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April 13, 2011
#10271

Mr. Reginald Fuller
Building Official
City of Idaho Falls Building Department
680 Park Ave
Idaho Falls, ID 83405

Re: PFAFF Creative Sewing Center
336 Park Av
Idaho Falls, Idaho

Dear Mr. Fuller,

On the 6th of April, 2011 I had the opportunity to visit the building occupied by PFAFF Creative Sewing Center at 335 Park Avenue. Present during my visit was Mr. Ken Anderson, the Fire Marshal and Mr. Leonardus Linning the owner. The purpose of my visit was to review the structure and determine both the structural integrity of the building and what can be done to make the building safe for occupants (habitable). Due to the overall poor condition of the building's structure I have broken the building out into six basic layers to help consolidate the information. The layers are the roof, upper level walls, upper level floor framing, main level walls, main level floor framing and the basement. The information for each layer is also broke out into two categories, the general construction and the condition of the existing framing. The general construction defines how the structure was built and the condition of the existing framing defines its current condition.

The following is an outline format of the general construction and the condition of the framing:

A. General construction
   1. Roof Framing
      a. The roof slopes from the front (west) towards the back (east).
      b. The roofing material is a tar paper type roofing material. Currently, the back half of the building is covered with a blue tarp and can not be visually seen.
      c. Parapets are multi-wythe brick measuring 10" wide with areas measuring 14" wide. The parapet height off the roof varies and is "stair stepped" as the roof slopes
      d. The roof consists of 1x decking over 2x10 roof joists and 2x8 ceiling joists with an non accessible attic space (taller at the west end and tapers to zero height at the east end).
      e. The roof joists and the ceiling joists are continuous across the width of the building and bear in the exterior brick walls and on the center corridor walls. 1x vertical members are nailed between the roof joists and the ceiling joists at the center to transfer the load down from the roof joists to the ceiling joists and then into the corridor walls.

f. No physical connections between the multi-wythe brick walls and the joists were noted. The walls and joists appear to have been constructed simultaneously with the brick and grout tight against the sides and top of the joists.
g. The ceiling is lath and plaster applied directly to the bottom of the ceiling joists.

2. Upper Level Walls
   a. The interior walls are 2x4 stud construction with wood lath and plaster finishes.
   b. The interior corridor walls are structural bearing walls supporting the roof structure.
   c. The front wall is multi-wythe brick but the thickness and condition can not be verified due to wall finishes.
   d. The back wall is multi-wythe brick but the thickness and condition can not be verified due to wall finishes.
   e. The side walls are multi-wythe brick but the thickness and condition can not be verified due to wall finishes.

3. Upper level Floor Framing
   a. The floor covering varies from carpet, oak tongue and groove, laminate or OSB/plywood. The subfloor structure is two layers of 1x decking.
   b. The floor joists are 2x14's spaced at 16" centers and clear span the width of the building.
   c. The floor joists support the upper level bearing walls.
   d. There are two main floor ceilings being supported by the upper floor. The original lath and plaster ceiling which is applied directly to the bottom of the floor joists and a furred down ceiling. The second furred down ceiling consists of 2x4's spaced at 24" centers running front to back in the building (west and east) with acoustic tiles fastened directly to the underside.

4. Main Level Walls
   a. No interior walls except at the very back. Access to these walls was not obtainable due to the owner's possessions. It is not believed that these walls are structural.
   b. Front wall consists of all glass and is angled in such a way that the entry door is up under the upper level floor framing and is not inline with the second floor wall above.
   c. The back wall construction and relation to the remaining building is unknown.
   d. The side walls are multi-wythe brick but they can not be verified due to wall finishes.

5. Main Level Floor Framing
   a. The floor covering is carpet. The subfloor structure is two layers of 1x decking.
   b. The floor joists are 2x12's spaced at 19" to 20" centers and span from the exterior north and south walls to a center beam and column line.
   c. The beam and column line consists of 4-2x8's sitting on 6x8 posts spaced at approximately 11'-0" centers.

