PORTABLE SELF SUPPORTING GRAIN WALL - 4 FT

COMPLETE INSTRUCTIONS

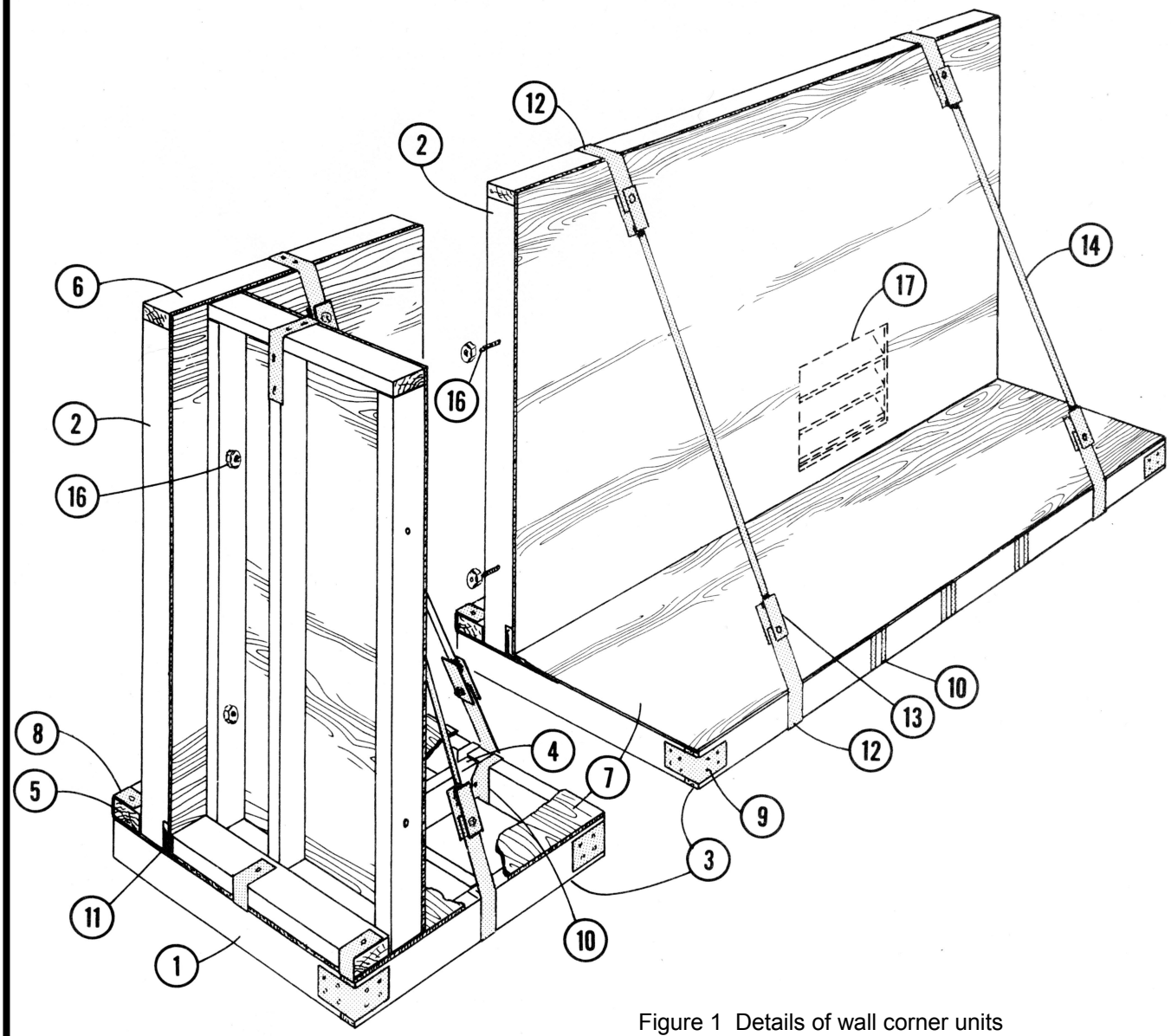

Figure 1 Details of wall corner units

DEVELOPED BY CANADA PLAN SERVICE

372-13

SHORT PORTABLE SELF-SUPPORTING GRAIN WALL

CPS
PLAN M-7129 NEW: 86.05

These 1.2 m (4 ft) short portable wall units can partition part of a building (such a shop or machine shed) for temporary grain storage. They also may be used to support grain along the sides of steel arch, arch rafter or pole structures where the walls were not originally made to resist grain pressure. The design is based on wheat pressure, with the grain surface sloped up from the top of the wall at 25° above horizontal. The design is safe for bulk vegetable storage as well. An alternate plan 372-12 (CPS Plan M-7128) gives details for tall portable wall units 2.4 m (8 ft) high.

