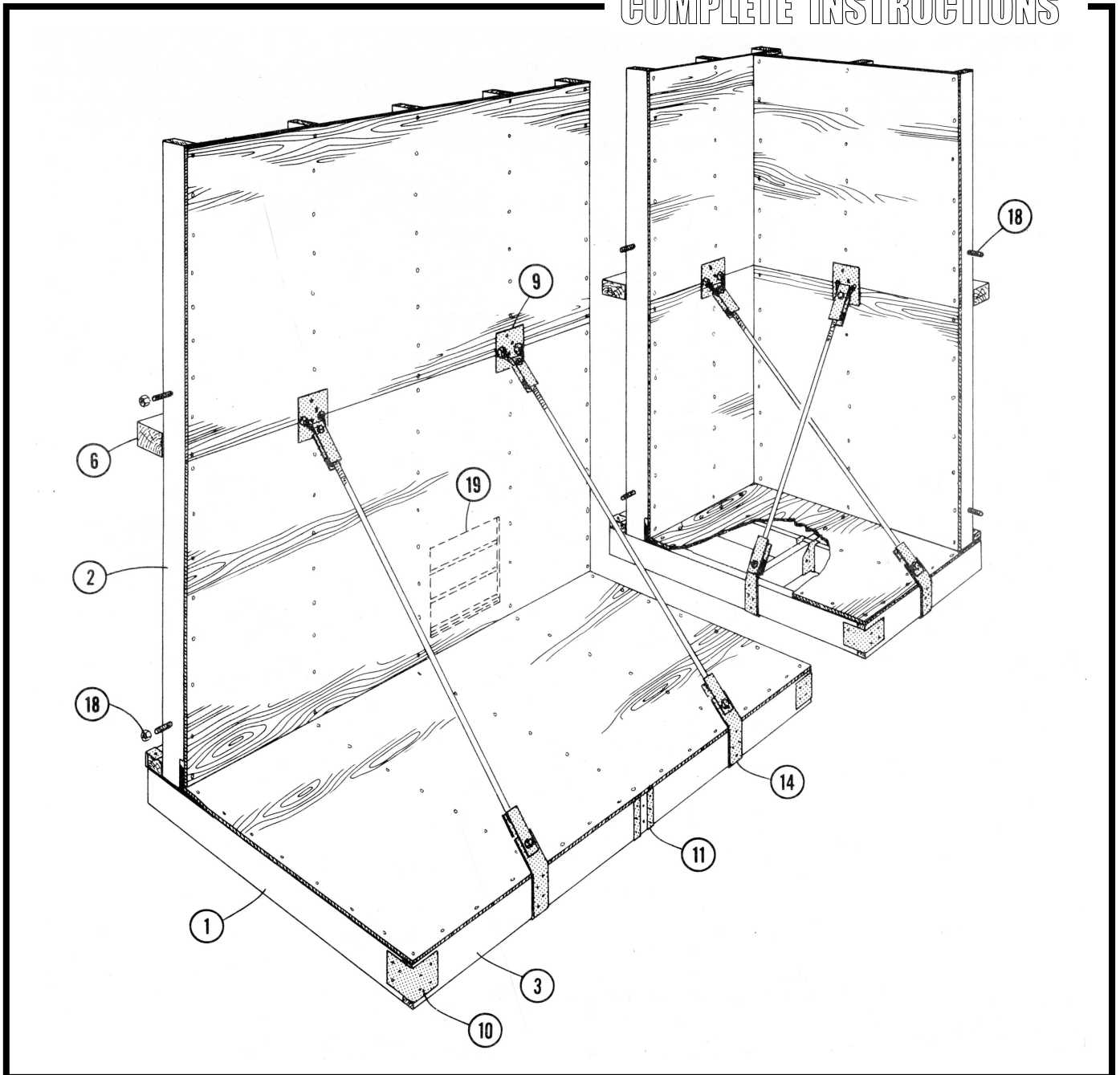


# PORTABLE SELF SUPPORTING GRAIN WALL - 8 FT

COMPLETE INSTRUCTIONS



DEVELOPED BY CANADA PLAN SERVICE

# 372-12

## TALL PORTABLE SELF-SUPPORTING GRAIN WALL

CPS  
 PLAN M-7128 NEW 86:05

These 2.4 m (8 ft) tall 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may be used to support grain along the sides of steel arch, arch rafter or pole structures where the walls were not originally made to resist grain pressure.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 25° above horizontal. The design is safe for bulk vegetable storage as well. An alternate plan 372-13 (CPS Plan M-7129) gives details for short portable wall units only 1.2 m (4 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 (14) hooked over the 'toe' edge of the floor panel. The shackle (15) can be adjusted a little to plumb and straighten the wall units.