6. Basement
   a. The basement consists of lava rock and concrete walls around the perimeter. The lava rock walls are along the front and extend towards the east approximately 50 feet then the walls become concrete for the remaining 36 feet.

b. At the 50 foot transition from lava rock to concrete walls there is a dip in the floor and a small portion of an old perpendicular lava rock wall remains. The perpendicular wall appears to have closed off the basement at one time.
c. The back 36 feet of the basement is clearly an addition constructed some time in the distant past.
d. There is an interior beam and column centered north and south as described in the main level floor framing.
e. Portions of the basement have a make shift ceiling consisting of either 1x's or acoustic tiles applied directly to the bottom of the floor joists.

B. Condition of existing framing
1. Roof Framing
a. The roofing material is extremely brittle and has well exceeded its life expectancy. It has not been functioning properly for years and possibly for decades.
b. Roof flashing at the parapets is non existent and the roofing does not seal up against the parapets thus allowing water down the wall.
c. The parapets have severely deteriorated mortar and brick. The front parapet bricks are in danger of falling to the sidewalk below.
d. There is a noticeable "belly" at the center of the roof between the side walls (north and south). The "belly" is consistent from front to back except at the immediate vicinity of the front and back walls (west and east).
e. The ceiling has areas where the plaster is cracked but is still hanging on to the lath but also has areas where the plaster has fallen with the lath.
f. From the upper level many holes can be seen that penetrate through the decking and/or roofing.
g. From observing the framing within the "attic space", the roof joists <u>and</u> ceiling joists have a noticeable "belly" at the center of their span (above the corridor walls). The "belly" is consistent with the "belly" noted from on top the roof.
h. There are roof joists towards the front that had been repaired in the past. The repair appears to be structurally inadequate.
i. From two separate observation points there were roof joists that had failed and cracked in half at the mid-span which coincides with the corridor walls below.
j. Rot was observed in the 1x decking as well as in the roof joists in numerous areas.
k. Mold was observed on the underside of the 1x decking and on all sides of the roof joists in numerous areas
l. The "attic space" is full of abandoned bird (pigeon) nests, eggs and feces.
m. Light rain was falling during the visit and numerous times water was felt dripping from the roof. Currently there are approximately 50 buckets throughout the second level, mostly down the corridor, attempting to capture the dripping water. During a previous visit these buckets were overflowing and frozen solid. During this visit the buckets varied from half full to empty.

2. Upper Level Walls
a. The interior walls are severely deteriorated with rot, mold and disintegrating plaster.
b. The walls perpendicular to the corridor walls (north south direction) have cracked away from the exterior side walls (north and south walls) and are sloping towards the center corridor.
c. Portions of the bottom of the corridor walls have rotted completely away.

d. A portion (10 to 12 feet in length) of the center bearing wall (corridor wall) towards the front has fallen vertically (settled) away from the ceiling and roof joists due to the rot at the base of the wall.
e. Portions of the corridor bearing walls have settled more than others but it appears that the entire corridor has settled.
f. During an earlier visit water was noted running down the corridor walls in many locations. During this visit the surface of the walls was dry but the structure of the wall is still saturated.
g. Many of the second level windows were open without screens allowing both the weather and birds into the building.
h. The front, back and the two side walls appear to be in good condition. However, most of the wall structure could not be seen due to wall finishes. Some time in the past the walls received an additional coat of plaster that has in many areas peeled away but the underlying plaster coat seems to be for the most part intact. However, the condition of the base coat is suspect simply because if it was in good condition then why was a second coat added?

3. Upper level Floor Framing
   a. This is easily the worst part of the structure. There are portions of the floor that can not be walked on or observed due to missing subfloor (rotted), plywood sheets or flat 2x6's used to span across holes and/or soft spots as well as numerous buckets used to capture the water from the leaking roof.
   b. The floor decking has rotted away in many areas to the point that the floor or the ceiling below can be seen. In many areas the floor decking is so badly rotted that the two layers of decking can be easily torn and crumbled by bare hands. In other areas the decking can not be seen due to carpet but the decking "feels" very soft and in danger of failing.
   c. The floor joists have in many areas rotted, not necessarily the entire joist but portions. In a few test spots approximately the top 2" of the 14" joist was easily removed with bare hands and/or with the use of a small hammer.
   d. The floor joists have mold growth in many areas
   e. The joist space is full of abandoned bird (pigeon) nests, eggs and feces.
   f. Most of the main level furred down ceiling finishes has fallen and portions of the original plaster ceiling has fallen as well.
   g. Due to the extensive amounts of rot, the floor has no safe load carrying capacity. Based upon this conclusion the roof also has no safe load carrying capacity since it relies on the upper floor framing for support.

