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[Redacted]

Dear [Redacted]:

[Redacted] and I have been retained as metallurgical experts in the above matter. We are specifically concerned with possible defects in the processing, manufacture, or welding of the steel used in the collapsed roof. We visited the site on 30 January 1978 with your [Redacted] and I visited the site on 3 February 1978, with Dr. [Redacted]. During the latter visit Dr. [Redacted] and [Redacted] asked me to write this letter outlining a procedure for metallurgical examination and testing.

Conduct of Investigation

1. A reasonable investigation of the materials will involve some destructive testing which will impede future investigations. I recommend that the other actual and probable litigants (The steel supplier, the structural designers, the city) select their metallurgical experts promptly. Then each can do his non-destructive testing and we can decide on the destructive tests to be conducted.
2. I recommend that the metallurgical investigation be done jointly, with a sharing of results between all parties concerned.

Preservation of Evidence

1. Fractography (Study of fracture surfaces) will be an important part of the investigation. These are rusting even now, and fracture surfaces likely to be of interest should be coated with grease or oil to prevent further deterioration.
2. Certain parts of some of the members will be detached for further testing and study. If possible, the parts should be removed by unbolting or sawing. Any torch cutting must be done in such a way that the heat does not affect the material near the fracture. The cut must be made well away from the fracture and some cooling may be needed. I want to be present when any torch cutting of specimens is done.

Conduct of the Investigation

1. I would first of all like copies of all of specifications, testing, correspondence concerning inspection and acceptance of the materials in question.
2. Samples cut out for the testing will probably be too bulky to be stored and machined at MIT.

They should instead go to an industrial testing laboratory for safe keeping, machining, and perhaps some testing. I have used Sylvester Associates in Hingham, Mass. in the past, and expect that they would be willing and able to do the job.

3. Non-destructive testing. The first studies would be photography of the specimens and visual study of the exposed fracture surfaces. Magnetic or dye penetrant tests for
4. Destructive testing. The samples would then be cut up for tests primarily:
 - (a) Optical metallography
 - (b) Scanning electron microscopy
 - (c) Ductile brittle transition (Charpy) testing
 - (d) Tensile testing
 - (e) Weld-strength tests

I believe that the preceding forms a framework for a thorough metallurgical investigation which will be fair and equitable to all concerned. Your comments would be appreciated.

Respectfully submitted,

Kenneth C. Russell
Consultant