January 18, 2016

schaefer CONNECT

Mark Heckenmueller, P.E.

City of Mason
6000 Mason-Montgomery Rd.
Mason, OH 45040

Re: Mason Golf Center
Schaefer Project Number: 1611.04

Dear Mark,

Per the request of Mr. Richard Fair of City of Mason, I visited the referenced building on January 14 & 15, 2016. The purpose of the visit was to observe the existing conditions related to building movements recently noticed by the Golf Center staff. The section of the building investigated is the retail space at the north end of the building (see Photo 1). This section of the building is approximately 40' x 40' square, and is one story tall with a basement. The exterior walls are a combination of loadbearing wood studs and glass with wood beams and posts supporting the roof. The roof framing consists of 2x8 rafters sloping up to a flat roof area that is approximately 20 feet square. The interior space is open to the roof framing. There are wood roof beams at the four sides of the high flat roof area. The beams were measured to be (3) 2 x 8's on the east edge of the flat area and (3) 2 x 12's on the north edge. It is assumed that the (3) 2 x 8 beam also occurs on the west edge and the (3) 2 x 12 beam also occurs on the south edge of the high roof. The high flat rafters span in the east to west direction and are supported by the (3) 2 x 8 beams. This observed condition of the flat rafters spanning to the lighter beam appears to be a construction flaw. There is a 4 x 8 wood hip at each of the four corners extending from the high flat roof area down to the eave. Within the exterior soffit there are horizontal steel tie rods connected to each of the four hip rafters that resist the outward thrust from the hip rafters.

The signs of structural distress that were observed at the site visits are as noted below.

- The north, east and west exterior walls are out of plumb approximately 3 to 4 inches over their height. The tops of these walls are kicking outward.
- There are gaps between the exterior walls and some of the interior perpendicular partition walls.
- The roof surfaces above the sloped roof rafters are very uneven and wavy, primarily at the east
- and west sloped roof areas.

schaefer-inc.com
10411 Medallion Drive Suite 121
Cincinnati, Ohio 45241
1.800.542.3302

schaefer

We requested two areas of framing to be exposed so that we could view the primary structural framing members supporting the roof. Based on our observations of these areas and a structural analysis of some of these members, we have determined that there are significant structural deficiencies of several structural members.

- The triple 2 x 8 beams at the east and west edge of the high flat roof area are approximately 200% overstressed. This presents a dangerous condition.
- The connection between the slopping 4 x 8 hip rafter and the high roof perimeter beams consists of several nails (see Photo 2). The load transfer that is required at this location is approximately 7000 lbs. This existing nailed connection is extremely overstressed and is a dangerous condition.

As a result of the overstressed conditions noted above it was recommended that the building be evacuated until temporary shoring is installed. The recommended temporary shoring consists of 6 vertical shoring columns. Three posts will be located below each (3) 2x8 beam at the east and west edge of the high flat roof area. See the attached plan and section for the location and construction of these columns. Once the shore posts are installed, the danger to the building occupants from these overstressed conditions will be removed.

A more permanent building repair will be required in order to satisfy the building code structural requirements. Schaefer is available to provide construction documents for this work once the City of Mason decides to proceed with this additional reinforcing. The permanent repairs will consist of a new interior beam directly below the east and west edge of the high flat roof area. Supporting each of these two beams will be two interior wood columns located within approximately five feet the sloped rafters. In the basement, below each of these four columns, there will be an adjustable steel column bearing on a new concrete footing. The locations of the upper and lower columns will need to be coordinated to reduce the impact to the partition walls on both floor levels.

The conclusions and recommendations of this report represent our opinion of the existing conditions reviewed in this report, and there is no claim, either stated or implied, that all conditions were observed. Schaefer is not responsible for the conclusions, opinions, or recommendations made by others based on the information included in this report or for future changes in conditions. This report is not to be considered a guarantee of condition and no warranty is implied.

Thank you for the opportunity of assisting you on this project. If you have any questions or we may be of further assistance, please do not hesitate to contact us.