The panels are portable, easily taken apart for storage and reassembled when needed. They are normally built as separate stud wall sections set end-to-end on matching floor panels. Bolt the end studs of adjacent panels together to form a continuous wall. Douglas fir plywood is specified for wall and floor sheathing, though equivalent-strength spruce plywood, aspen flakeboard or corrugated steel could be used.

The portable wall panels are set on the floor panels. They are held in place by a continuous wood base block (5) at the bottom and by cables or rod ties to a bent steel strap (12) hooked over the 'toe' edge of the floor panel. The shackle (13) can be adjusted a little to plumb and straighten the wall units.

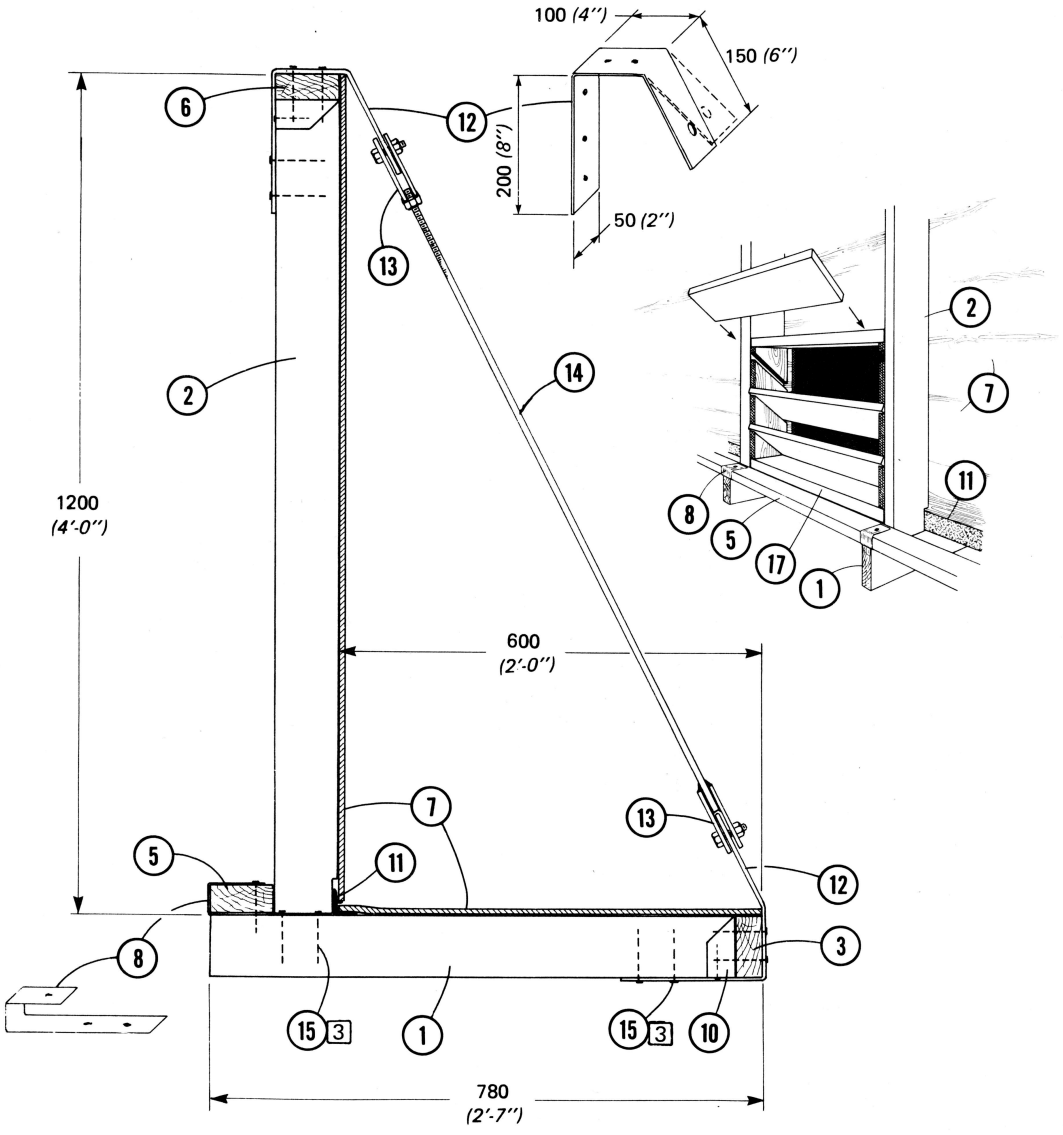

Figure 2 Section showing connections between floor and wall parts

Grain pressure on the 'floor' part holds each panel in place. When panels are first set up, it is helpful to brace them temporarily with pieces of wood tacked to the wall and floor.

Figure 1 shows a perspective of the wall and corner sections. These units are framed with No. 2 S-P-F lumber and covered with Douglas fir plywood exterior sheathing with the face grain laid across the floor joists and wall studs.

