KIRK N. ELLIS & ASSOCIATES
STRUCTURAL & CIVIL ENGINEERING, LTD.
245 East Liberty Street, Suite #425
Reno, Nevada 89501
Phone: (775) 322-7723 - Fax: (775) 322-5372
http://www.kneassoc.com

DATE: 02/05/2010	**JOB #:** 1309
PROJECT: Vicks Residence	
LOCATION: 2445 Faretto Lane, Reno, NV	
CONTRACTOR: Wasik Construction	
OWNER: Steven & Jackie Vicks	
WEATHER: Scattered Clouds	
TEMP: 40°F	**TIME:** 8:00AM
PRESENT AT SITE:	
Wasik Construction	
Brian Wilcox – Kirk N. Ellis & Associates	

TO: Steve & Jackie Vicks

50 Bret Harte Avenue

Reno, NV 89509

CC: Terry Wasik

Report Date: 02/10/2010

As part of Kirk N. Ellis & Associates Construction Phase Support, this office went to inspect the current state and quality of construction at the residence located at 2445 Faretto Lane, Reno, Nevada.

The following was noted:

1. The basement and first floor appeared to have been completely framed and progress was being made to complete construction on the second floor. See Figure
2. The Simpson H1 Hurricane ties that were previously mentioned in the Field Report dated 01/07/2010 are still installed on the interior face of the garage. See Figure 2. This is contrary to the structural drawings. Refer to detail 1/S4.3. The H1 is ineffective on the interior face of the structure unless the (2) 2x6 top plates are also connected directly to the studs adjacent to the connection point. If the contractor wishes to continue connecting the H1's to the interior, he will need to request a change and additional hardware will be required.
3. The first floor appeared to be fully sheathed and nailing appears to be in compliance with structural plans and specifications.
4. The first floor sheathing had been painted to prevent further water damage. While this can be an effective method of moisture mitigation, not all nooks and crannies were sealed. The TJI's below have experienced some water exposure. See Figure 3. TJI's are made of an engineered material that is not designed for prolonged

FIGURE 1 – PROGRESS OF STRUCTURE.

FIGURE 2 – H1 HURRICANE STRAPS INSTALLED ON THE INTERIOR FACE OF WALL.

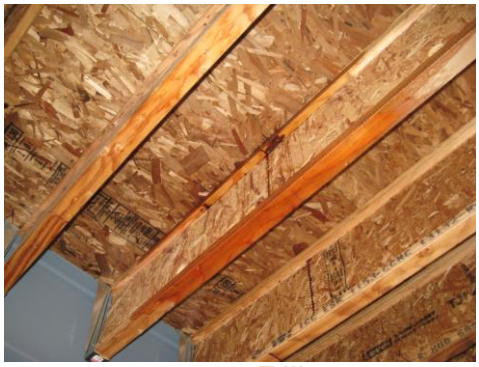


FIGURE 3 – WATER ON TJI'S

moisture exposure. Please verify with supplier that manufacturer's warranty is still valid.

5. The water leaking down through the painted floor sheathing above revealed that there may be a floor slab levelness issue with the garage slab below. There is some pooling (as deep as ¾ to 1-inch) in the center of the slab. See Figure 4.

6. Sheathing panel blocking has been installed per structural plans. Most full height walls have the appropriate plate breaks per structural plans. See Figure 5. There is one section, however at the stair well that full height studs were used with no plate break provided. See Figure 6.

7. One of pre-manufacture wood roof trusses has been damaged on at least one ply. See Figure 7.

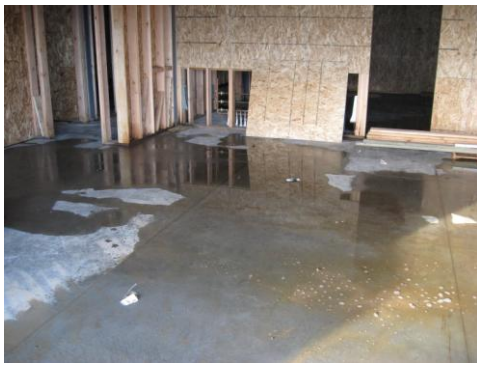


FIGURE 4 – WATER POOLING AT CENTER OF SLAB.