4. Main Level Walls
   a. There are no interior walls except toward the back (east). It was not determined whether these walls were structural or not.
   b. The perimeter walls could not be verified due to the wall finishes but no signs of stress were noted.

5. Main level Floor Framing
   a. Most of the floor is covered by carpet and the owner's possessions and thus its condition can not be verified very well from above, but the main level feels to be the most structurally sound portion of the building.

b. There are a few areas that the floor decking has rotted. This can be seen in one area from the main floor but can also be observed from the basement where there is no ceiling.
c. The estimated live load capacity of the undamaged floor joists is 125 psf.
d. The center beam and column line appears to be functioning as intended but does show some signs of overloading at some of the columns. The estimated live load capacity of the undamaged floor beam is between 50 and 70 psf depending upon span. The majority of the floor beam would be rated at the 50 psf capacity.

6. Basement
   a. The lava rock walls show signs of their age that is typical for an Idaho Falls building of this era. The mortar is soft and can be easily scraped away. At the south west corner the mortar has deteriorated to point that it has lost its bonding characteristics and is falling out from between the rocks like sand.
   b. In the front south west corner there is a small pile of mortar sand that appears to have been washed out of the bottom portion of the wall.
   c. The slab on grade appears to be in good condition.
   d. The column supports (footings) appear to be function as intended.

Due to the overall structural condition of the building the only way to make the building safe for occupants is to rebuild the structure. As the building sits structural failure of the building is imminent. The building has already failed in many areas and as the structure continues to deteriorate the chance of collapse is greatly increased. It is not a question of will the structure collapse; it is a question of when.

It has been asked if the existing roof and floor joists could be reinforced by adding an additional joist to the side of the existing joists to provide the necessary added strength. Unfortunately the structure has been neglected for so long that the extent of selective demolition that would be required to insert new joists is too extensive. I am confident that the most feasible and cost effective method to correct the structural issues will be to demolish the entire building and then rebuild. There are numerous methods and configurations that could be utilized in the rebuild which would have to obviously meet the current building code. Consequently a design team consisting of an architect, structural engineer as well as other design disciplines would need to be retained. For basic preliminary cost comparisons the enclosed cross sectional sketch can be used as a reference for a new structure verses reinforcing the existing. It should be noted however that the information shown on the sketch includes only the basic information and is not a complete design. It can not be used to obtain a permit or used for construction. The sketch also does not address the lateral aspects of the structure. Based upon the new configuration of the building either shear walls or a steel frame could be used. The front of the building in either case will have to be redesigned and constructed to meet current building code requirements.

Another option might be to demolish most of the building (roof and upper level) and rebuild a lower height single story building. The buildings to the north and south are single story buildings. This approach would reduce the rebuild cost and help minimize the structural requirements that will have to be met.

It has also been asked if shoring could be added to the building to make it safe for occupants. Shoring would prolong the building's life but the rot is so prevalent that shoring alone can not be relied upon to stop the progression of rot and the imminent collapse. Consequently adding shoring alone to the building will not make the building safe for occupants. Shoring would however help in keeping a collapse localized rather than a progressive catastrophic collapse. This in turn would help

to keep the occupants safe in the businesses on either side (north and south). If it is decided to add shoring to the building then two walls (2x6 spaced at 16" centers) running front to back (west/east) and located at the third points side to side (north/south)should be added on each level and in the "attic" space. Furthermore the main and upper level floor joists as well as the roof ceiling joists should be blocked to provide the proper gravity load transfer. The walls should also be braced with either continuous diagonal 2x6's or with (4) 8'-0" segments of full height plywood/OSB sheathing. It should be noted that in order to add the shoring walls demolition of the ceilings will be required and the building will need to be sealed of future water, pests and occupants.

