



Ed Cross
President
Centennial Home Owner's Association
c/o First Choice Property Rentals
0252 Corywell Ridge Road
Glenwood Springs CO 81601

August 20, 2009

Regarding: Centennial Site Report

Ed:

Per your request Dodson Harper and I visited the Centennial Housing Complex in Aspen Colorado on August 17 & 18, 2009. At the time of our visit repairs were being performed on Unit 314 & 316. The siding, exterior gypsum board, and sheathing had been removed on the south and east facades of unit and the west façade of Unit 316. Some of the interior drywall had also been removed in Unit 316. We also toured the exterior of the seven buildings comprising the Owner Occupied portion of the complex and a cursory tour of the rented buildings.

Scope of Work

Our scope of work is to investigate structural issues and how the required repairs may be included in the plans for energy efficiency upgrades to the buildings. This report details our observations and recommendations for the next steps in this process.

Observations

Observations in the open walls of Units 314 & 316:

- The areas of exterior wall that were open for observation showed multiple structural members with significant moisture damage. It appears the predominant cause of this damage is poor waterproofing details in the original construction. This damage extends to the foundation level in many areas.
- The flooring in the kitchen of Unit 314 has swelled due to moisture and created an uneven surface. It appears this is from moisture transported through the structural system from the exterior wall.
- The exterior shower stall wall in Unit 314 was open for investigation and showed signs of moisture damage both of the exterior moisture issue and from improper moisture detailing for shower stall construction.
- There is some moisture damage from a leaking drainpipe in the common wall between Units 314 & 316. However, the structural system in this area is mostly intact.
- We also observed conditions in the crawlspace under this building. In the crawl space, the sill plates of the east facing walls on the north side of the building showed signs of moisture damage and rot. A few joists showed signs of surface mold. One LVL beam showed extensive rot on one end, and others had signs of moisture damage. The air in the crawlspace

was damp and most of the passive vents were covered with batt insulation. It appears this is typical of all the crawlspaces.

General observations from the Owner Occupied buildings (92 units total):

- Buckled siding boards
- Nails popped out of siding (some were rusting)
- Gaps between siding and flashing
- Flashing installed incorrectly
- Flashing details that were improperly designed
- No flashing for any windows, doors or vent penetrations. Exterior penetrations appear have been addressed with caulking during the original construction. This method of waterproofing has a typical life span of around seven years and is not considered adequate for maintaining a drainage plane, even when freshly installed.
- Some units had made minor repairs to deal with extensive ice damming (metal siding, heat tape, etc).
- Beams supporting deck roofs and deck glulams on decks showing extensive rot.
- The typical exterior wall assembly varies somewhat, but consistently includes a vapor barrier on the interior face of the studs and a layer of drywall beneath the siding. The drywall is not protected from moisture, and therefore absorbs a large amount of moisture. Moisture is held in the wall cavity by the outer drywall and sheathing layer and interior vapor barrier.

From our conversations with Lance Sigley of Kauri Construction (and crew), and photos Lance had taken, these conditions were similar to those found outside of Unit 314 prior to removal of the wall assembly. This leads us to believe that the conditions found at Unit 314 will likely be found in most of other buildings and units. We did observe a few walls that appear to be in better condition, as well as areas that are clearly in worse condition. However, without removal of siding on each individual wall, the precise level of damage to the structural systems cannot be known.

Recommendations

Our recommendations for moving forward include:

- For recommendations regarding the repair of Units 314 & 316 see our letter titled "**Centennial Housing Unit 314 & 316 Site Observations,**" from August 2009.
- Remove siding on all units in the complex to inspect the level of moisture damage to the structure and repair and replace damaged members. A local inspector should be hired during this time to inspect units on a case-by-case basis to specify which members should be replaced.
- Mechanically vent all crawlspaces for proper humidity control.
- Remove all roofing material to allow for the installation of proper flashing detailing. At this time the roof sheathing would also be inspected. The attic spaces of all units should be inspected for signs of moisture damage on the under side of the sheathing.
- Remove and replace any damaged members in the porches and decks.
- When the wall and roof structural systems are exposed, new waterproofing/flashing details must be installed to prevent moisture damage in the future. These details will need to be provided by the Architect and/or waterproofing specialist.

- Contract with mold mitigation specialists to investigate the level of mold issue in the buildings and determine the proper remediation steps as needed. Based on the observations and report prepared by DS Consulting of the mold conditions found in Units 314 & 316, it is possible that mold could be found in many of the units within the complex.
- We recommend that similar steps are taken at the rental properties adjacent to the units that are part of the HOA.

All of the above recommendations should be done as soon as is feasible.

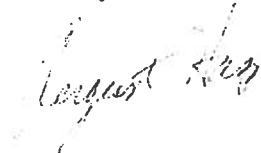
In our opinion, the moisture damage observed is primarily from poor design and installation of flashing and other waterproofing details, not a lack of maintenance. These details (or lack thereof) have resulted in water flowing within the wall cavity [Lance Sigley has photos documenting this effect] during moisture events (rain and/or snow melt). The wall assembly cannot properly dry out between moisture events, this condition has been largely masked for over two decades by the choice of redwood for siding. Redwood is naturally very resistant to moisture damage and therefore effectively hid the issues within the structure resulting in the possible wide spread damage currently in place.

We will work with you, the Centennial HOA construction committee, Seth Hmielowski (Architect), DS Consultants (mold specialists) and Lance Sigley (Contractor) to determine the best path forward and help determine cost estimates for the work required. The current work underway at Units 314 & 316 will provide an average cost per square foot number that can be extrapolated and adjusted as a reference for estimating. We will also work to incorporate the parallel goal of increasing the energy efficiency of the units to lower the Owner's annual operating costs.

I have included a selection of photos to illustrate some of the typical conditions found in our site visit.

Please feel free to contact us further if you have any additional questions.

Sincerely,



August Hasz, PE