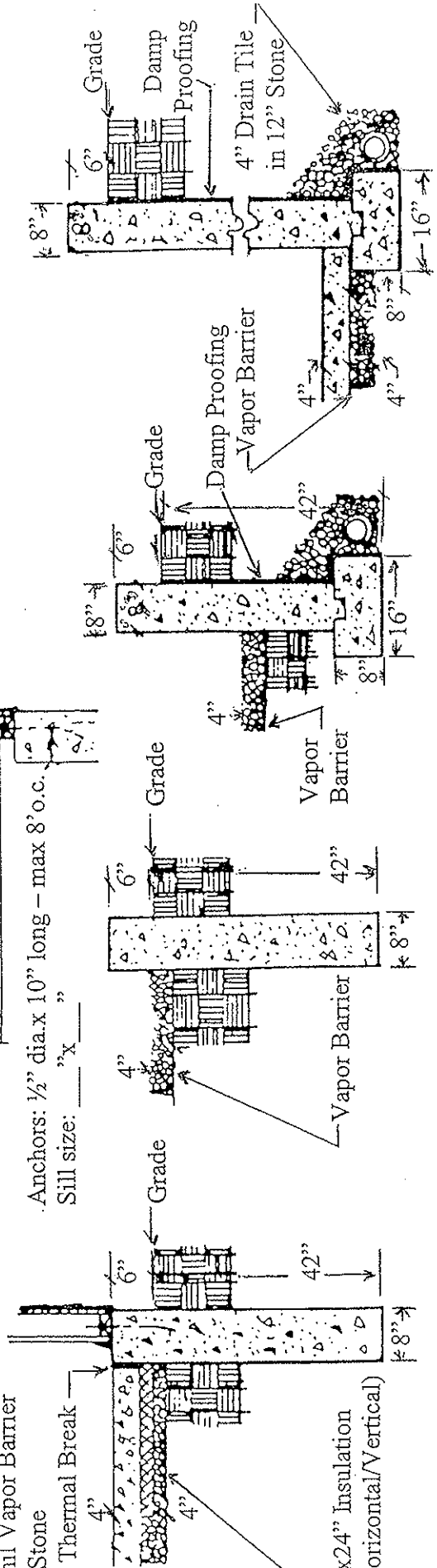
INSULATION:
 Ceiling: R- _____
 Wall: R- _____
 Floor: R- _____

Stucco: Type: _____
 Siding: Type: _____
 Sheathing: Type: _____ Thickness: _____
 Sway Bracing: Type: _____
 Studs: "x" @ " o.c.

Vapor Barrier: _____

Subfloor: Type: _____
 Thickness _____
 Floor Joists: "x" @ " o.c.
 Anchors: 1/2" dia. x 10" long - max 8' o.c.
 Sill size: "x" "

4" Concrete
 6 mil Vapor Barrier
 4" Stone
 1/2" Thermal Break
 4" _____
 4" _____
 1"x24" Insulation (Horizontal/Vertical)



