

**ATTACHMENT 30 – EMAIL TO THE MINNESOTA DEPARTMENT OF  
TRANSPORTATION FROM THE NATIONAL TRANSPORTATION SAFETY  
BOARD DATED OCTOBER 15, 2007**  
(2 pages)

**From:** Rayburn David S.  
**Sent:** Monday, October 15, 2007 9:00 AM  
**To:** 'edward.lutgen-----  
**Cc:** Walsh Daniel; Van Etten Gary; Bagnard Mark; Magladry Bruce;  
'kevin.gulden----- Schultheisz Carl; Morrison Jennifer  
**Subject:** Load rating of bridge with construction loads before the accident or collapse  
ED

After the collapse FHWA sent out technical advisory circular 5128 to state DOT's to caution them about bridge loading during construction. The advisory directs engineers to review the following documents for more information.

1. AASHTO Bridge Specification 17th edition, Division II, Section 8.15.3 (Construction Loads)
2. AASHTO Load Resistance Factor Design Bridge Design Specifications, 4th Edition, Section 3

When I talked to Dan Dorgan in early August during a very stressful time he indicated there were no documents that would apply to evaluating weights and placement of construction materials on a bridge. From my reading of section 8.15.3 (construction Loads) it appears that it would apply. From my discussion with you in evaluating the text we made the assumption that we would apply a factor of 1.3 to the construction load of approximately 200 tons. Consequently, an engineer would assume this load to be 520,000 pounds if using the construction material weight to load rate the bridge.

I have quoted the text of the last paragraph in section 8.15.3 for your reference.  
"Otherwise, loads imposed on existing, new, or partially completed portions of structures due to construction operations shall not exceed the load carrying capacity of the structure or portion of the structure, as determined by the Load Factor Design methods of AASHTO using Load Group 1B." "The compressive strength of concrete to be used in computing the load carrying capacity shall be the smaller of the actual compressive strength at the time of loading or the specified compressive strength of the concrete.

When PCI gave their initial estimates to me for the position of the aggregates staged they indicated the aggregates and equipment were located along a 228-foot-long area in the inside southbound lanes beginning at the pavement joint near pier 6 bordered on the other end by a joint that was at the centerline of span 7. They further indicated the rock and sand was located in a 114-foot-long by 12-foot-wide area of the inside southbound lane and weighed about 200 Tons. The total load of materials and equipment was about 575,000 and was distributed over 228 feet by about 26 feet.

If your MNDOT Inspectors, construction Engineers or PCI had requested this load to be evaluated the above information is what you would have received. It is reasonably precise because areas farther south were tarped curing concrete and areas farther north were to be repaved. They knew they needed 8, 25-ton truckloads of materials so the information above is adequate for you to calculate and rate the bridge and load. You may use the total load of equipment and aggregates over the 228 by 26 foot area or you may use just the 200 ton aggregate load over the 114 by 12 foot area.

Please perform this rating for me using standard procedures that you would have used before the collapse. Do not refer to information you have learned about the bridge since the collapse.

Ed, Please have your office perform this rating within the next few days and e-mail it to me. If you would have asked your construction office or PCI for more details then you can ask me for more details.

David S. Rayburn