The visit consisted of visual observations made to evaluate the overall structural integrity of the building structure only. Neither the visit nor the report is intended to address any other aspect of the building. Due to the nature of the project, the building itself and the lack of control over the use and corrections necessary, G&S Structural Engineers is limiting its liability to zero dollars.

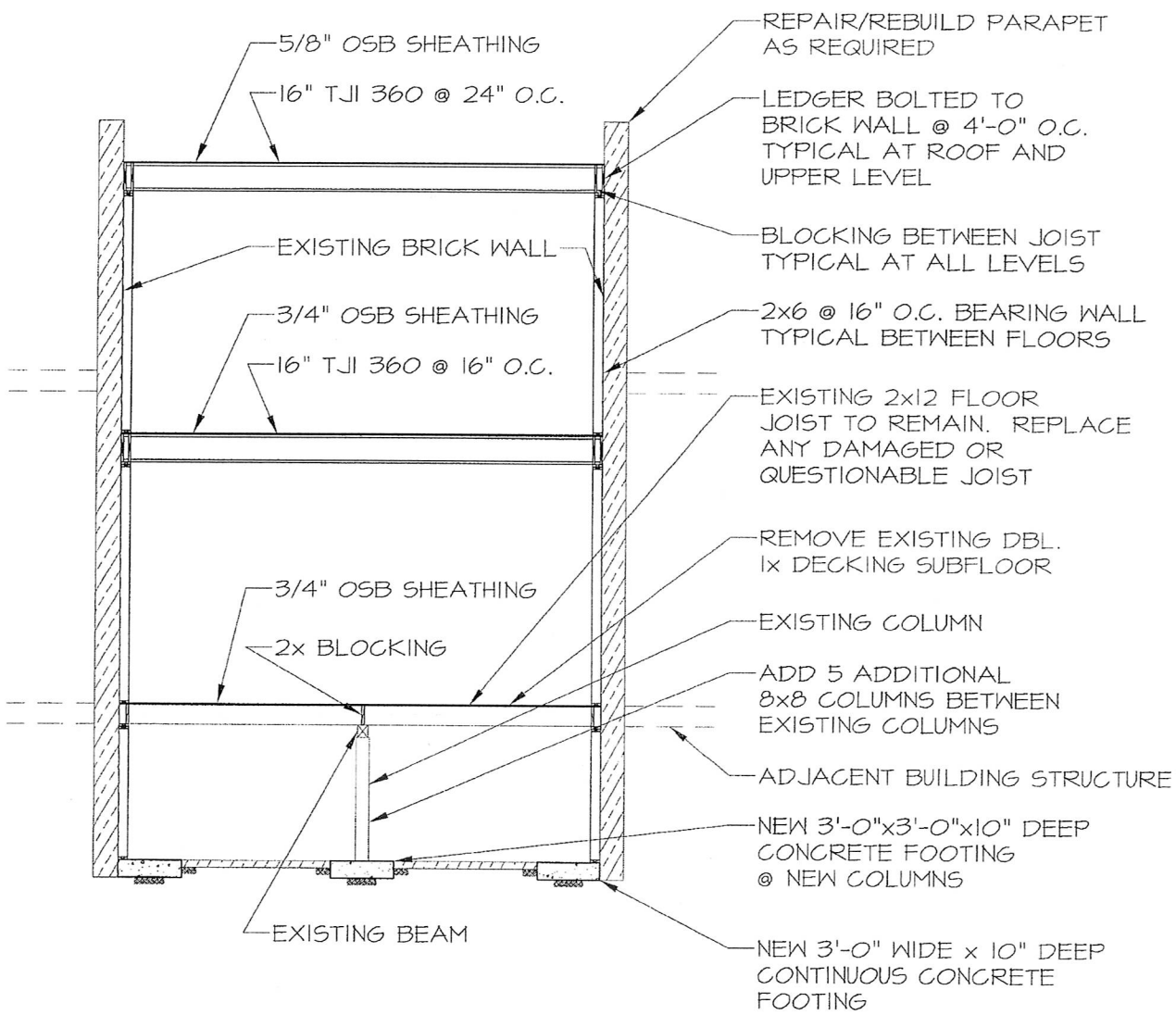
If there are any questions or if I can be of further assistance please don't hesitate to contact me.

