

Building 3008
Hangar 3



Photo #1 – Exterior View, West Side

Year Built: circa 1943
Truss Construction: Wood Bowstring
Building Const: Wood
Roofing Material: Torch-down Membrane, Fair
Overall Condition: Poor
Repair Need: **Replacement Needed**

Building 3008 is a timber frame structure utilizing a unique bowstring truss design supported by columns in the exterior wall. The trusses are placed every 25' on center and transfer both the vertical and lateral loads through the structure.

The trusses vary from poor to fair condition with many of the truss connections showing signs of having been overstressed (as indicated by the broken truss chords). A design analysis “Hangar Bowstring Truss Repair, Fort Wainwright, Alaska” dated June 24, 1987, by Loftus and Dailey, Inc. outlined general truss repairs for Hangars #2 and #3 (Hangar 6 has been replaced). The report noted that some of the truss members were overstressed from 30 – 50% and the trusses as a whole were near their load-carrying capacity. Specific repairs to each truss were outlined in a final report issued October 2, 1987 for Hangar #3. Current inspection of the trusses in Hangar #3, like Hangar #2, show that many of the checks, splits and cracks noted in the report dated June 24, 1987

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still exist. It was not possible to determine whether these have deteriorated since the 1987 inspection. The structure is currently in poor condition, even with the repairs done to the trusses. Deficiencies noted include poor condition of the trusses and removed lateral bracing along the south side of the hanger. The expense of repairing these connections to current design requirements would require that substantial demolition be done to replace the affected trusses. Replacement of this building should be strongly considered.

Engineering Mitigation Recommendation:

This building has substantial structural deficiencies and needs replacing as soon as possible. It is recommended that snow not be allowed to accumulate on the roof. Though repairs were been done in the late 1980's, it is questionable as to whether or not they have improved the strength of the trusses to current life safety requirements. Many of the truss connections are beyond rehabilitation. Recurring inspections of the deficient truss members are recommended as long as this building is occupied. Repair and/or replacement of the exterior catwalks and eyebrow roofs over the hanger door openings are recommended if this facility is to continue to be used. The low eyebrow roof shingles over the hangar doors need to be replaced to prevent decay of the framing at the ends of the building. The North entry canopies are dilapidated and need repair (see photo #13). Loose roof slats have become a falling hazard (see photo #9). Also, loose bolts were noted during the 1987 inspections and identified as needing tightening. Loose bolts at wood connections were also encountered during this current inspection and also need to be tightened.

