



Gavin Central Elementary School

Observations related to Annual Roof Truss Inspection by Legat Architects

Date: 12/22/2008

Time: 8:00 a.m. – 4:00 p.m.

On-Site during Inspection:

Ted Haug; Legat Architects

2 Interns; Legat Architects

Steve Wright; DLA Architects

Jeff Borst; Pease Borst & Associates

During the course of the Truss Inspection performed by Legat Architects, 2 breaks; one full and one partial were found. The suggested fix for the trusses will be presented by Legat Architects under separate cover.



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DLA Observations and Recommendations:

During the normal course of review of the bottom chords of the trusses, it is necessary to displace the blown-in insulation between the trusses in order to observe the bottom chords. The displacement of insulation creates various mounds of insulation and has the appearance of hills and valleys in the insulated attic space being observed. ***In order to better maintain an evenly insulated attic, it recommended that the insulation be respread in an even manner and to a level consistency.***



Secondly, there were about a half-dozen areas throughout Modules A & C (Classroom Wings North and South, respectively) where there are sections of drywall that have fallen from the bottom chord of the trusses and are now resting on the ceiling grid below. These areas for the most part are within 3' – 4' from the catwalk that is centered on the hallway below in each wing. If left in the current condition and especially with the current weather conditions, there is a possibility that the sprinkler system in the corridor will be exposed to severe cold temperatures and runs the risk of freezing which could cause a pipe or sprinkler head to burst. ***In order to maintain an evenly insulated attic and reduce exposure of the sprinkler piping to extreme temperatures, it recommended that the broken sections of drywall be removed and replaced as well as additional insulation installed to replace the insulation that has fallen out of the attic space into the space above the corridor ceiling.***



As noted above, during the normal course of review of the bottom chords of the trusses, it is necessary to displace the blown-in insulation between the trusses in order to observe the bottom chords. While it appears that perimeter insulation baffles (which allows the transfer of air into the attic from the eave so the building can "breathe") have been installed along the full perimeter, there are areas that appear to have an over-abundance of insulation stacked as high as the underside of the roof; thus obstructing the required air-flow. This is likely the result of observation activities and displacement of insulation. While present in both Modules "A" & "C", this condition was more noticeable in Module "C". ***It is recommended that the existing insulation that is obstructing the air flow be pulled back from the eave to allow adequate flow. When corrected, a consistent line of light should be able to be observed along the perimeter of eave when there are no flashlights or other sources of light on in the attic space.***

The following comments are Preliminary Observations from Jeff Borst of Pease Borst & Associates:

Damage that was discovered on the two truss bottom chords is similar to the type of damage that was found during the original observation and repair effort. The repair proposed for the two recently discovered fractures is consistent with that of the original repair protocol.

As to protocol:

- Every eighth truss was observed in Modules A and C, which equates to approximately 12 of the 100 or so trusses in each module.
- Each of the previous inspections has looked at a different set of 12 trusses.
- The trusses were observed by a crew of two individuals that spent approximately 5 - 6 hours up in the attic space.
- Assuming 12 inspected trusses per module times two modules that is a total of 24 inspected trusses in 12 total man hours, or one truss every 30 min.
- The original inspection of Modules A and C completed in March, 2004 by PB&A required a total of +/-300 man hours for the full 200 trusses, or one truss every 90 min.
- The current environment of the attic is less conducive to observations due to the added bracing, strong backs and amount of blown in insulation that when the building was first observed in March, 2004.
- At the exterior limits of the building, where the truss geometry makes it difficult to observe from within the attic space, 2' x 2' access ports have be provided for viewing from below. The ports are located anywhere from 5' - 8' from the exterior wall and the current observation consisted of visually observing the truss bottom chord for the limits of the port and "feeling" for truss damage another +/-12" beyond those limits. In summary, the last 4' - 5' of the trusses do not get observed by this process.

Jeffrey Borst

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