Very truly yours,

James R. Miller, P.E.
President

Attachments

schaefer

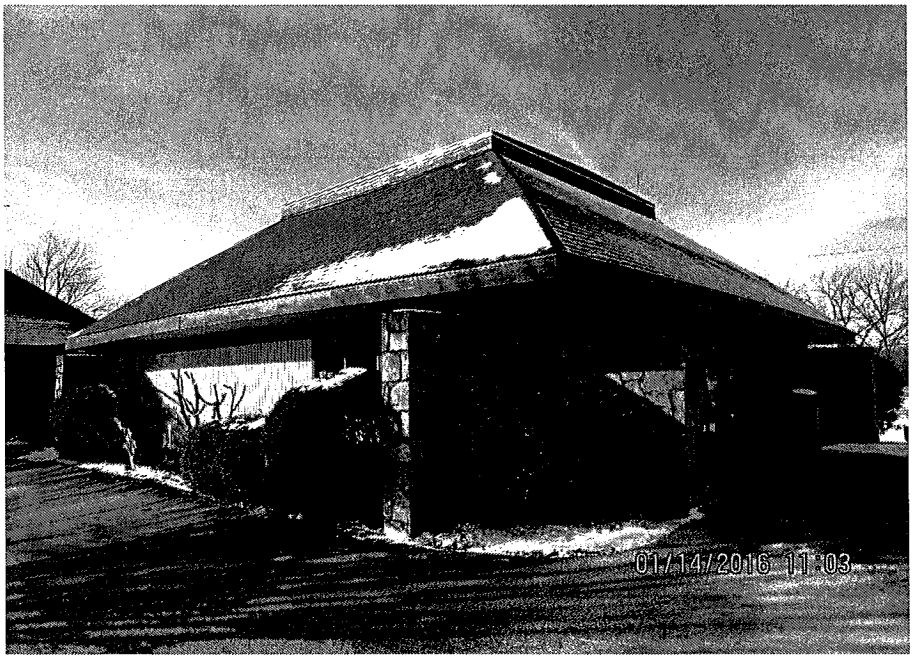