Sincerely,

PROFESSIONAL ENGINEER
REGISTERED
8816
4-13-11
STATE OF IDAHO
MARK D. ANDRUS

Mark D. Andrus, PE

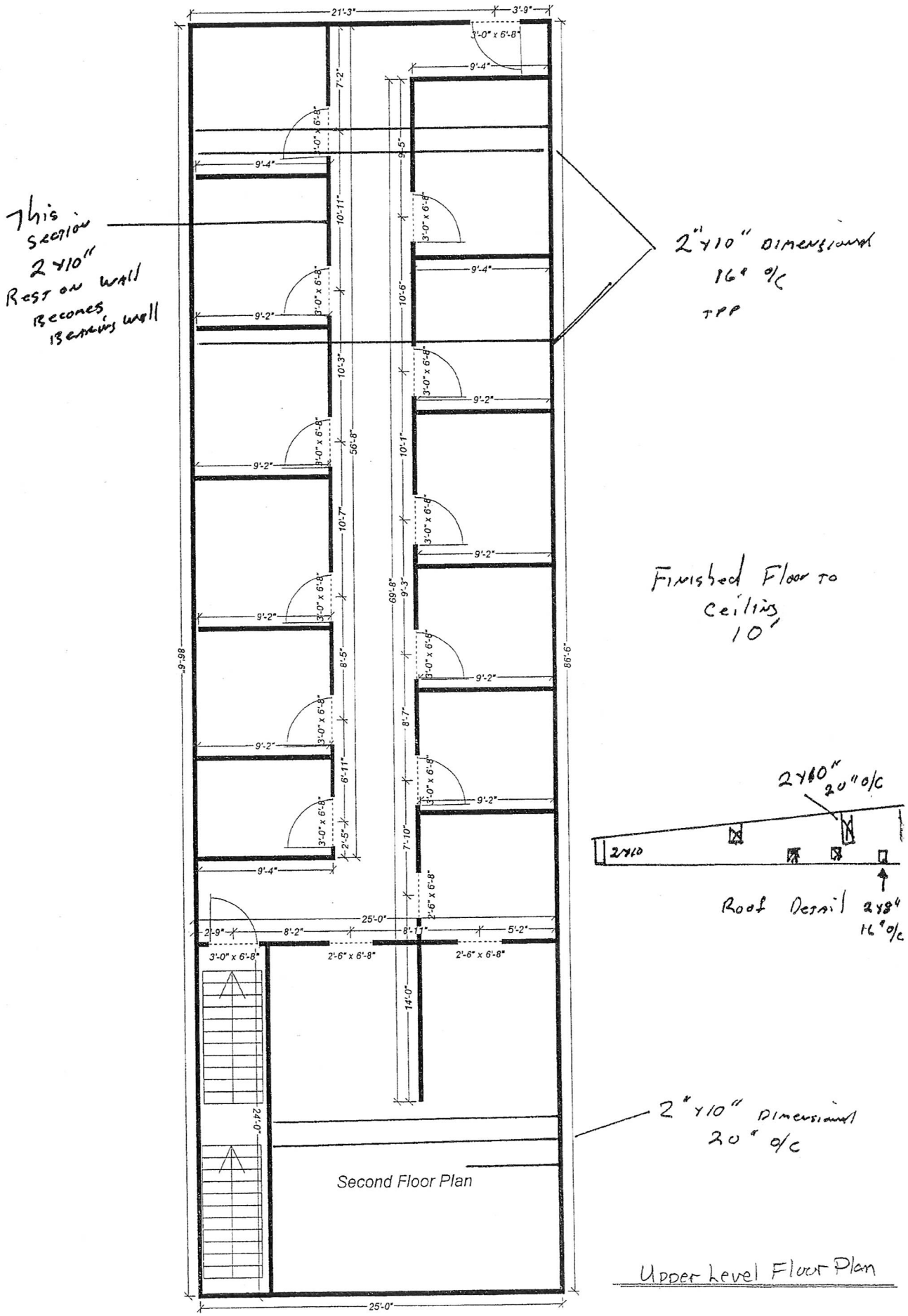
Encl.: One building cross section
Copy of Mr. Ken Anderson's floor plan sketches (3 sheets)