FIGURE 5 – FULL HEIGHT WALL STUDS WITH PLATE BREAK AND BLOCKING.

KNE Discussion

In general, the construction of this residence is proceeding in compliance with the structural designs, plans and details. There are, however, a few items that must be addressed.

As previously mentioned in the Field Report dated 01/07/2010, the Simpson H1 Hurricane Ties that connect the Pre-Manufactured Wood Roof Trusses to the double top plate are not installed on the exterior face of the structure as specified in

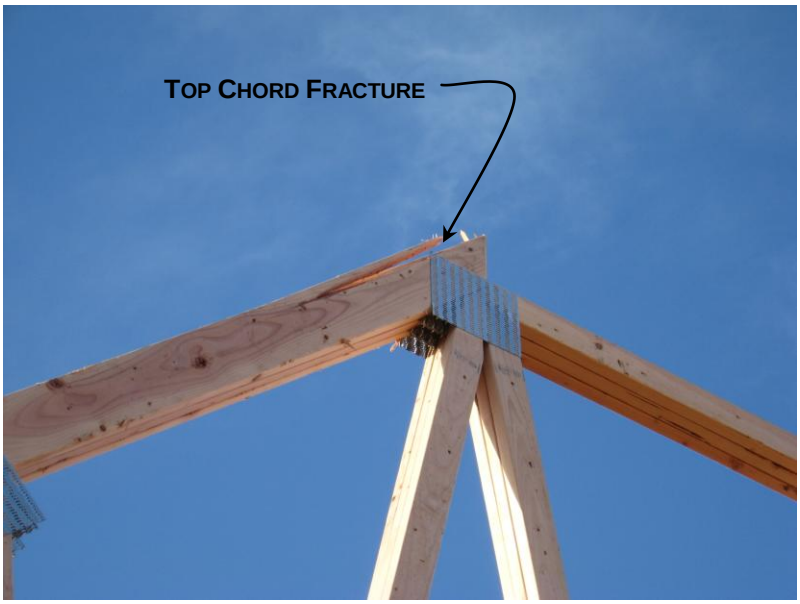


FIGURE 7 – PRE-MANUFACTURE WOOD ROOF TRUSSES WITH DAMAGE.

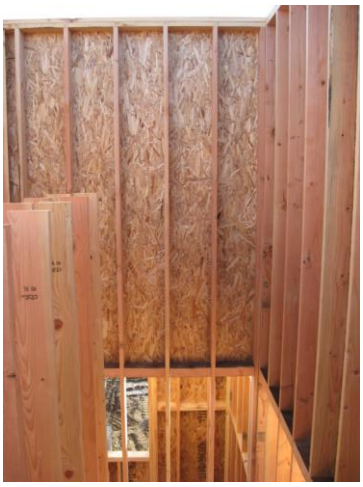


FIGURE 6 – FULL HEIGHT STUDS WITH BLOCKING AND NO PLATE BREAKS.

KNE detail 1/S4.3. This renders the specified connection deficient as it changes the failure point to a very weak spot. The original design intent is to engage the sheathing, and therefore the entire shear wall, with the load imparted by the wind uplift. These loads then would be transferred into the footing and equalized. By relocating the hurricane tie to the interior of the structure, opposite the side of the stud that is sheathed, the uplift force is no longer transferred into the studs or even the sheathing. The uplift force works on the double top plates and, without any sufficient connection from the top plates to the studs, may cause a premature failure in the double top plates. If Wasik Construction intends to leave the H1's on the interior of the structure, mechanical connections that tie the top plates to the studs would be required, i.e. SP2 or similar every stud to the top plates. Once the full capacity of the stud is engaged, the sheathing in turn will be engaged and the shearwall can then properly resist the calculated wind uplift forces.

