

# Truss Technology IN BUILDING

## Partition Separation Prevention and Solutions (How to Minimize Callbacks Due to Gypsum Cracking at the Wall/Ceiling Interface)

### WHAT IS PARTITION SEPARATION?

Partition separation is cracking that develops in areas adjacent to interior partition wall and ceiling or floor intersections, usually characterized by gaps that open in the winter and close in the summer.

### WHAT CAUSES PARTITION SEPARATION?

#### Building Settlement:

- Footings improperly sized for soil-bearing capacity.
- Shallow footings, subject to freeze/thaw cycles.
- Footings at or near seasonally fluctuating water tables. Many clay soils expand and contract as water migrates in and out. This results in movement of building assemblies and components, which may erroneously be interpreted as roof truss arching.

#### Inconsistent Framing Practices:

- Uneven stud lengths.
- Trusses designed with bottom chord camber may not be dealt with appropriately in the field.

#### Moisture Effects:

- Individual wood members used in a typical platform-framed structure shrink and swell significantly on a seasonal basis, due to changes in moisture content.

#### Deflection:

- When the stiffness of the structural floor framing is insufficient for the applied loads, excessive deflection can occur, and the finish may crack.

#### Truss Arching:

- According to the best available data, roof truss arching is responsible for approximately 20% of the reported cases of partition separation. This movement is typically due to significant differences in the moisture content between the top and bottom chords of the truss. Arching has not been associated with structural problems such as truss failure. In fact, the stresses that cause roof truss arching testify to the structural integrity of metal plate connected wood trusses.

#### Combination of Factors:

- Partition separation is often caused by a combination of these factors.

### PREVENTING PARTITION SEPARATION

Preventive action during construction is the best way to avoid costly repair work.

- In many cases, installing properly balanced attic ventilation helps prevent truss arching. Ventilation exhausts moisture from the air in the attic space. Continuous eave and ridge ventilation is most common; however, it must be properly sized to effectively exhaust the air volume within the attic space.
- A floating gypsum corner should be used, where appropriate. The Gypsum Association's specification for the Application and Finishing of Gypsum Panel Products, GA-216, states that the floating angle method of application is permitted to be used to minimize the possibility of fastener popping and cracking in areas adjacent to wall and ceiling intersections. The details, shown on the reverse side of this document, have proven effective in minimizing these problems.

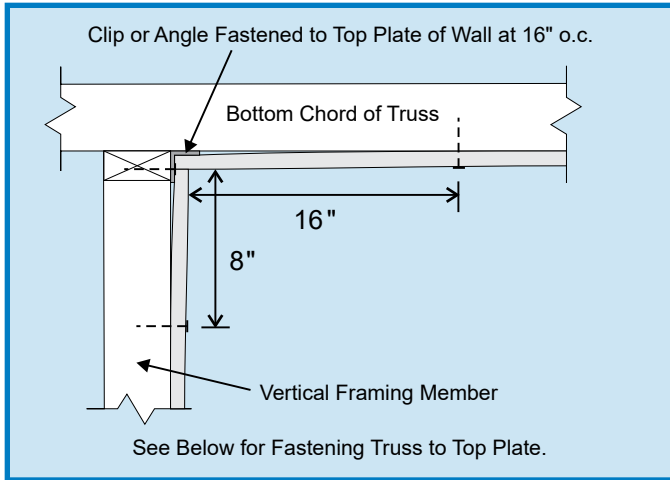
### THE CAUSE OF PARTITION SEPARATION DETERMINES THE SOLUTION!

To correct partition separation, first determine the cause. Check the plane of interior, exterior, bearing and non-load bearing walls, as well as the ceiling, with a builder's transit level or laser level. This will determine what in the building has moved and aid in planning the solution.