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.

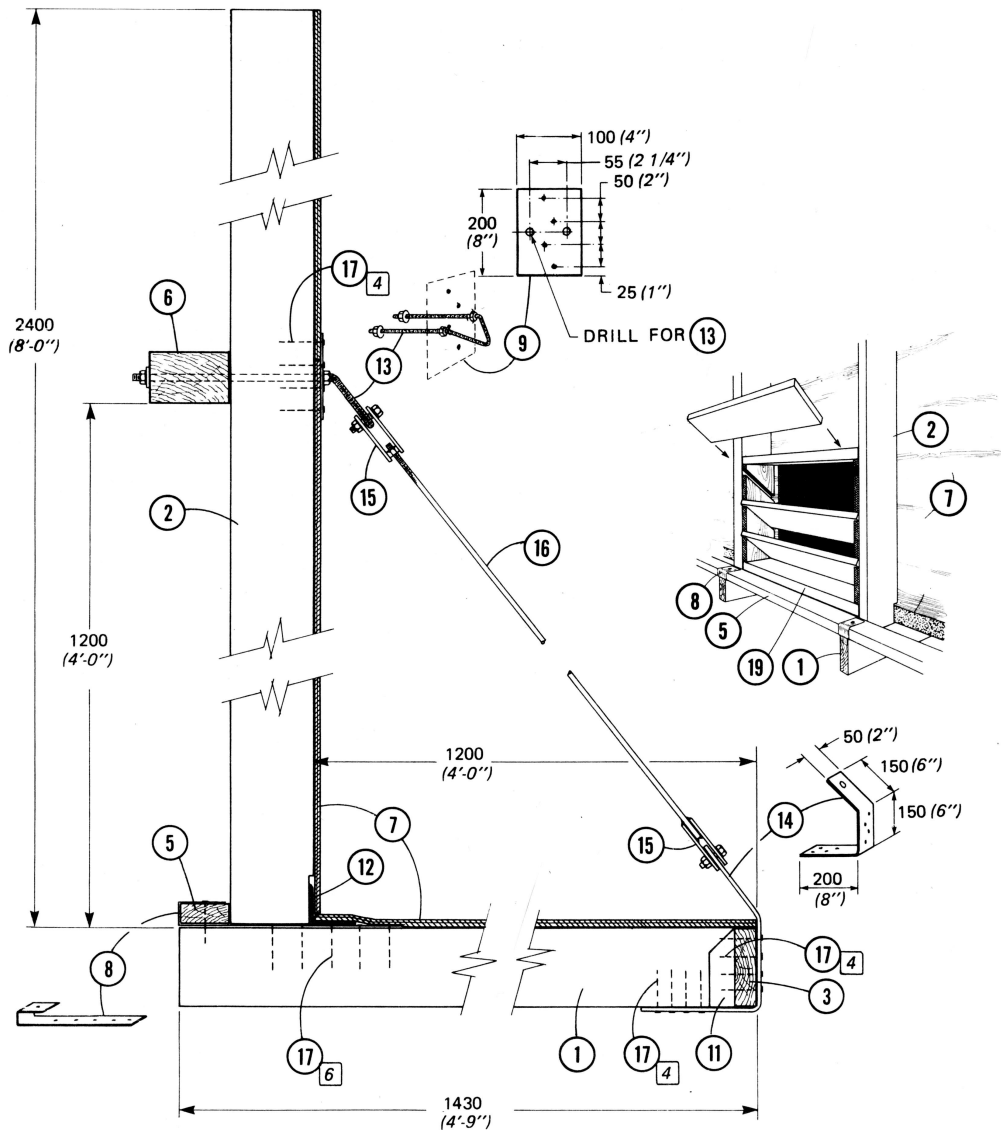


Figure 2 Section showing connections between floor and wall parts

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 and the tie-down hardware. The height of the waler is 1200 mm (4 ft) above the floor units; this gives the least wall stress, therefore this dimension must be

carefully respected. Another important feature is the end cap board (3) which makes the floor sleepers load-sharing.