At most locations, the structural details, in regard to full height studs, are being followed. It is necessary for all studs to be broken at the floor level and a double top plate installed at the joint. This allows the double plates to act as a wind beam for pressure or suction perpendicular to the plane of the wall. When a stud is run full height with no additional support from a double plate wind beam, it doubles the load on the stud and dramatically increases the deflection and bending the stud endures. While it is true that the stair landing may be designed to brace the surrounding stair walls, the total length of unbraced studs exceeds original design calculations. **Please advise KNE if a redesign review is to be performed, or if Wasik construction wants to reconstruct the aforementioned walls.**

The TJI's and Pre-Manufactured Wood Roof trusses are designed and engineered by a third party. Typically, neither of these systems can sustain extended exposure to moisture or fractures in designed members. The TJI's in the first floor have experienced several winter storms. It appears that Wasik attempted to "seal" the floor sheathing to protect the sheathing and underlying structural components from prolonged moisture. This method appears to have been mostly successful. There are a few locations where the latex paint was not enough to inhibit moisture movement. The manufacturer(s) should be contacted to conduct an inspection of their product and suggest any repairs if required. The Pre-Manufactured Wood Roof Truss manufacturer should also be contacted about the fracture in the top chord of their girder truss. They should either provide KNE with a revised calculation indicating this fractured member is sufficient for the load imparted, or with a "wet-stamped" repair calculation.

The moisture exposure also caused some very minor warping in the floor sheathing. It is our opinion that is has not reached a point of sheathing failure. The minor warping will probably be hidden by the light-weight concrete and radiant floor that will be installed at a later date.

The garage slab is not exactly even or level. There was significant ponding in the garage with water depths at up to approximately ¾ to 1-inch. This area should experience little or no exterior exposure and the ponding is not a problem structurally, but might be a concern for the owner. The owner may wish to investigate this further.

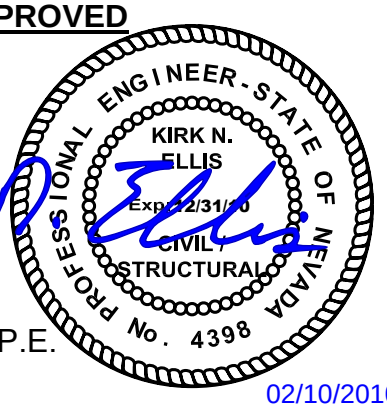
If you have any questions or comments, please feel free to call.

Sincerely,

KIRK N. ELLIS & ASSOCIATES
STRUCTURAL & CIVIL ENGINEERS, LTD.

Brian Wilcox
Structural Inspector

REVIEWED & APPROVED



Kirk N. Ellis, S.E., P.E.
President
02/10/2010

Enclosures:
Contact Sheets of all Images taken at the Site (7 Sheets Total)

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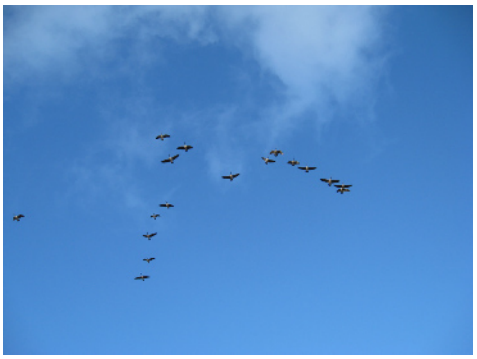

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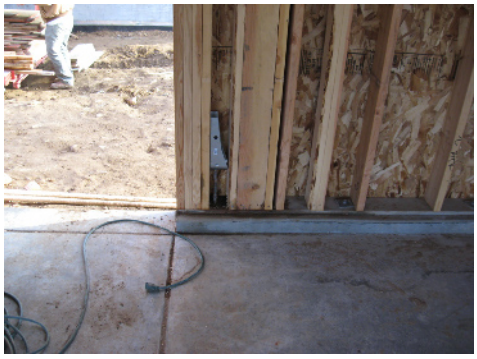