BASEMENT

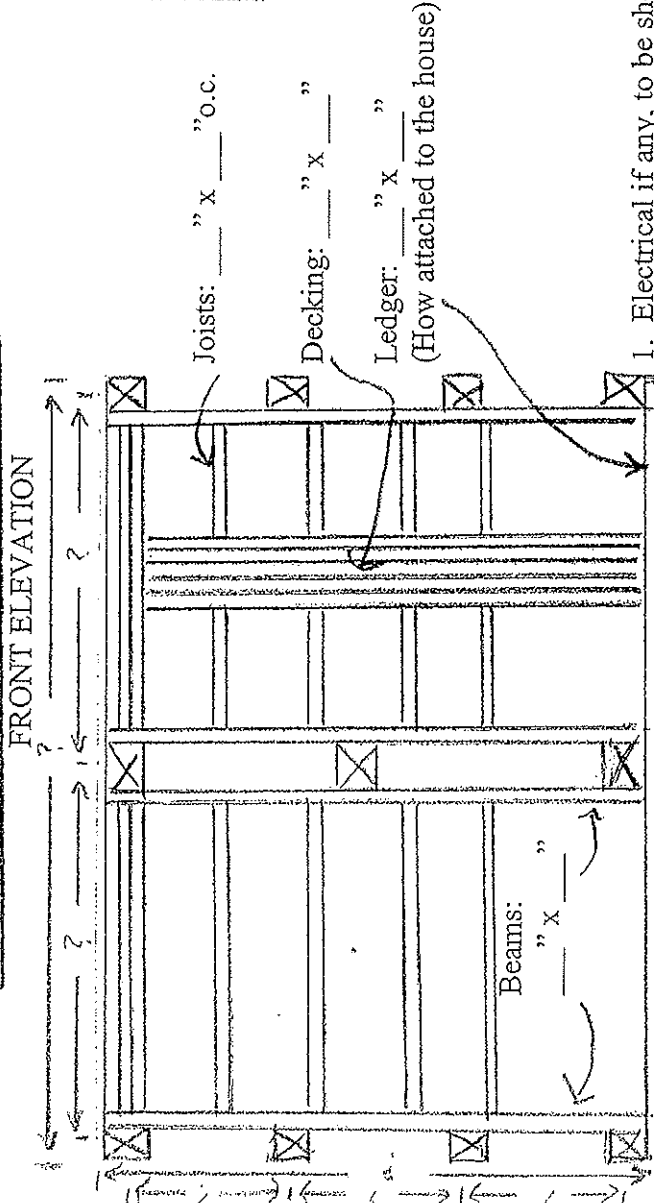
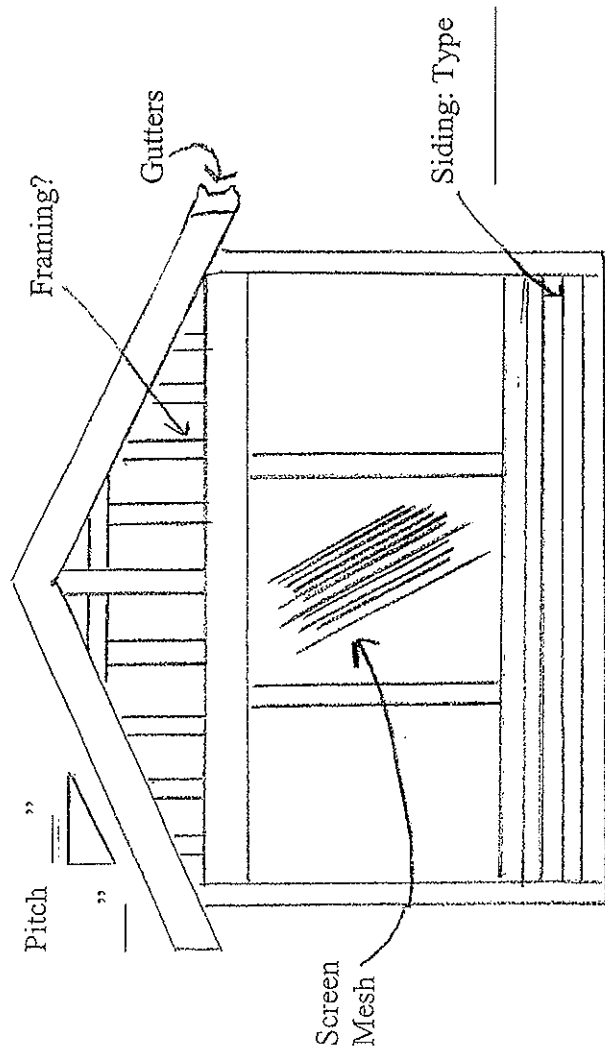
