

HOW TO AVOID TRUSS UPLIFT PROBLEMS

Technical Tips for Home Building - Compiled by
Ontario New Home Warranty Program

Separation of the ceiling from the wall is an annoying but all-too-common problem. Its main cause is a normal phenomenon called truss uplift. It cannot be prevented - but its nasty side effects can be controlled by:

- Providing Adequate Ventilation
- Floating the Trusses and the Drywall
- Good Design

As prefabricated roof trusses dry, they shrink. Since the bottom chord is surrounded by attic insulation, it's warmer and drier. Therefore it may shrink more than the other chords. The top chords may actually lengthen in some circumstances, if they absorb moisture.

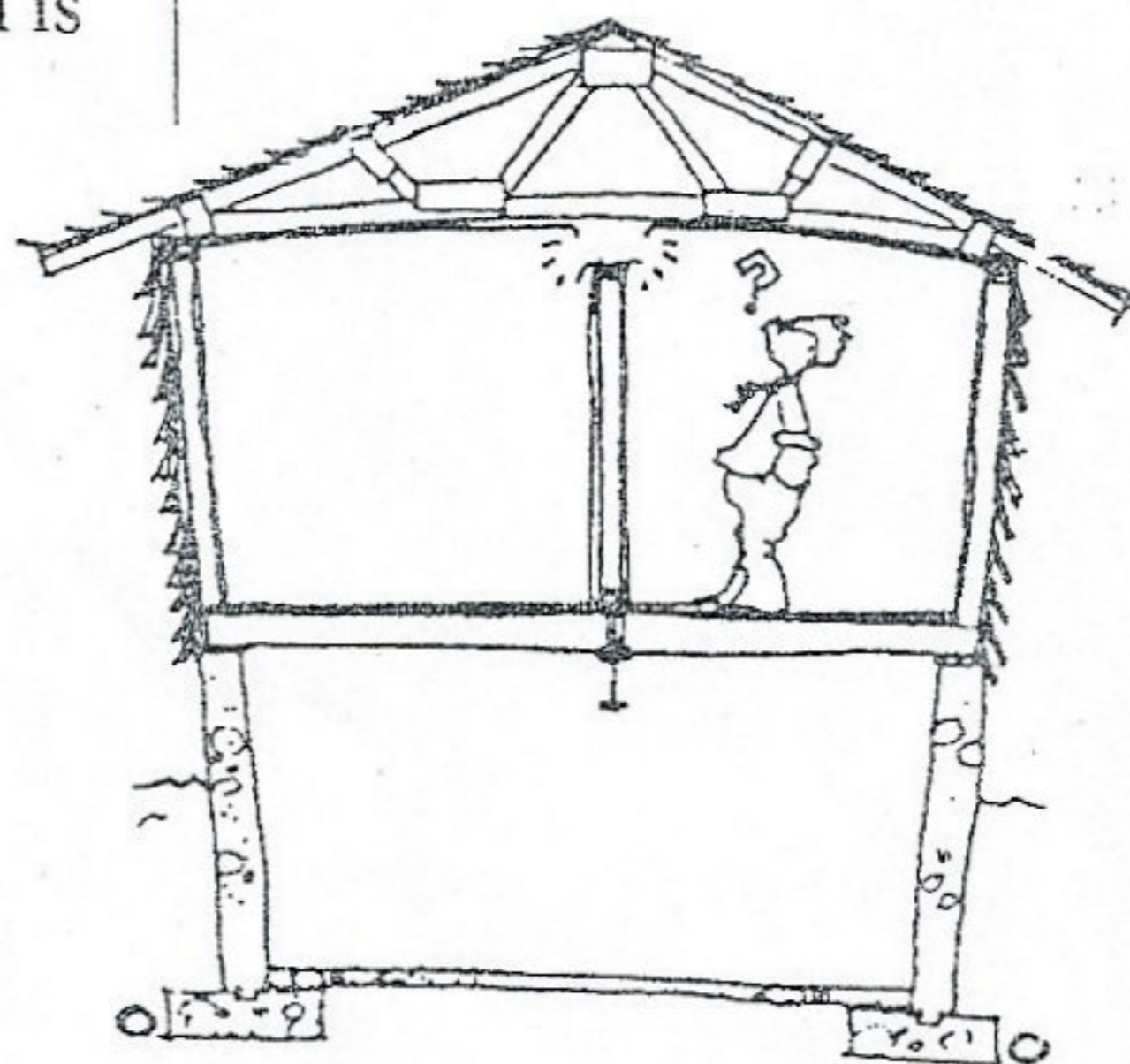
Field tests show that differential shrinkage between top and bottom members causes the entire truss to bow upwards - and if the drywall is attached to the bottom chord too close to the partition, this upward truss movement will crack the drywall. Therefore, cracks at the intersection of the ceiling and interior partition may open during the winter and close in the summer, because the truss is never completely stationary.