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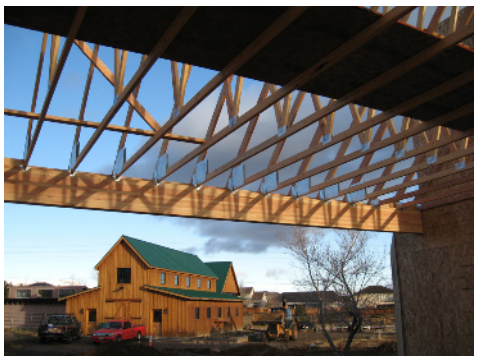

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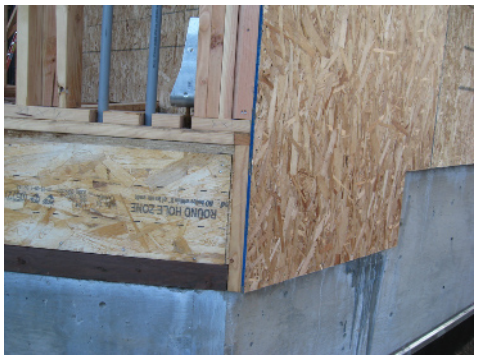

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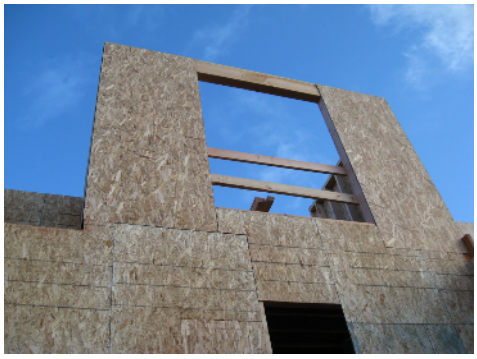

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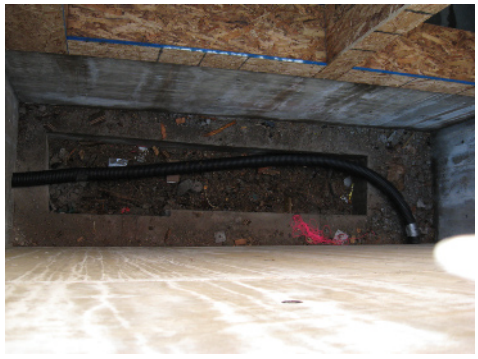

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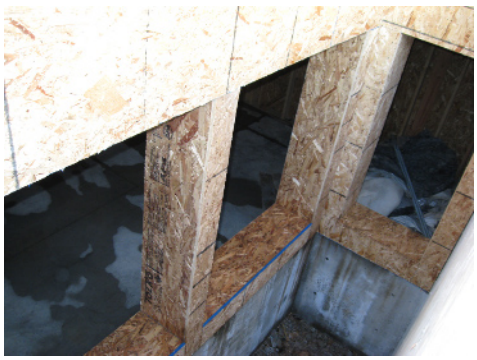

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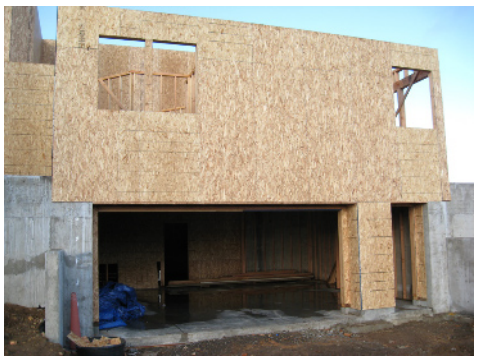

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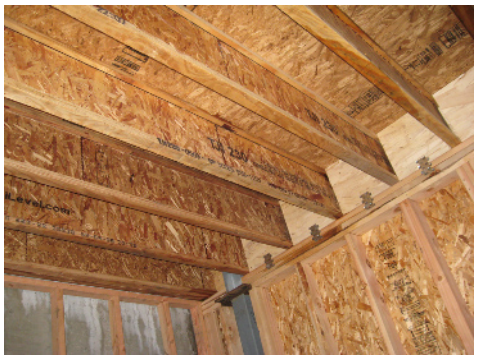

