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December 16, 2015

Dr. William Long  
Assistant Superintendent  
Center Grove Community Schools  
4800 West Stones Crossing Rd.  
Greenwood, IN 46143

Subject: Center Grove High School Football bleacher inspection

Dear Dr. Long:

I visited Center Grove High School on November 24, 2015 to visually inspect the existing home and visitor's bleachers. The overall appearance of the both bleachers is adequate and functional but there are signs that both systems are beginning to show signs of wear and tear.

#### HOME SIDE BLEACHER:

As I understand the system is approximately 40 years old and has been renovated and retrofitted in the past to attempt to keep the bleacher system, code compliant and safe. It appears the modifications have accomplished some degree of compliance.

Some notable concerns I have are:

- The galvanizing is thin in many areas and is beginning to lose its ability to protect the steel beneath. In specific areas rust is beginning to show through the thinning galvanizing. This problem will continue to expand as the bleacher ages and most likely will accelerate with age.
- A large percentage of the nuts and bolts that hold the system together are rusted and the runoff of rust from these is running down onto the galvanizing and aiding the deterioration of the galvanizing. These unprotected connectors will continue to deteriorate, more rapidly than in the past without any protection and should be frequently be monitored and replaced as necessary to assure they are able to maintain an adequate and structurally sound connection.
- Although the foundations appear to have performed adequately throughout the bleachers history, the connections of the columns to the foundations only used two out of the four available holes in the base plates. This condition was probably adequate for the original construction but with subsequent renovations and updated code requirements for a now closed bleacher system this may be a problem. A more in depth analysis would be required to determine if two bolts are adequate for the current configuration of the bleacher and current building code requirements
- There were several stringers where the connections between continuous stringers were not aligned. It's difficult to tell the cause of the miss-alignment but there has been some

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movement in the connection of adjacent stringers. Some investigation would be in order to support the stringers each side of the joint, remove the bolts and inspect the connection to determine if there is any signs of fatigue.

There are several code issues that have been partially addressed through updates and renovations. Handicapped seating is substantially under the required amount for this size facility and the location of the seating does not meet the intent of the code. The handicapped seating areas are required to be dispersed along the length of the bleacher rather than concentrated on one end.

#### VISITOR SIDE BLEACHER:

The visitor side system is a different understructure design and is showing more signs of distress than the home side. Some notable concerns are:

- There is no apparent foundation system under the support frames. Typically there is a treated wood runner under the frames that helps transfer the loading from the structure to the soil. I did some probing and scraping along the bottom frame members and there was no evidence of any foundation or supports under the steel angle bottom chord member. Furthermore the bottom bearing members have sunk into the soil and some were completely buried. The frames need to be supported and isolated from the soil to avoid a more rapid deterioration. Some form of bearing element should be added under the frames as soon as possible.
- There was no evidence of any anchorage of the bleacher system to the ground. Wind loads are a significant uplift force on a closed bleacher system. There have been instances where a bleacher has been lifted off the ground and destroyed without being anchored. Anchorage of the system is a necessity and should be accomplished as soon as possible.
- There were several locations where the foot boards along the front walkway were spliced half way between the support frames. Someone has placed a "temporary" support in these locations to support the joint. The rail system at this same location is spliced and distorted. The walkway should be removed and adjusted so that the joints are located on the support frames and boards added as necessary to fill in.
- There is no chain link fence along the front walkway, only a two line rail, this is a code violation.
- There were no provisions for handicap accessible seating on this bleacher.

In summary, though your bleachers are functional, they have some problems and are beginning to age. They fail ADA requirements and have some other shortcomings as noted above. These bleachers should have more routine inspections if they are continued to be used. If you have any additional questions, please feel free to call.

Sincerely,

AL F. Wolczyk jr., PE