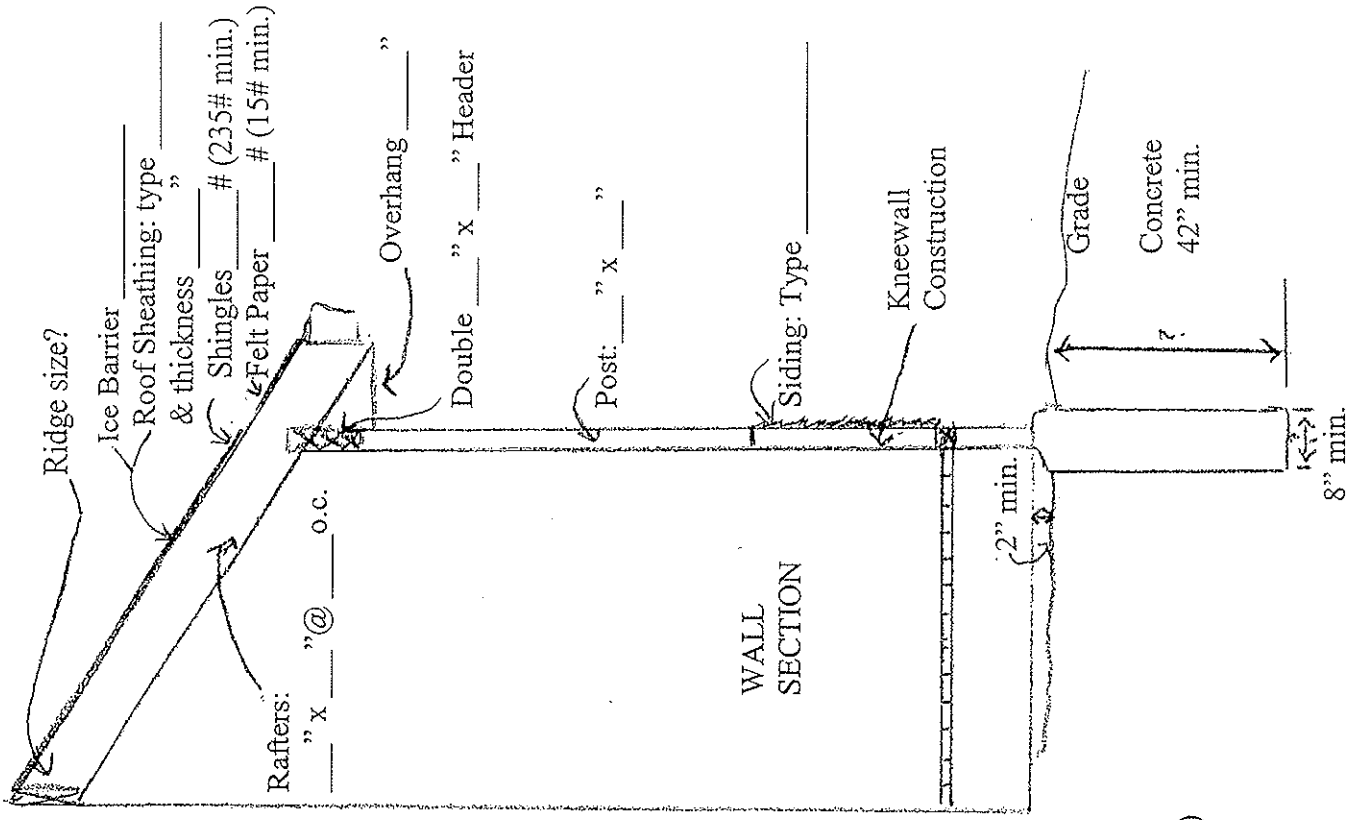
CRAWL SPACE

