Amore Engineering, Inc.
Structural Engineers

memorandum

To: Robert Miller FAIA, R. Miller Architecture

CC:

From: Glenn Amore P.E., Principal

Date: December 17, 2008

Subject: Fire damaged structures

Project #: 08-066 - RMA - Sanford Housing Authority

On December 8, 2008 we had looked at three buildings (Units #33/#34,#37/#38, #39/#40) that were fire damaged.

It appears that these buildings were originally constructed in the 1950's or early 1960's. The perimeter walls are constructed using masonry with a stucco finish. At one location we were able to observe that concrete tie beams were installed at the roof level. The roof trusses consist of 2x framing members that were bolted together to develop the truss profiles. It appears that the pitch of the roof trusses is 4/12.

Building #33/#34:

- Of the three buildings, this building had the most damage. The heat of the fire melted the aluminum window frames.
- The majority of the roof assembly is severely damaged and needs to be demolished and replaced.
- The damage to the walls was difficult to assess during this visit. It is my opinion that the walls may be salvageable. The interior of the building will need to be gutted up to the inside face of the walls. Once demolition is complete; another site visit will need to be performed to assess the condition of the walls.

Building #37/#38:

- Approximately half of the roof structure has been severely fire damaged. It is my opinion that all of the trusses should be removed and replaced.
- It's my opinion that these walls may also be salvageable. The interior of the building will need to be gutted up to the inside face of the walls. Once demolition is complete; another site visit will need to be performed to assess the condition of the walls.

Building #39/#40:

- This building seemed to have the least damage of the three buildings. It appears that the fire started at the end of the building working its way to the other side of the building.
- It's my opinion that all of these trusses should be removed and replaced.
- My opinion regarding the walls is the same as the last two buildings.

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Conclusions:

1. None of the buildings comply with current code standards. Structurally speaking, the trusses and walls will need to be brought up to current code standards during the restoration process.
2. When these building were originally constructed, masonry filled cells were rarely used. It's my opinion that these walls could be retrofitted using grout and rebar to comply with current standards. As previously mentioned, the building interiors will need to be gutted to the inside face of the masonry walls. The walls at this point will need to be evaluated for fire damage. Some of the walls may need to be replaced due to fire damage.
3. The cost to salvage, repair and retrofit any "suitable" remaining roof trusses would easily exceed the cost of replacing the trusses with new trusses. Each individual truss would need to be carefully reviewed. Separate drawings would need to be produced for each truss detailing each specific repair and retrofit. This would require extensive costs spent in time for engineering consulting and field labor.
4. The existing trusses and their respective tie-down anchors will not meet current code design standards. Additionally, it would be difficult matching new framing to the old framing. In my opinion, it is much more cost effective and easier to replace the existing trusses with new trusses.
5. We had noted that cast-in-place concrete tie beams were installed as roof tie beams. New trusses can bear onto these concrete tie-beams. Tie-down anchors for the trusses can be mechanically secured to the inside face of the concrete beam.

See attached photos taken during this site visit.