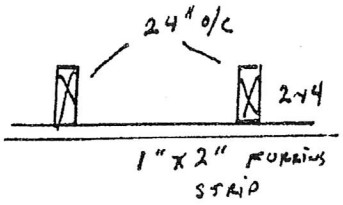


DESIGN LOADING:
ROOF: 35 PSF SNOW; 15 PSF DEAD
UPPER FLOOR: 40 PSF LIVE; 15 PSF DEAD (RESIDENTIAL)
MAIN FLOOR: 100 PSF LIVE; 15 PSF DEAD (RETAIL)

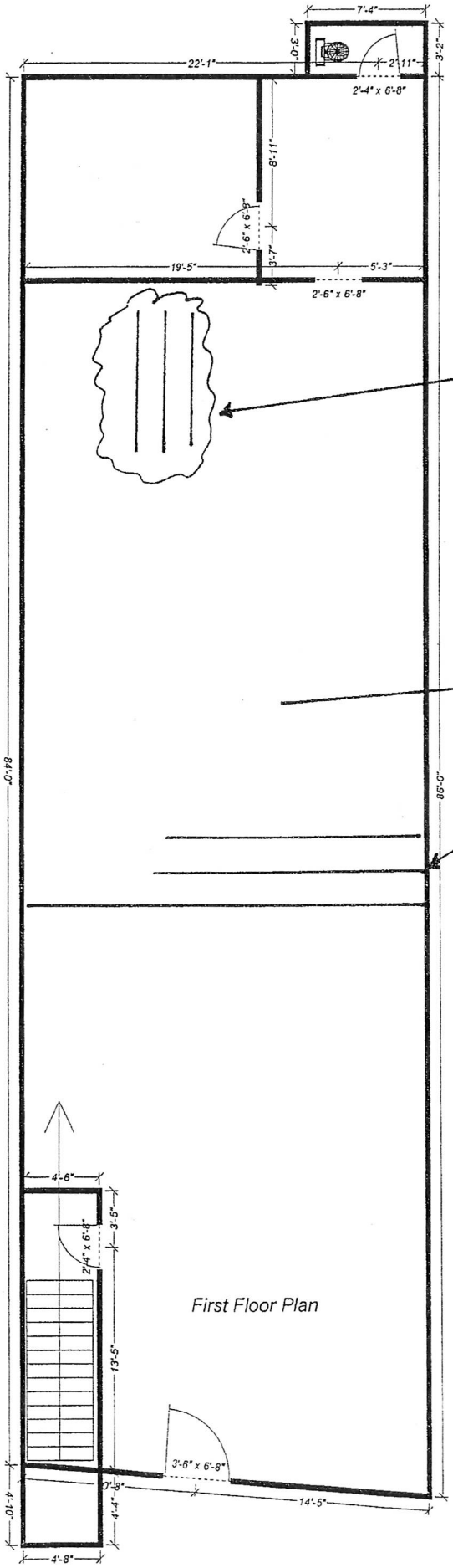
PRELIMINARY BUILDING STRUCTURE
FOR ESTIMATING PURPOSES ONLY

G & S STRUCTURAL ENGINEERS 1600 JOHN ADAMS PKWY. SUITE 200 IDAHO FALLS, ID. 83401, (208)523-6918	TITLE: PFAFF SEWING CENTER ESTIMATED BUILDING REPAIR	DESIGNED BY: MA DRAWN BY: AJ	PROJECT No.: 10271 DATE: 4/13/11	SHEET NO. S1.1