SEMI-CRAWL SPACE

SLAB

SCREENED PORCH

SAMPLE ONLY



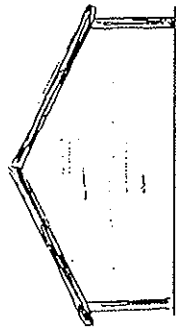
1. Electrical if any, to be shown on floor plan
2. Existing door from house and existing exterior light to be shown
3. Lumber for substructure decking and uprights to be treated or approved weather resistant species

TYPICAL DETACHED GARAGE

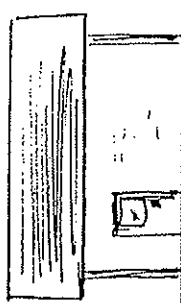
TO BE USED AS SAMPLE ONLY!

***Only required if over 150 sq. ft.

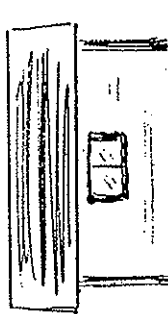
Note! Fire rated w/ 5/8" drywall on walls (within 10' of principle structure) and entire ceiling w/attic access if structure is closer than 10' from principle structure



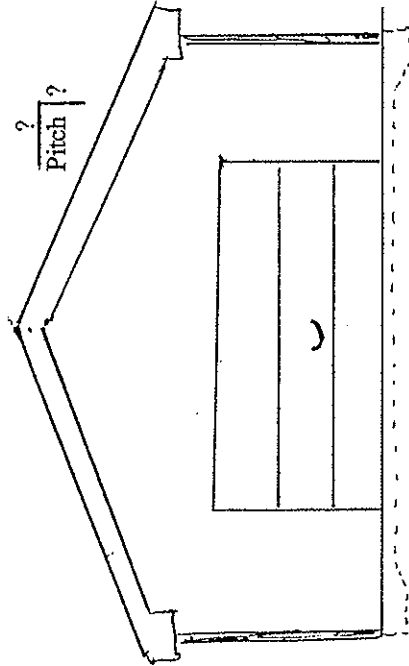
REAR



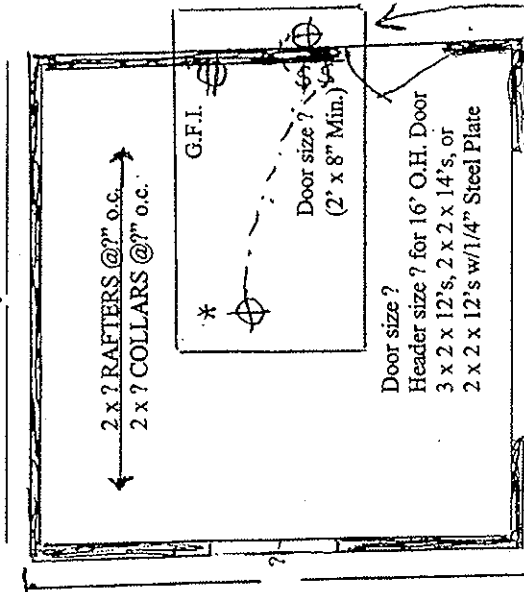
RIGHT SIDE



LEFT SIDE



FRONT ELEVATION



FLOOR PLAN

Show any electrical - if outlets are installed, they must be on a GFI circuit (electric shown is MINIMUM required)

*Only show if having a side door and/or electric

ROOF

- Ice Barrier
- 235# Asphalt Shingles
- 15# Felt
- 1/2" CDX Plywood Sheathing
- 2 x 7" Rafters @ 7" o.c.
- 2 x 7" Ridge

2 x ? Collar Ties @ 7" o.c.

Garage will need gutters if the overhang is less than 24"

WALL

- Studs: 2 x ? @ ?" o.c.
- Sheathing type?
- Sway bracing type?
- Siding type?

Treated plate
Anchor bolts: 1/2" x 10" - MAX. 8' o.c.

- SLAB (thickened)
- 4" concrete
- 6 x 6 #10 wire mesh
- 4" stone



CROSS SECTION

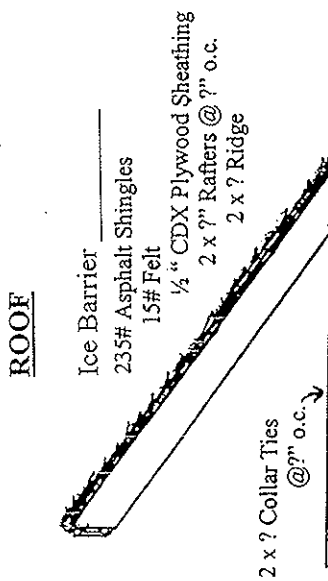
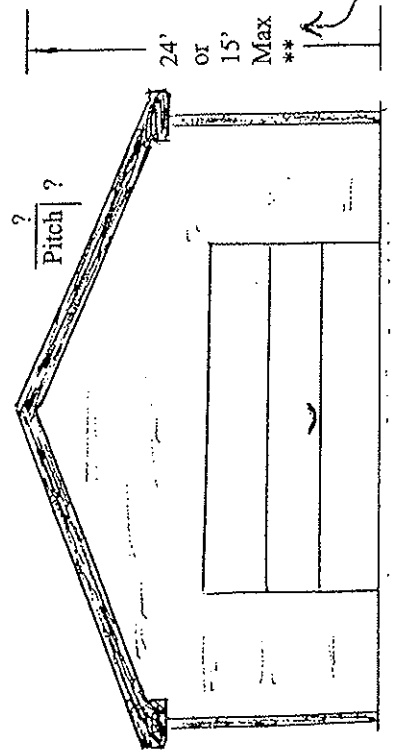
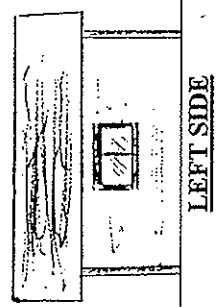
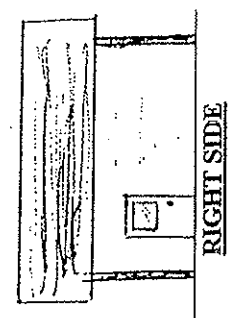
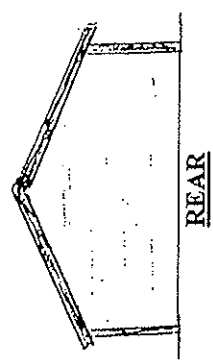
**Maximum height depends on lot size