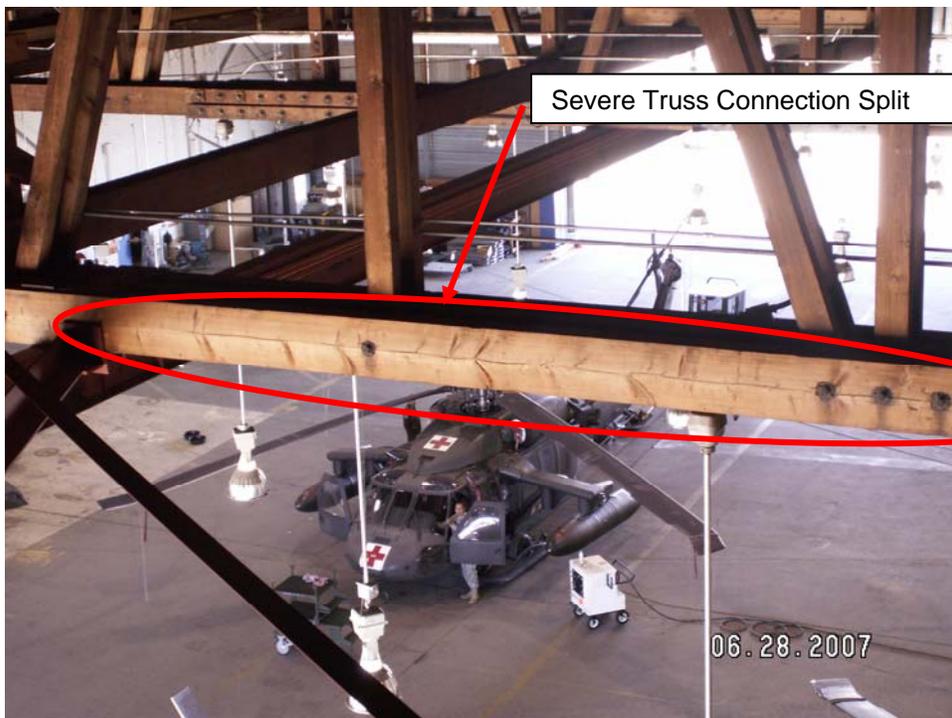


Photo #2 - Split Truss Connection

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Photo #3 - Broken truss chord.

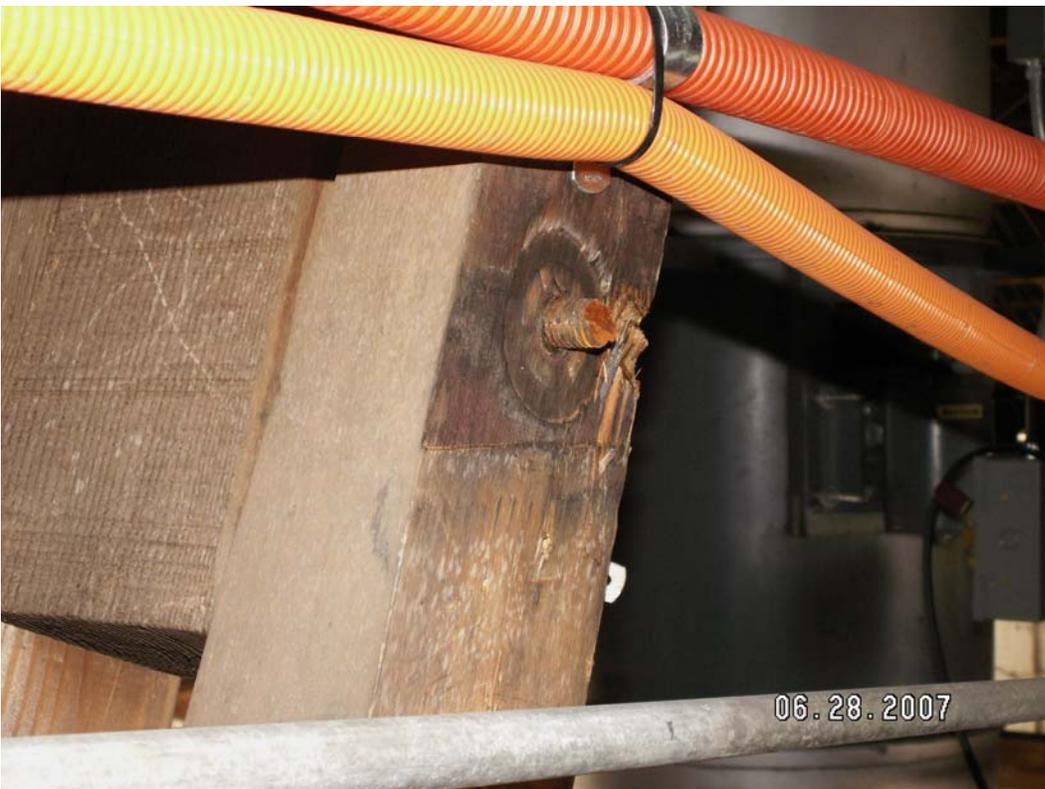


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Photo #4 - Split through truss top chord panel point connection.



Photo #5 - Loose bolts.



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Photo #6 - Nut removed to install wiring.



Photo #7 - Split cross bracing connection



Photo #8 - Removed lower cross bracing

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Photo #9 - Attic space over office space on North side of building.



Photo #9 – Loose slats on underside of roof are a falling hazard.

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Photo #10 - Hangar roof membrane condition.



Photo #11 - Exterior catwalk condition.

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Photo # 12 – Eyebrow roof shingle condition.



Photo #13 – North canopy condition.