

ELLIOT LAKE COMMISSION OF INQUIRY

DAY 20
April 04, 2013



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ELLIOT LAKE COMMISSION OF INQUIRY

--- This is Day 20 in the Inquiry proceedings held before the Honourable Justice P.R. Belang r, Commissioner, at the White Mountain Academy of the Arts, 99 Spine Road, Elliot Lake, Ontario, on the 4th, day of April, 2013 commencing at 9:00 a.m.

REPORTED BY: Helen Martineau
Certified Shorthand Reporter

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1 --- Upon commencing at 9:00 a.m. on
2 Thursday, April 4, 2013.

3 THE COMMISSIONER: Morning everybody,
4 morning sir.

5 THE WITNESS: Morning.

6 THE COMMISSIONER: You've come a long
7 way I gather.

8 THE WITNESS: Yes.

9 THE COMMISSIONER: We'll start by
10 swearing you in.

11 MR. CARR-HARRIS: You anticipated me.
12 Swearing in of the witness please.

13 PAUL MEYER, affirmed.

14 EXAMINATION-IN-CHIEF BY MR. CARR HARRIS:

15 Q. Morning, Mr. Meyer.

16 A. Morning.

17 Q. Thank you for coming. I would like
18 to just first lead you through your qualifications
19 if I may and you can correct me or add anything to
20 it as you see fit. First of all you are a
21 graduate of the University of Waterloo?

22 A. Yes.

23 Q. And that you originally began your
24 career there as an architect -- in the
25 architectural course and then converted to

1 engineering. And you graduated in 1988 in Civil
2 Engineering?

3 A. After -- I also graduated the first
4 Degree in Architecture in 1983.

5 Q. Thank you. And you were licensed in
6 Ontario in 1990?

7 A. Yes.

8 Q. As both an architect and engineer
9 or --

10 A. No, just as an engineer.

11 Q. And you were subsequently licensed
12 in 1998 in British Columbia.

13 A. Yes.

14 Q. Similarly as an engineer?

15 A. Yes.

16 Q. And if I have your employment
17 history correct, your first job was with an Elliot
18 Lake firm Tossell?

19 A. No, Sault Ste. Marie.

20 Q. Is it Sault Ste. Marie?

21 A. Yes.

22 Q. Tossell and Caughill.

23 A. Yes.

24 Q. And the Caughill there is Bruce
25 Caughill?

1 A. Yes.

2 Q. He's the architect.

3 A. Bruce is both an architect and an
4 engineer, one of the few people with that
5 qualification.

6 Q. And he is the brother of Rod
7 Caughill?

8 A. Yes.

9 Q. Who is with Algocen Properties?

10 A. Yes.

11 Q. And you worked there with Tossell
12 and Caughill until 1994, is that correct?

13 A. Yes.

14 Q. And then you went out on your own in
15 the Sioux area in 1998?

16 A. No, 1994.

17 Q. 1994?

18 A. And worked, Tossell and Caughill
19 because of the recession going on at the time they
20 split up so the company no longer functioned. So
21 everybody who had been involved essentially became
22 self-employed.

23 Q. Went their way. So you worked there
24 until 1994. And then you were on your own until
25 1998 until you moved --

1 A. And that's when I moved to British
2 Columbia.

3 Q. Thank you. Is there anything else
4 you'd like to add to your history before we go on?

5 A. Just in terms of accuracy, I'm also
6 licensed in Saskatchewan, Manitoba and Alberta.

7 Q. In engineering?

8 A. In engineering, over the last five
9 or seven years.

10 Q. Yes, thank you.

11 Now I understand that in the Spring of
12 1996 you were contacted by Rod Caughill of Algoma
13 Central Properties to -- regarding a structural
14 review of the Algo Mall, is that correct?

15 A. Yes.

16 Q. And what -- why did ACP, if I can
17 abbreviate Algoma Central Properties, why did ACP
18 want you to do a review of the Algo Mall?