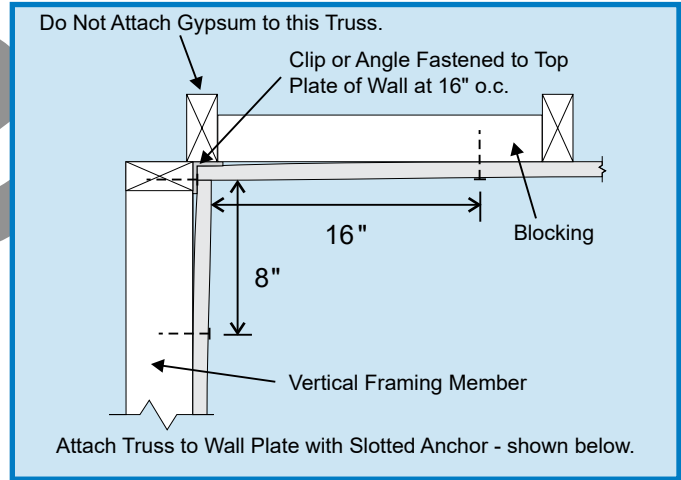
Specific solutions for partition separation should be handled on a case-by-case basis by a qualified building contractor. In the majority of cases, retrofitting floating corners with appropriate back blocking solves the problem.

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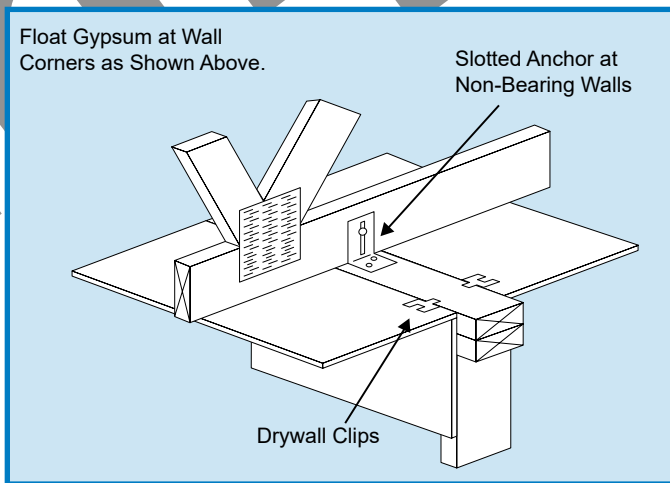
# Preventing Partition Separation



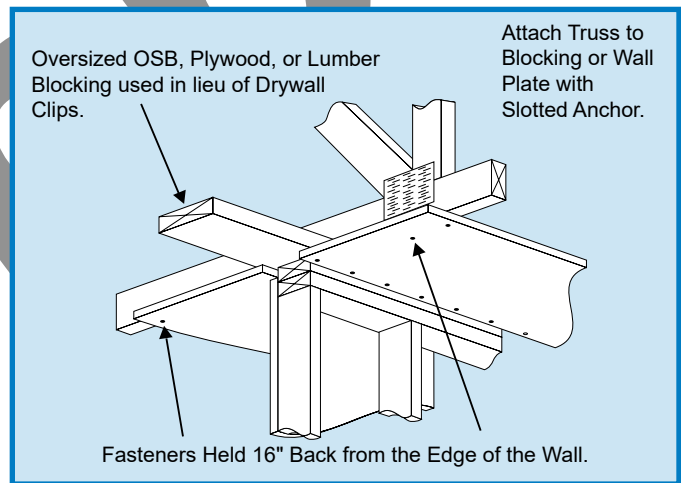
Floating Gypsum Corner I  
(Truss Perpendicular to Wall)



Floating Gypsum Corner II  
(Truss Parallel to Wall)



Use of Drywall Clips and Slotted Anchor  
on Non-Bearing Wall



Back Blocking a Gypsum Corner  
at Non-Bearing Wall

**If this is a fire resistance rated assembly, see the assembly details for the proper spacing of fasteners for the gypsum board.**

Truss manufacturers are unable to prevent partition separation by manipulating production technique, web configuration, lumber grade, species or any other variable within their control. Partition separation is also known to occur in structures where the roof is conventionally framed (stick-framed). Due to these findings, truss manufacturers can assume no responsibility or liability for the subsequent damages in the rare instances where partition separation occurs.

**WARNING: DO NOT CUT, DRILL OR ALTER THE TRUSS LUMBER OR PLATES.**

Under industry guidelines, trusses that have been field altered on the jobsite or overloaded during the installation phase of construction may null or void the truss manufacturer's limited warranty. Check the truss manufacturer's limited warranty for specific information.

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### Truss Technology in Building

An informational series designed to address the issues and questions faced by professionals in the building construction process.

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Job Number:  
SAMPLE

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