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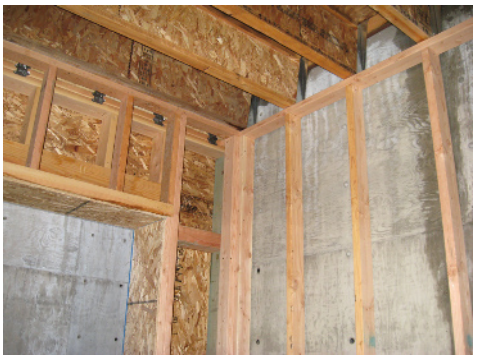

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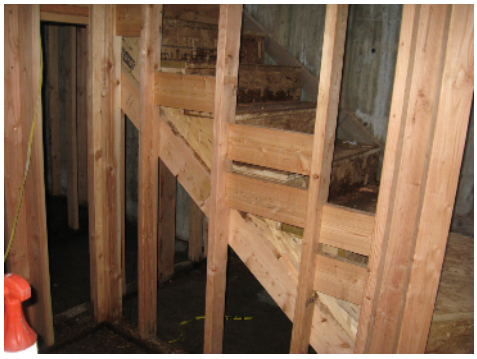

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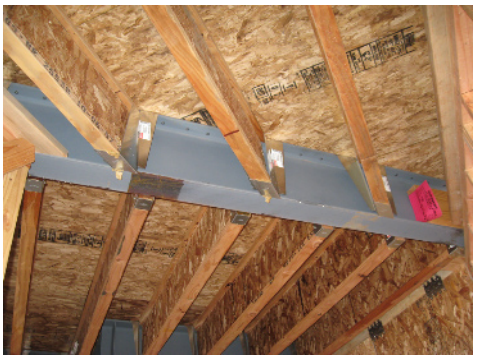

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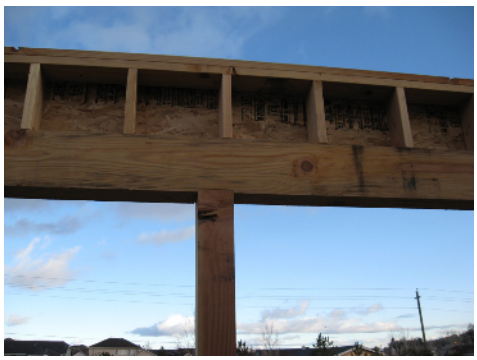

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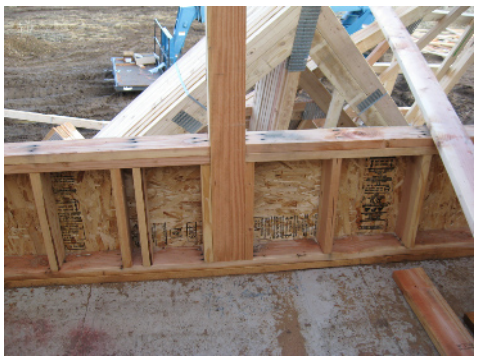

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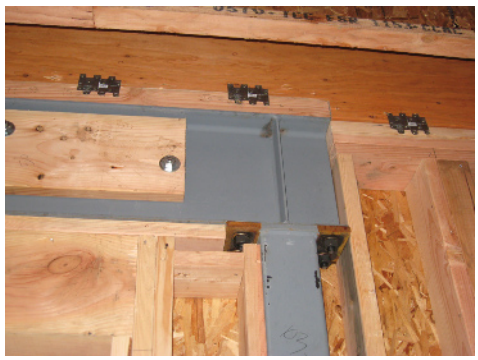

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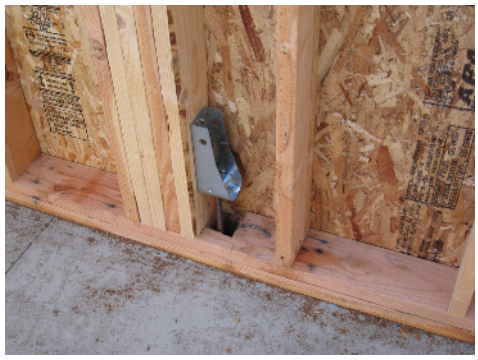