19 A. There had been a collapse of the
20 Station Mall which was also owned by ACP in the --
21 about two weeks before Christmas of 1995. And I
22 had been called to look at that, and rescue
23 operations, and reconstruction and the overall,
24 Okay, what do we do now on that?

25 During our review of that mall we

1 determined what caused the collapse there. There
2 was also a concern expressed because some of the
3 stores had independent reviews done of their
4 structural systems that the -- that the design of
5 the mall may or may not have been adequate. And
6 so I had done a fairly detailed review of the
7 design of the Station Mall.

8 The system here is very similar, or the
9 system that was used in the Elliot Algo Mall was
10 very similar, the Gerber girder system that I
11 think you've heard about, and I was asked to look
12 at that.

13 The concern was now we have the same
14 engineer, we know that Mr. Kadlec at that time had
15 lost his license and wasn't in the country. And
16 so my understanding is that their concern was,
17 Okay, do we have the potential for a similar
18 concern about the design of the Algo Centre Mall
19 that we had at the Station Mall?

20 Q. Thank you. And so the ACP basically
21 wanted you to do a survey similar to the one you
22 did at the station to see if the same problem
23 happened again?

24 A. Not so much a survey as a design
25 check. A survey would be more -- just not trying

1 to sound technical, but more of a design check to
2 say, Okay, we've got a design that's been prepared
3 here. Was this design done correctly? Are the
4 members the right size? Have they used the
5 correct loads in designing the building? You
6 know, does the structural system actually work?

7 Q. And was that similar to what they
8 had asked you to do in the first place at the
9 Station Mall?

10 A. No. The first place at the Station
11 Mall was, Okay, what have we got here? I mean, I
12 got called a few minutes after the building
13 collapsed and asked to come in. So the first
14 order of business was looking for potential
15 survivors or victims; working with the fire
16 department to try and figure out a way to get in
17 and do a search; actually participated in the
18 search.

19 It was later on after one of the stores
20 in the mall had done their own review with another
21 engineer that the concerns came up about the
22 design that was used for the Station Mall, so that
23 was January, February.

24 Q. All right. And so it was that
25 particular inspection or --

1 A. Design check.

2 Q. Design check that they wanted you
3 the do similarly at Algo Mall?

4 A. Yes.

5 Q. And can I take you then to what is
6 Exhibit No. 216, tab 8 inure book. 2116 sorry.
7 Thank you.

8 You've seen that before, at least since
9 we've shown it to you?

10 A. Yes.

11 Q. And that refers to the Station Mall.
12 And does that refer to the survey that was done
13 there?

14 A. Yeah, the stage 3 is a reference to
15 the portion of the building that was part of which
16 collapsed, and part of which was the expansion
17 beyond where the collapse had occurred at the
18 Station Mall.

19 Q. And just keeping in mind we're
20 talking about Station Mall?

21 A. Yes.

22 Q. It says in the second bullet.
23 "Verify field conditions from two
24 perspectives. I will get a quote/proposal
25 from Meyer on the following:

1 1. Are the beams actually installed in
2 the field the same as on the drawings? We
3 don't have as-built drawings. There is an
4 outside chance that they are different and
5 could be better (or worse) than the
6 drawings show. Paul has already noted
7 that some columns are bigger.

8 2. Are welds/connections/framing
9 conditions done correctly? This is part
10 of the structural review that we know is
11 necessary based on previous reports and
12 observations of the Court area."

13 So that is what they wanted you to do in
14 this second design check at the Station Mall?

15 A. Hmm hmm.

16 Q. And am I correct that it was a
17 similar kind of investigation that they wanted you
18 to do at the Algo Mall?

19 A. Similar, yes.

20 Q. Just before I leave the Station
21 Mall, I don't want to dwell on it, but I take it
22 as you've told us apart from doing the design
23 check you were actually there to help fix it?

24 A. Yes, that was quite an experience.
25 In fact I did some of the work in order to

1 expedite -- I was inspecting the work with the
2 people from Keena Steel were doing the
3 reconstruction.