Note! Fire rated w/ 5/8" drywall on walls (within 10' of principle structure) and entire ceiling w/attic access if structure is closer than 10' from principle structure

TYPICAL SHED

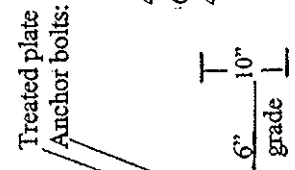
TO BE USED AS SAMPLE ONLY!

***Only required if over 150 sq. ft.



WALL

Studs: 2 x 7 @ 7" o.c.
Sheathing type?
Sway bracing type?
Siding type?



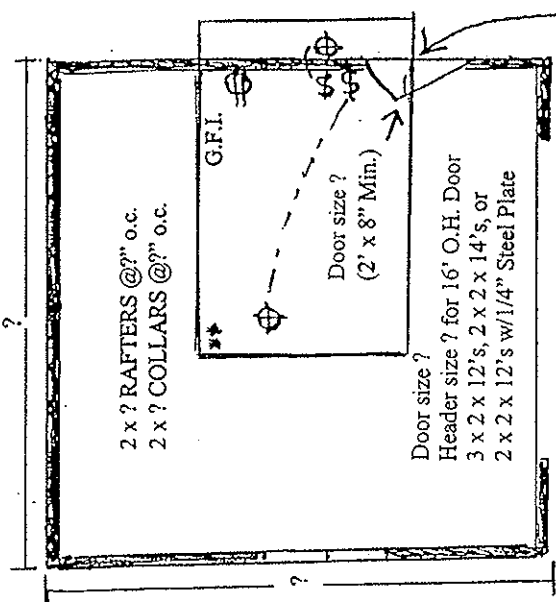
SLAB (thickened)
4" concrete
6 x 6 #10 wire mesh
4" stone

(*Slab required only if door is over 6' wide. If not, draw & state what type of SOLID floor it will be on)

CROSS SECTION

FRONT ELEVATION

**Maximum height depends on lot size



Show any electrical - if outlets are installed, they must be on a GFI circuit (electric shown is MINIMUM required)

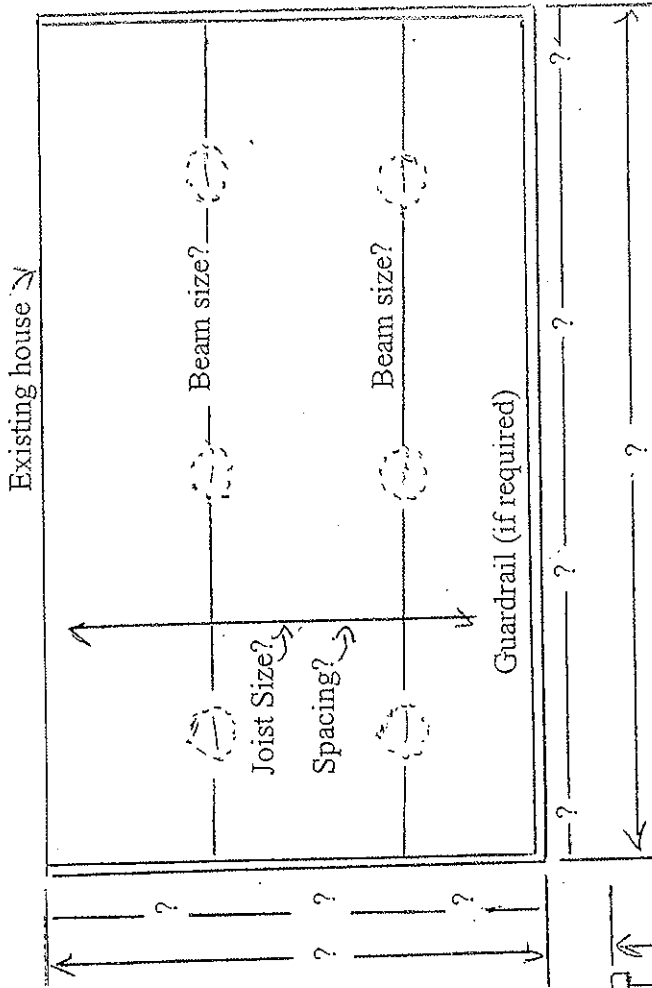
**Only show if having a side door and/or electric