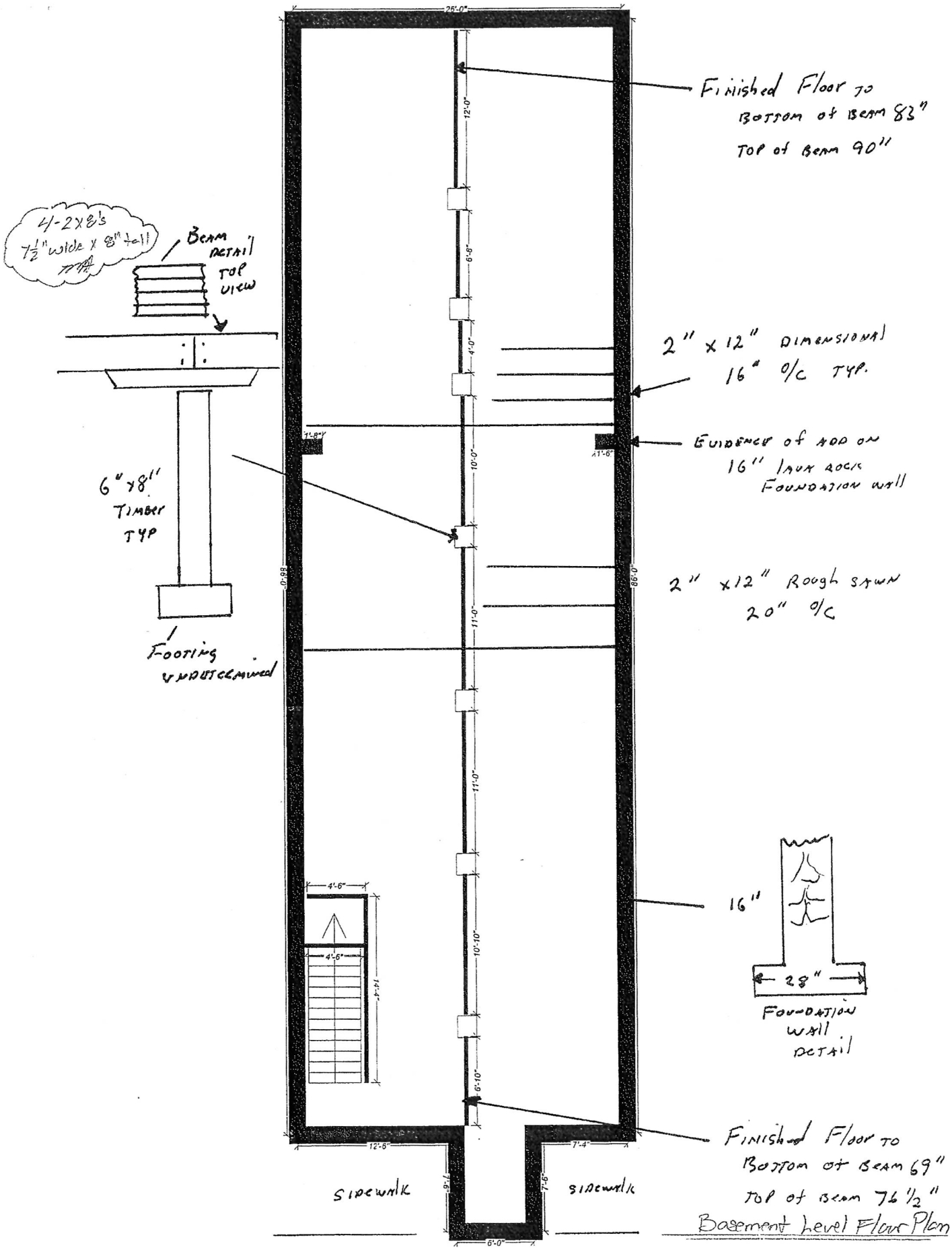

This section 2 x 10" Rest on wall becomes bearing wall
2" x 10" Dimensional 16" o/c TPP
Finished Floor to Ceiling 10'
2 x 10" 20" o/c
2 x 10
Roof Detail 2 x 8" 16" o/c
2" x 10" Dimensional 20" o/c
Second Floor Plan
Upper Level Floor Plan
21'-3"
3'-9"
3'-0" x 6'-8"
9'-4"
9'-2"
9'-5"
10'-11"
10'-3"
10'-7"
8'-5"
6'-11"
2'-5"
56'-8"
69'-8"
9'-3"
8'-7"
7'-10"
10'-6"
10'-1"
14'-0"
2'-6" x 6'-8"
25'-0"
2'-9"
8'-2"
8'-11"
5'-2"
24'-0"
86'-6"
9'-98"



Fur Down Grid Detail



Main Level Floor Plan



Basement Level Floor Plan