4 My recollection at the time is that we
5 were still working on Christmas Eve and to get
6 everyone home on time I was doing some of the
7 repair work myself and working on the assumption
8 that it was being fairly well done and inspected
9 at the same time.

10 Q. Now, is the Station Mall work that
11 you've described, and the work at Algo Mall which
12 we're going to talk about, were those the only two
13 projects or jobs you ever did for ACP?

14 A. No. And unfortunately as you are
15 aware, maybe the room isn't, I don't have a lot of
16 records left of the work I did at that time. It's
17 more than 15 years. But I had done some work on
18 modifications to the Station Mall. There was some
19 work in I believe one of the theaters they wanted
20 to do some modifications. I went in and helped
21 them with some changes on a few of the stores.
22 Nothing of -- nothing significant I would say.

23 Q. And who would you say were your --
24 when you did do work for ACP who were your main
25 contacts?

1 A. Would have been Rob Caughill and Bob
2 Leistner.

3 Q. Now, did you receive -- for the
4 review -- let me switch new the Algo Mall. For
5 the review of the Algo Mall, did you receive a
6 formal RFP, request for proposal from ACP?

7 A. I don't see one here and I don't
8 remember getting one.

9 Q. Okay.

10 A. I think it may have been a verbal.

11 Q. And were you aware that Trow did
12 receive a formal RFP?

13 A. No.

14 Q. Trow Engineering? Can I get you to
15 go to what is tab 9 in your book, Exhibit No. 52.

16 A. Okay.

17 Q. This appears to be -- and what I
18 understand is a Trow Consulting Engineers response
19 to a request for proposal.

20 A. Actually this is from ACP to Trow.

21 Q. Sorry, ACP is a request for
22 proposal. And the request for the proposal of --
23 from Trow is set out in one and two in that first
24 page?

25 A. Hmm hmm.

1 Q. "1) to confirm that the building was
2 designed in accordance with good
3 engineering practices and standards (of
4 that time)

5 2) that the construction did in fact
6 mirror the design."

7 And is that generally the same inquiry
8 that was requested of you for the Station Mall?

9 A. Yes.

10 Q. And ultimately was essentially the
11 same check that was requested of you for the Algo
12 Mall?

13 A. Yes. Essentially, yes.

14 Q. Now, were you aware that Trow had
15 submitted a proposal in response to this?

16 A. I don't believe so, no.

17 Q. And so I gather you've never seen
18 it? Trow's proposal?

19 A. Received it within the last week or
20 so.

21 Q. When we gave it to you?

22 A. Yes.

23 Q. Do you recall any discussions with
24 Mr. Rod Caughill about the Trow proposal?

25 A. The proposal no.

1 Q. Okay. And but I take it from your
2 answer you did have some discussions about the
3 work proposal before you? Did you have some
4 discussions with Mr. Caughill about the work that
5 was to be done?

6 A. Of course, yeah. We had to make
7 arrangements on when I could come down, what the
8 general scope would be. As I said the primary
9 concern seemed to be the -- well as we saw,
10 before, the concern about the design of the
11 Station Mall being questionable. There was some
12 issues in terms of whether the design had been
13 done correctly. And so the concern was, Do we
14 have the same issue here with the roof at the Algo
15 Mall.

16 Q. All right. Let me just take you
17 then to their proposal, even though you have not
18 seen it. But let me take you to tab 11 in your
19 book. And this is isn't actually the proposal,
20 it's Exhibit No. 2084.

21 A. Yeah, the proposal was the previous
22 page here.

23 Q. We'll go to that in a minute. This
24 appears to be a note. And I understand it to be a
25 note that Mr. Caughill prepared for his file

1 regarding the Trow proposal. Which is essentially
2 the same as you've indicated, as the requirement
3 that you were looking at or subsequently looking
4 at.

