

OptimWall™ Panel Element

Technical Standards & Installation

OptimWall™ is WoodSyn's prefabricated wall-element system built from cement-bonded wood-wool panels to deliver a durable, fire-resilient, high-performance exterior shell with a clean, homogeneous wall surface. Elements are produced through WoodSyn's manufacturing partners today and are being localized for Arizona-based production, enabling fast erection and reduced trade sequencing to meet growing demand for streamlined, panelized construction.

Handling and storage

The elements are delivered upright on an open truck. Before lifting, two straps are secured around the elements. Also, a wooden beam (4"x 4") is placed in the bond beam cavity. Alternatively, a steel tube can be used in lieu of the wooden beam. The beam comes with 2 eye bolts spaced 4' from each end.

Lifting notches are cast into the lower edge of the elements. A mobile crane, or other lifting aid, is required to handle the elements in the workplace. The elements should be stored dry and on a flat surface. They must be protected against precipitation and handled so that surfaces and edges are not damaged. The elements are marked per the element, facade, and assembly drawings.

Processing

Field trimming (as needed): OptimWall/element dimensions are produced to project tolerances and are intended to install without modification. However, minor field adjustments may occasionally be required to accommodate slab variation, corner alignment, or penetrations. Where trimming is necessary, use appropriate cutting tools (e.g., track saw with masonry/diamond blade, reciprocating saw with carbide grit blade, or an approved masonry saw) and follow dust control and PPE requirements. Make small, incremental cuts and dry-fit before final setting.

Installation

- 1) Verify slab/foundation is level.
- 2) Set a layout/stop board: fasten a straight 2x4 (or similar) about 16 in. back from the slab edge to guide element placement (see Fig. 1).
- 3) Start at a corner. Bed the first element in a thin layer of grout or cement mortar with fine aggregate (max. ~1/16 in.). Bedding mortar must run full wall thickness to seal the wall to the foundation.
- 4) Plumb and brace each element with two adjustable braces/struts per element (see Fig. 2).
- 5) Temporary through-anchoring (as detailed): Drill a 5/16 in. hole straight through the element. Install a 5/16 in. threaded rod with a bearing plate at least 8 in. x 8 in. (plywood/OSB acceptable) and anchor to the slab/foundation per the detail. Drill before trimming/cutting. Stabilize corner elements that receive the next element so they cannot move during casting (see Fig. 3).

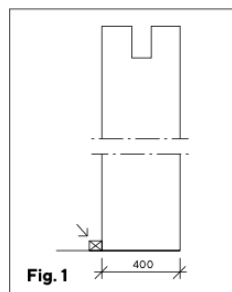


Fig. 1

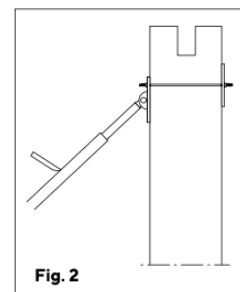


Fig. 2

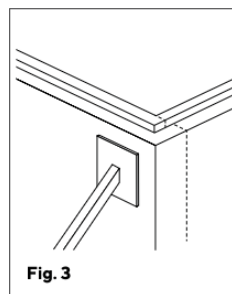


Fig. 3

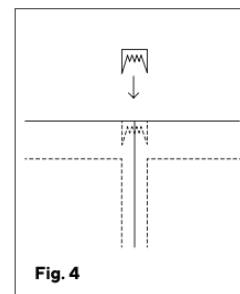
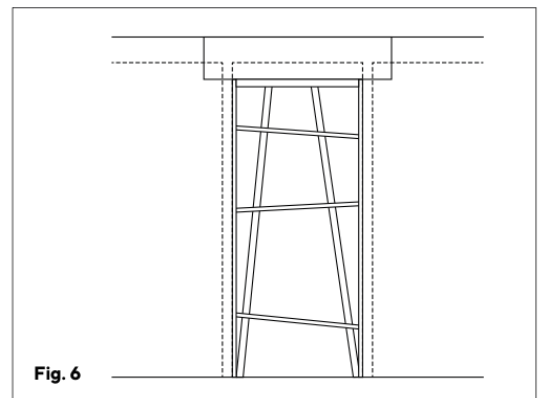
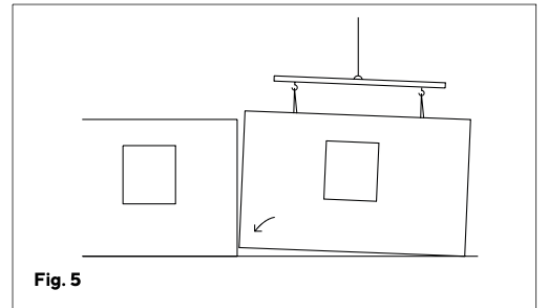


Fig. 4

- 6) Stabilize element tops prior to casting: install toothed sheet-metal ties/straps driven down between adjacent elements where shown (see Fig. 4).
- 7) Set elements for tight joints: lower the far side first, then drop the full element into place. If joints are not tight, drive/seat the joint until elements close (see Fig. 5).
- 8) Door openings: install form boards at the jambs and underside of the header/beam area to form the cast-in-place concrete columns and lintel/beam (see Fig. 6).
- 9) Top U-channel reinforcement: place reinforcing steel in the U-shaped top channel—typically 4 bars of #4 rebar ($\frac{1}{2}$ in.), with 2 at the bottom and 2 at the top of the channel.
- 10) Concrete for casting: place 4,000 psi concrete with a plasticizer/superplasticizer, using max aggregate size $\sim 5/16$ in. (pea-gravel). Consolidate appropriately without over-vibration.
- 11) Stacked elements: bed stacked courses with a thin grout layer between elements.
- 12) Vertical reinforcement in cast columns: reinforce concrete columns with #3 rebar ($3/8$ in.) doweled/anchored into the slab/foundation per the detail.
- 13) Multi-story / multiple courses: where elements are stacked, run vertical reinforcement continuously up to the top bond beam, and tie it to the horizontal reinforcement in the U-channel.



Convection seal

OptimWall™ wall elements are vapor-permeable and should be detailed as a tight exterior enclosure. Before installing windows, doors, and roof framing, windproof (air-seal) all exposed interfaces—window/door rough openings, top-of-wall coping/bond-beam area, and panel-to-panel joints—to prevent convective air movement through the assembly (see Fig. 7).

Perform the primary convection/air seal using a cementitious stucco/plaster coat at the designated surfaces; remaining exposed areas are sealed as part of the interior/exterior plaster or stucco/render finish system.