Photo 1- Building Exterior, Northeast Corner

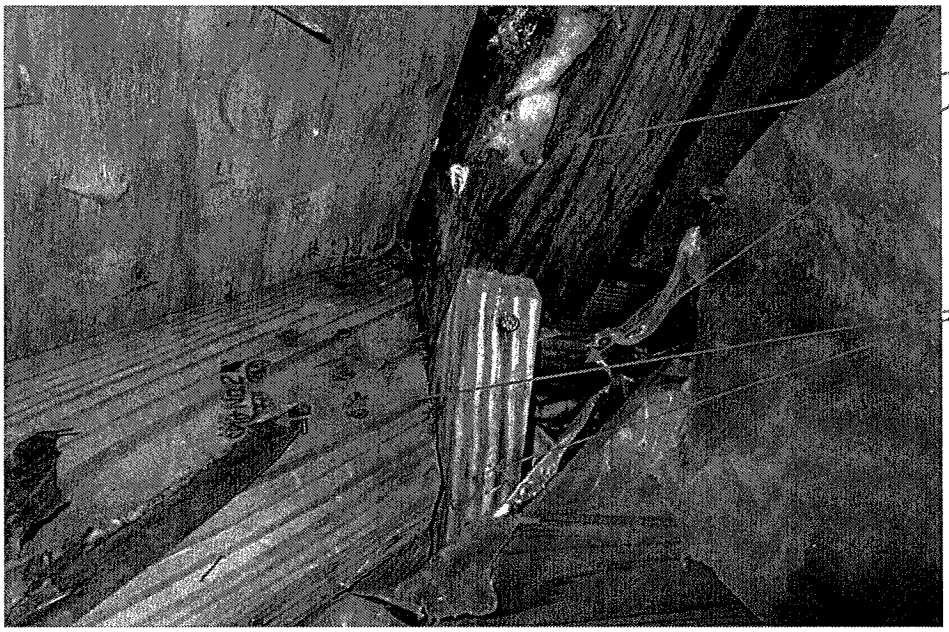
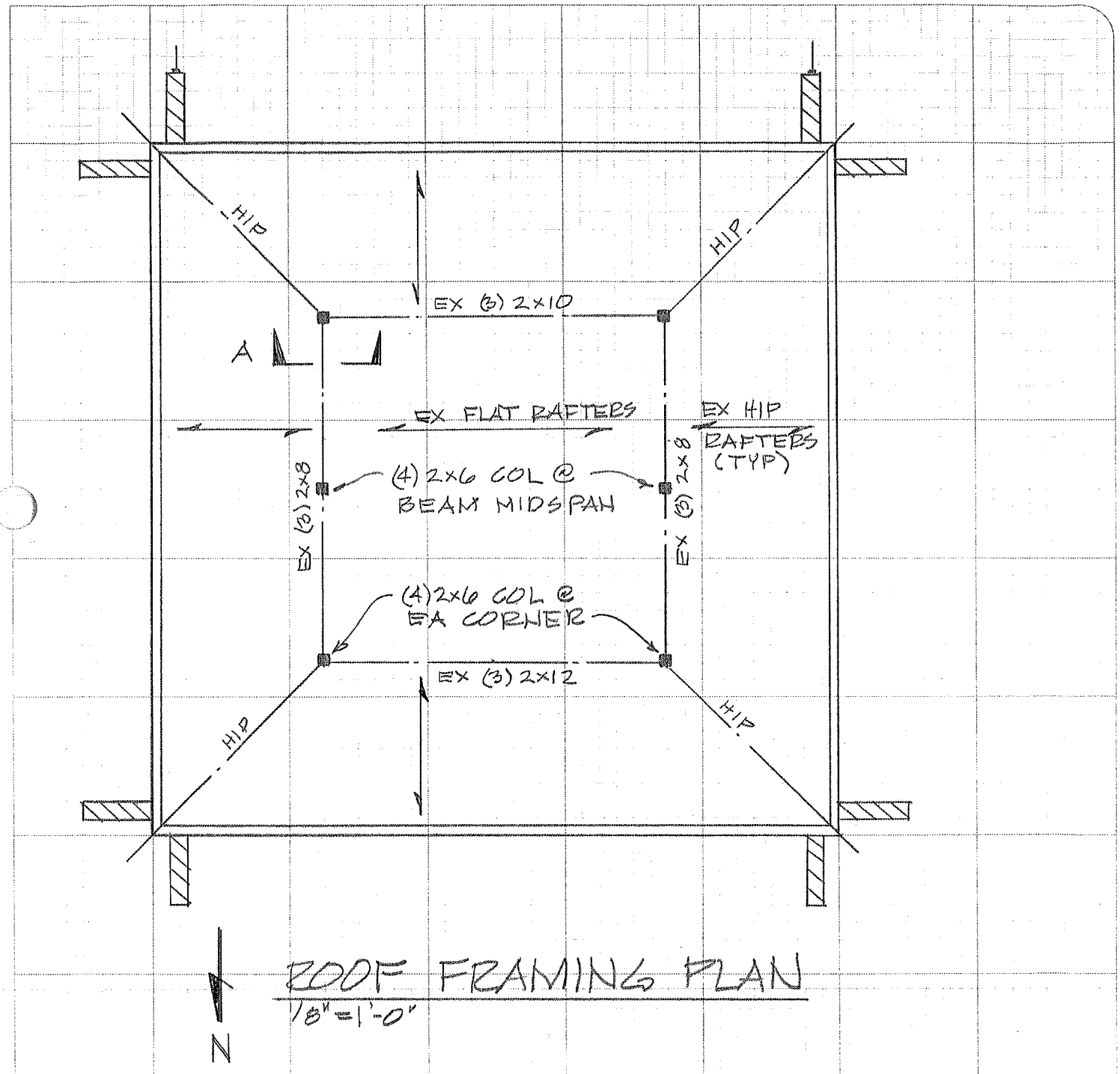