Figure 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 140 mm (2 x 6) floor joists at 600 mm (2 ft) oc
- 2 38 x 140 mm (2 x 6) studs at 600 mm (2 ft) oc, notched for (12)
- 3 38 x 140 mm (2 x 6) end cap
- 4 38 x 140 mm (2 x 6) blocking at CORNER WALL only
- 5 38 x 89 mm (2 x 4) base block
- 6 89 x 140 mm (4 x 6) waler
- 7 4-ply 15.5 mm (5/8 in.) or 5-ply 18.5 mm (3/4 in.) exterior sheathing Douglas fir plywood
- 8 0.9 x 50 x 500 mm (20 ga x 2 in. x 20 in.) galv. steel strap
- 9 3.1 x 100 x 200 (1/8 x 5 x 8 in.) galv. steel plate
- 10 0.9 x 100 x 300 mm (20 ga. x 4 in. x 12 in.) galv. steel strap
- 11 joist hanger, at joist (1) and end cap (3) joints, (except end joints)
- 12 3 x 38 x 38 mm (1/8 x 1 1/2 x 1 1/2 in.) steel angle, to prevent grain leakage
- 13 tie bolt, 12.5 mm (1/2 in.) dia. 900 mm (36 in.), long threaded rod; heat to bend
- 14 steel toe strap, 4.8 x 50 x 450 mm (3/16 x 2 x 18 in.) steel strap
- 15 shackle made from 2 - 4.8 x 38 x 100 mm (3/16 x 1 1/2 x 4 in.) steel straps welded to M12 (1/2 in.) nut (top end) and (16) (bottom end), drill through for M12 (1/2 in.) machine bolt
- 16 12.5 mm (1/2 in.) steel rod, thread top end for (15): OR turnbuckle with closed eyes, steel cable, clamps and thimbles rated safe to 18 kN (4000 lb)
- 17 4.5 x 75 mm concrete nails, number indicated thus [6]
- 18 2 - M12 x 100 mm (1/2 x 4 in.) machine bolts, nuts and washers
- 19 OPTIONAL unloading port; cut plywood opening smaller than space between studs to stop the removable louver boards

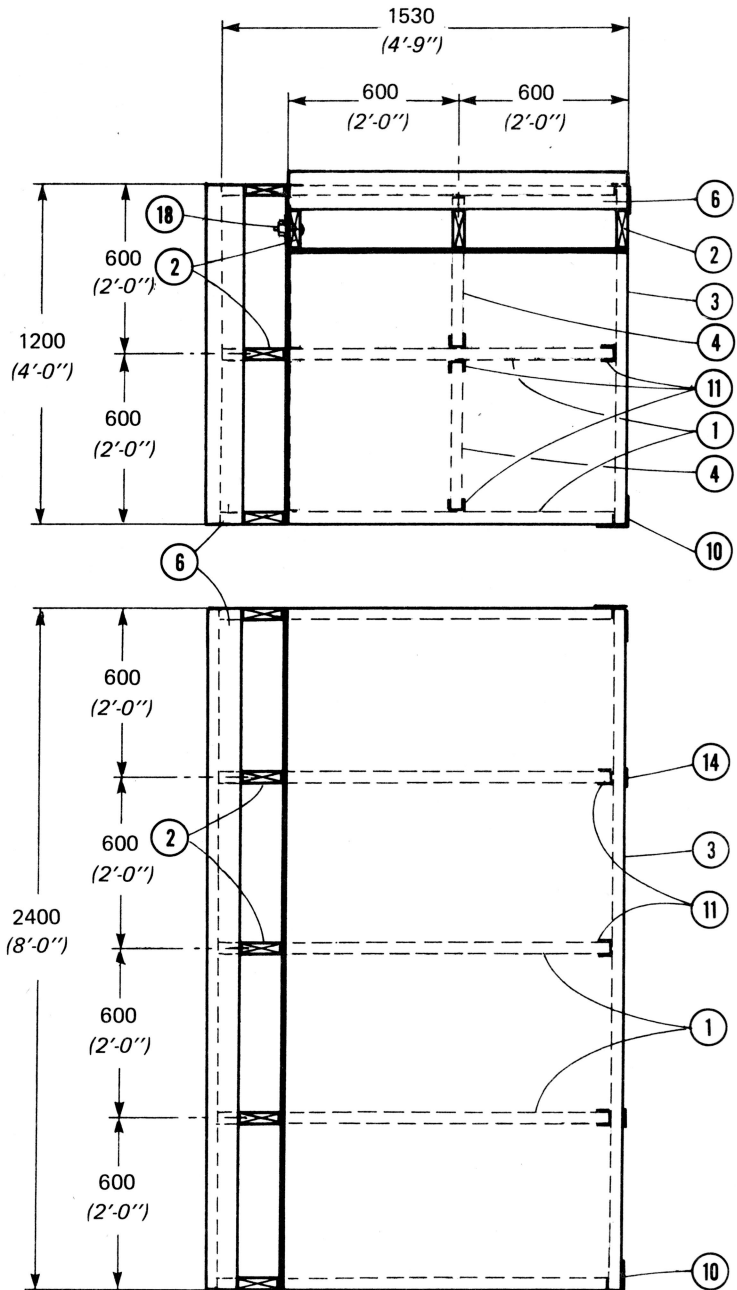


Figure 3 Floor plan of wall and corner units