TYPICAL DECK REQUIREMENTS

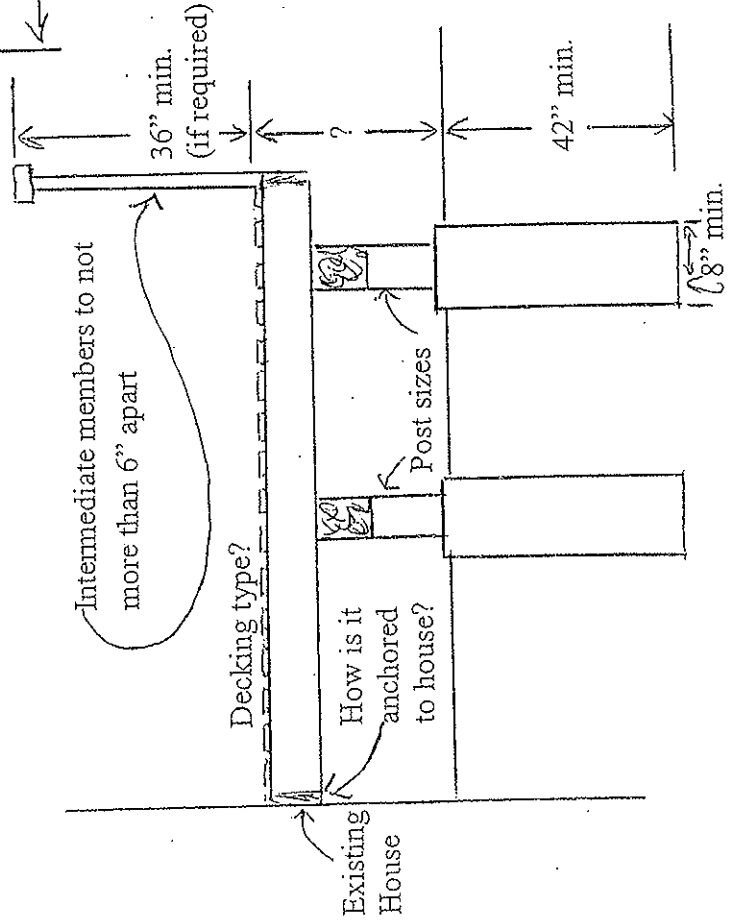
SAMPLE ONLY

SIDE

1. What is the deck height above ground? (36" minimum guardrail with balusters maximum 6" o.c. required everywhere deck floor exceeds 24" above grade and on all open sides of stairs over two stairs, w/ separate handrail on one side.)
2. How is the deck anchored to the house?
3. Pier size? (8" diameter x 42" deep minimum)
4. Flooring? What type?
5. Post size(s) if any? (4 x 4, 4 x 6, etc.)
6. How are posts or beams anchored to piers?
7. Show location(s) of stairs and provide stair detail.



TOP



1. Fully dimensioned?
 - A. Over-all dimensions.
 - B. Dimensions of any off sets or irregular shapes.
 - C. Dimensions of pier & beam locations. (see above drawing).
2. Show joist size(s), direction(s) & spacing.
3. Show beam size(s). (2-2x6's, 3-2x10's, etc.)