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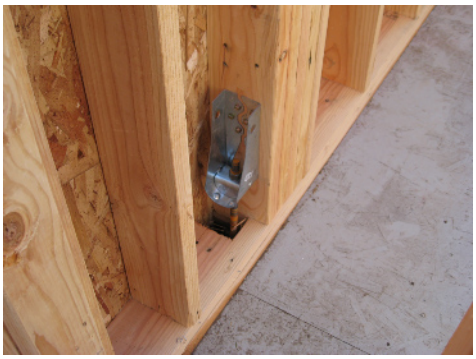

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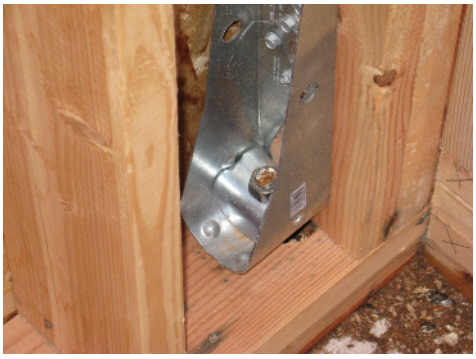

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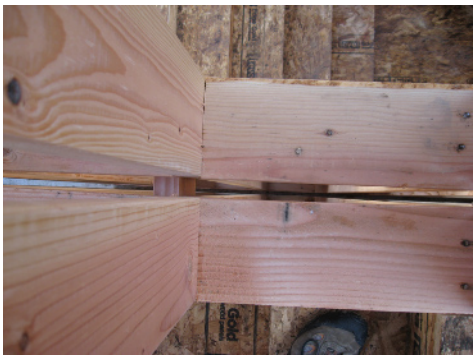

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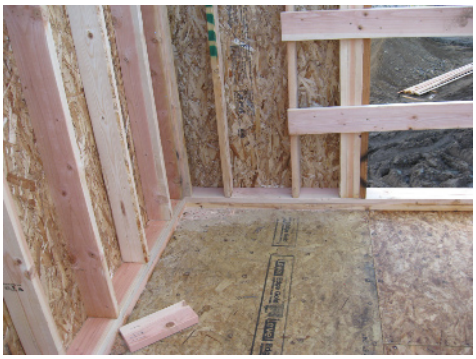

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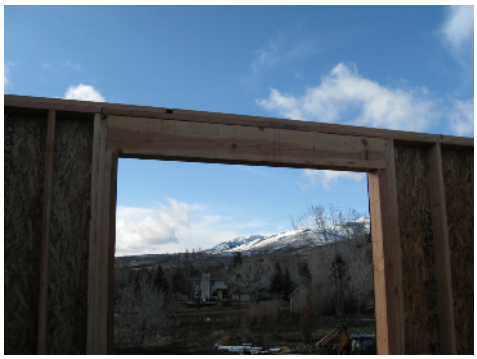

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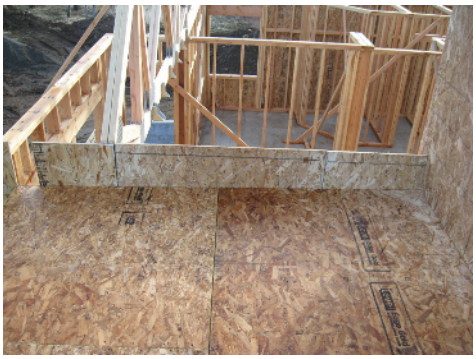

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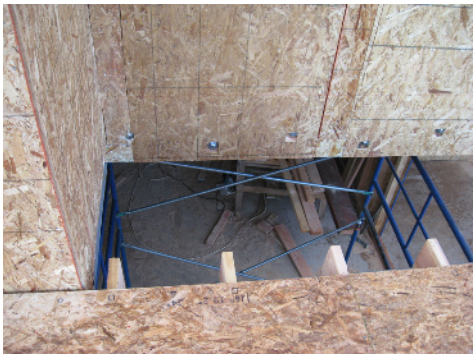