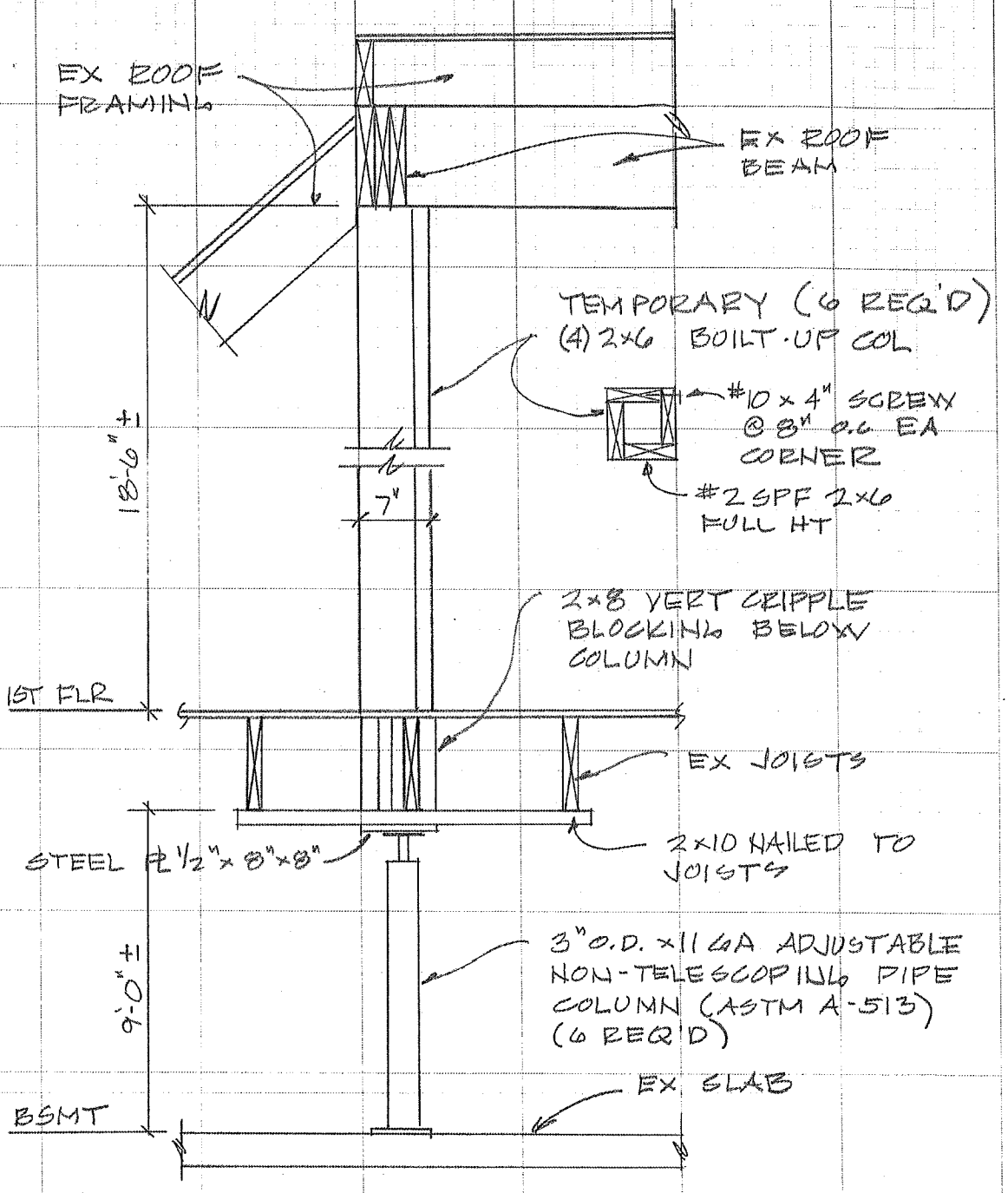
Photo 2 – Northeast Corner of High Flat Roof

Project Name Mason Golf Center
Project Number 1611.04 Subject
Date 1/18/16 Author JRM Page 1/2

schaefer



ROOF FRAMING PLAN
1/8"=1'-0"



SECTION A
3/4" = 1'-0"