Figure 2 shows the critical dimensions, the fastenings, the tie-down hardware and the end cap board (3) which makes the floor sleepers load-sharing.

Figures 3 gives the floor plans for a wall and a corner unit, showing the location of the studs, floor joists and corner wall blockings. Steel strap ties and steel joist-hangers are hammer-bent to a tight fit and nailed in place wherever critical connections are required.

1 38 x 89 mm (2 x 4) floor joists at 400 mm (16 in.) oc
2 38 x 89 mm (2 x 4) studs at 400 mm (16 in.) oc, notched for (11)
3 38 x 89 mm (2 x 4) end cap
4 38 x 89 mm (2 x 4) blocking (at corner wall only)
5 38 x 89 mm (2 x 4) base block
6 38 x 89 mm (2 x 4) plate
7 9.5 mm (3/8 in.) exterior sheathing Douglas fir plywood or material with equivalent strength in bending
8 0.9 x 50 x 300 mm (20 ga. x 2 x 12 in.) galv. steel strap
9 0.9 x 100 x 300 mm (20 ga. x 4 x 12 in.) galv. steel strap
10 galv. steel joist hangars
11 3 x 38 x 38 mm (1/8 x 1 1/2 x 1 1/2 in.) steel angle, to prevent grain leakage
12 steel strap, 4.8 x 50 x 450 mm (3/16 x 2 x 18 in.), bend to suit at top and bottom
13 shackle made from 2 – 4.8 x 38 x 100 mm (3/16 x 1 1/2 x 4 in.) steel straps welded to M10 (3/8 in.) nut (top end) and (14) (bottom end), drill through for M10 (3/8 in.) machine bolt
14 9.5 mm (3/8 in.) steel rod, thread top end for (13) ; OR turnbuckle with closed eyes, steel cable, clamps and thimbles rated safe to 5 kN (1100 lb),
15 4.5 x 75 mm concrete nails, number indicated thus [3]
16 2 – M12 x 100 mm (1/2 x 4 in.) machine bolts, nuts and washers
17 OPTIONAL unloading port; cut plywood opening smaller than space between studs to stop the removable louver boards

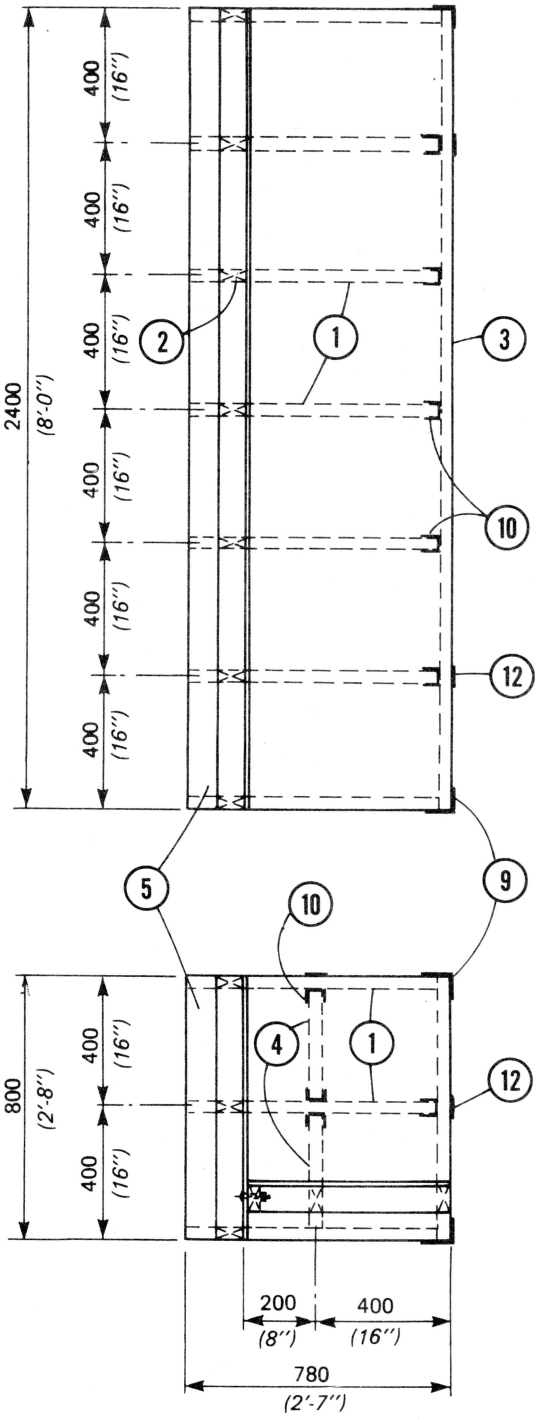

Figure 3 Floor plan of wall and corner units