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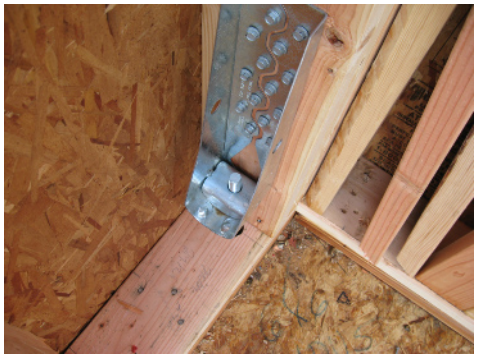

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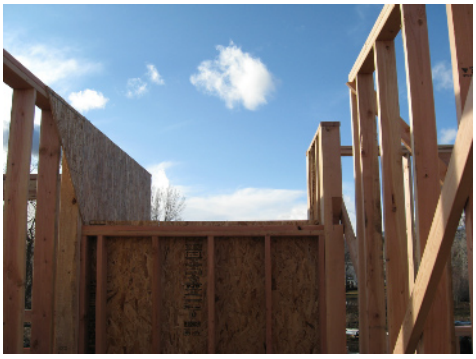

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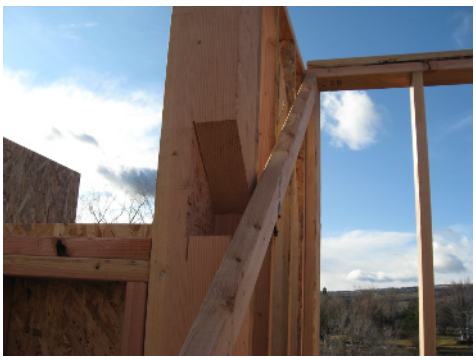

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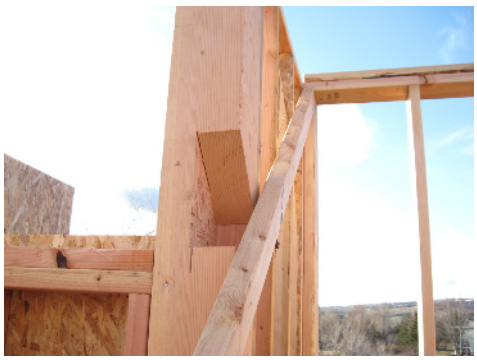

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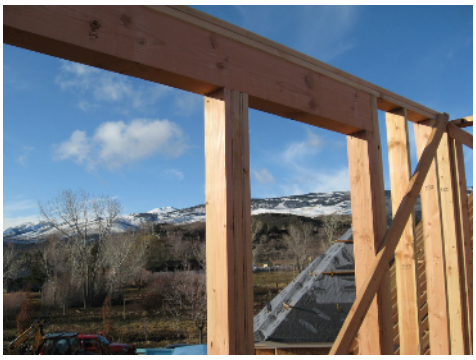

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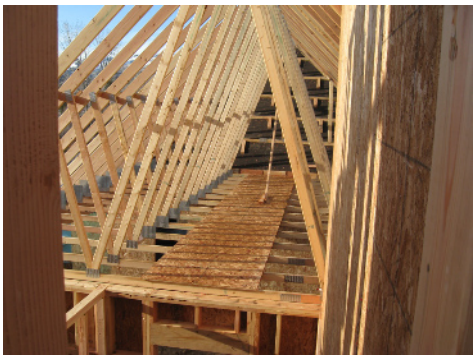

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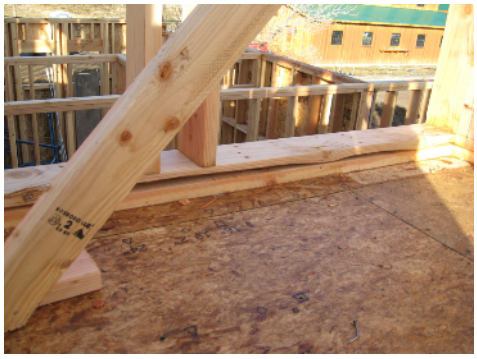

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