Such problems are worse during the first year after construction, when most drying of the structure takes place.

You can recognize truss uplift by the characteristic separation of the drywall at the ceiling wall angle. The ceiling lifts with the truss, away from the interior partition. If the truss is secured too tightly to the partition, it lifts the entire wall, and separation appears at the floor level.

To prevent truss uplift during construction, try these techniques. They are all used by contractors, and they work.

- Float the trusses by using brackets with a vertical control slot rather than toe-nailing the truss to the wall top plate. This will also provide lateral support to the interior wall.
- Attach clips as a backup for all drywall corner joints involving interior partitions.
- Do not reduce the amount of insulation in order to expose the bottom chord.



- Ensure that adequate air flow is maintained at the eaves.

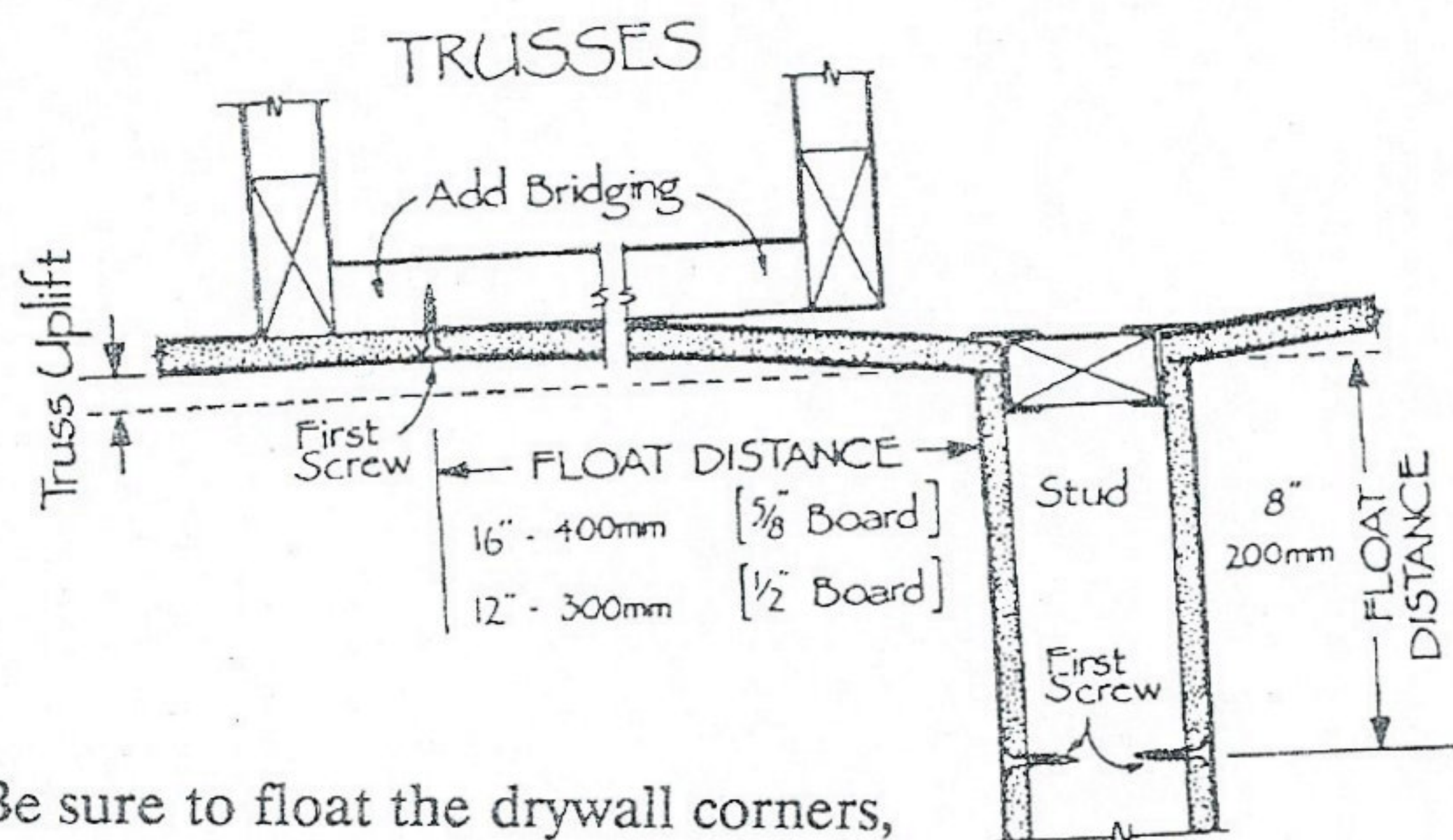
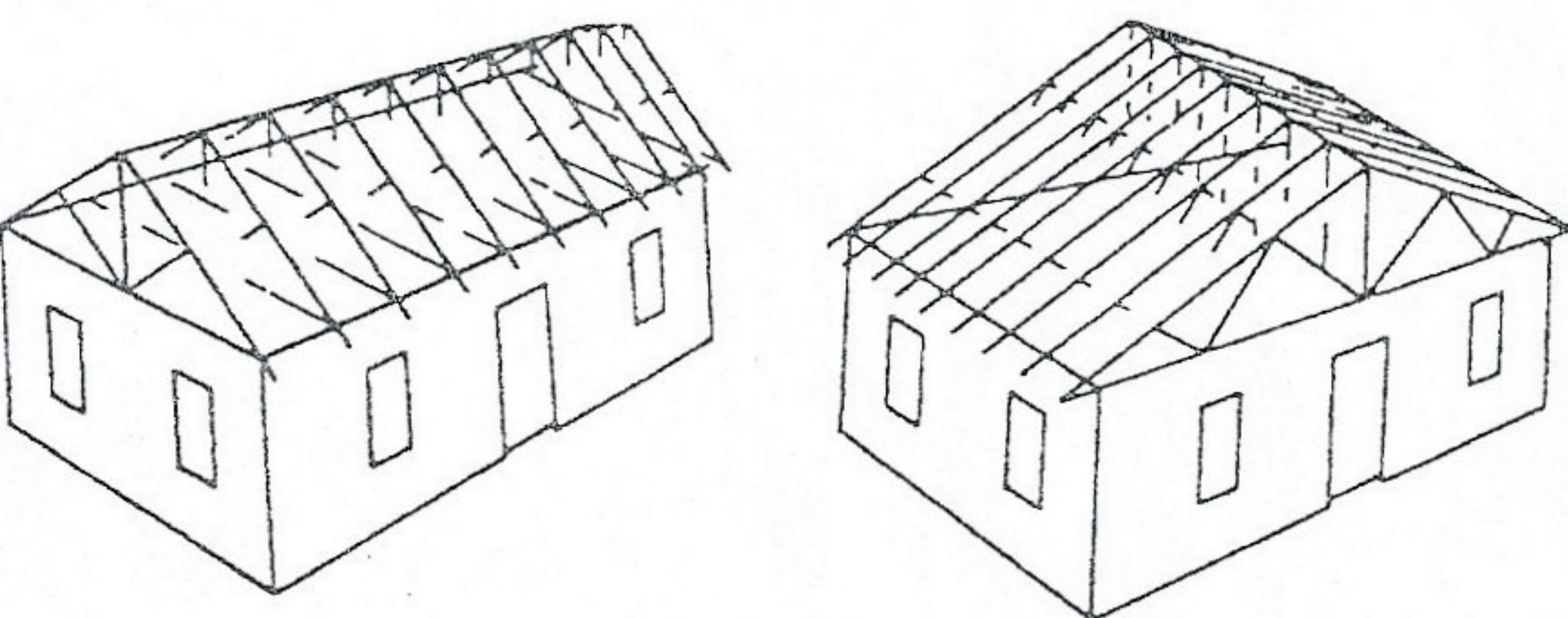
- Float the drywall corners. It is vital that the recommended ceiling float distances of 12 inches and 16 inches (for 1/2" and 5/8" drywall respectively) be maintained. For walls, the proper distance is eight inches from the ceiling.