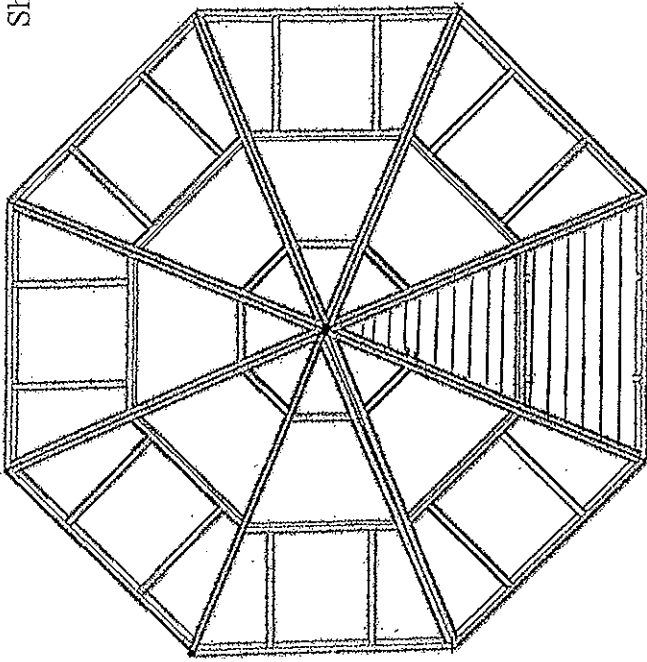
TYPICAL GAZEBO REQUIREMENTS

{--dimension--}

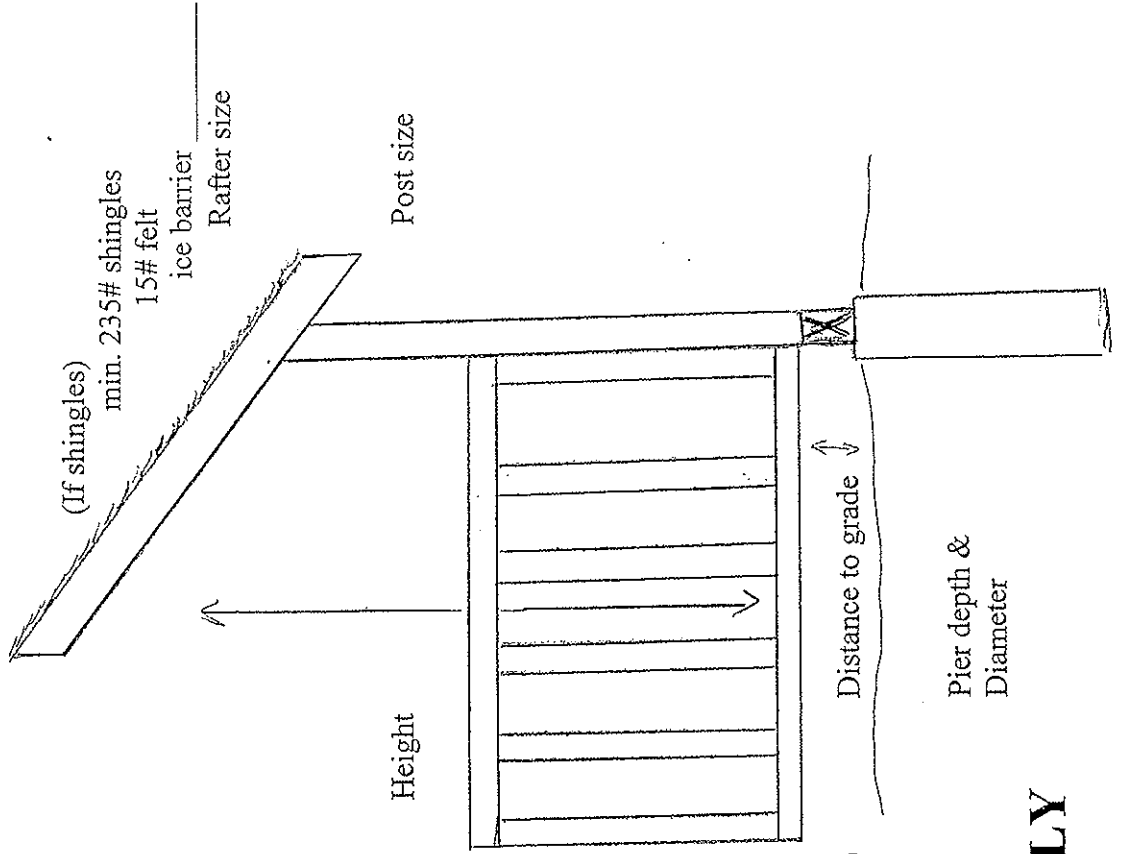
TOP VIEW

Fully dimensioned

Show joist size & spacing/direction
Show beam direction & size



Joist size & spacing



Flooring type

Baluster spacing

Railing Height

SIDE VIEW

What are the post sizes?

How are the posts/beams anchored to the piers or deck?

Show location of stairs and provide a stair detail (if applicable)

SAMPLE ONLY