Careful material handling before construction can also prevent or minimize truss movement. Arrange for the trusses to be delivered to the site just before they're needed, so you don't have to store them on-site. If on-site storage is unavoidable, store the trusses upright with bracing, or horizontally, with adequate blocking.

During construction, there are other things you can do to prevent the problem.

First, specify the use of dry lumber. S-dry graded lumber has a maximum of 19 per cent moisture content, and will shrink less.

Wherever possible, the truss should span the width rather than the length of the structure. The reason: a shorter truss will not lift as much as a longer span will. If long spans are unavoidable, use mono pitch trusses. Smaller trusses will shrink less.



Be sure to float the drywall corners, as shown. It is very important to use the recommended float distances in order to achieve a proper result.

When it's too late for prevention

If truss uplift has already occurred, the truss will probably continue to move up and down with the seasons. Therefore, just retaping the crack will not be a satisfactory solution. More positive action is needed.

If fasteners, nails or screws have been used on the ceiling closer than the recommended float distances, a floating corner can be created by driving these fasteners completely through the drywall into the truss chord. (Screws may be removed.) Then attach a cove moulding to the angle by fastening it through the ceiling into the truss. Do not attach this moulding to the partition.

When the truss moves again, the cove moulding will simply move along with it and the crack will not be noticeable. If possible, attach the moulding when the crack is at its widest, generally during the winter months.

If the ceiling is sprayed with textured finish material, scrape around the ceiling perimeter with a flat-bladed knife, making a flat area extending out from the wall toward the centre of the ceiling. This is usually two to four inches wide, depending on the size of the room and your own preferences. This way, if cracking occurs, it will be easier to repair it without affecting the textured finish and with a minimum of mess and inconvenience. ■