5 The proposal -- he makes a note, that
6 the terms of reference are basically the same as
7 that for the Station Mall. The Trow fee proposal
8 is \$17,000 plus GST. And they indicate that a
9 number of matters are not included in price.
10 Travel, for example, testing, access to the hidden
11 areas, which would be to the client's-account.
12 Thirdly, "they are prepared to do torque testing
13 of bolts but as per P. Myer, P.Eng this is not
14 required." Do I take it you had a discussion
15 about the torquing of the bolts?

16 A. Yes.

17 Q. And do you recall that discussion?

18 A. To recall something from that far
19 back -- the idea that on most construction
20 tightening bolts to a certain torque has not been
21 a procedure that's recommended by the Canadian
22 Institute of Steel Construction for probably 30 or
23 40 years.

24 There is a perception out there among
25 some people that this is still something that

1 needs to be done, but it's in the vast majority of
2 construction it's not really required.

3 Q. Okay. And do you recall having a
4 discussion with Mr. Caughill about that in the
5 context of the Trow proposal?

6 A. No. No, it would have come up on do
7 we need to go up there with a wrench make sure all
8 bolts are tight?

9 THE COMMISSIONER: That is what torque
10 testing means essentially.

11 THE WITNESS: Well the testing is
12 actually going up and you have a -- like the one
13 you might use on a car. You actually have a gauge
14 on the wrench and you can turn it and say, Okay if
15 I can get the needle to move over to 100-foot
16 pounds or so many millimeters, if it can move that
17 means it has not been pushed that hard in the
18 past. So you're able to tell how much torque has
19 been put on that basically.

20 THE COMMISSIONER: Is overtightening an
21 issue or is it generally speaking undertightening.

22 THE WITNESS: Structural steel bolts are
23 very ductile. In fact when you do do torque on
24 bolts it is often because you're deliberately
25 stretching the bolt. So overtightening is a

1 pretty difficult thing to do. It's possible if
2 you have a big air wrench to actually break the
3 bolt. But in most cases if the bolt hasn't broken
4 it's adequate.

5 THE COMMISSIONER: But when you're doing
6 torque testing you're attempting to determine if
7 it's within a certain range.

8 THE WITNESS: Whether it's going to pop
9 at a certain point. Has it been tightened past
10 whatever the rate --

11 THE COMMISSIONER: So is your concern
12 that basically they're not tightened enough or
13 they're tightened too much or they're just right?

14 THE WITNESS: Well too much is almost
15 impossible to do.

16 THE COMMISSIONER: Right. So it's
17 undertightening.

18 THE WITNESS: It's certainly
19 undertightening is the concern. The reason you to
20 torque testing, and it wouldn't be something like
21 a shopping mall it is when you're using a
22 different type of design.

23 Most of the time the bolts work is that
24 you have two pieces of steel, the bolts go between
25 them and they're not able to move relative to each

1 other because the bolt blocks the motion because
2 it brushes up either side of the holes. And there
3 is a sheer force that prevents the two pieces of
4 steel from moving with respect to each other.

5 In the case of when you would torque a
6 bolt you're actually tightening the bolt so much
7 that it's stretched, and it yields a little bit so
8 it goes from being elastic to being plastic. And
9 that squeezes the two pieces of steel together to
10 the point where you can count on friction between
11 the two pieces of steel to limit movement to
12 nothing. And that's called a slip critical
13 connection. And you would use that largely in
14 circumstances in which you're going to have very
15 large vibrating loads, or you might have loads
16 that can change direction on a regular basis.

17 THE COMMISSIONER: Which wouldn't be the
18 case here.

19 THE WITNESS: No, a microwave tower is
20 the classic example because you're shooting a beam
21 off a few kilometers, a small movement of the
22 steel would be a problem.

23 THE COMMISSIONER: Relative to the
24 footprint.

25 THE WITNESS: Yes, something like that

1 you use a slip critical connection.

2 We rarely would specify on there. They
3 -- yeah, I think it would be rare that we would
4 run into those.

5 THE COMMISSIONER: All right, thank you.

6 BY MR. CARR-HARRIS:

7 Q. And, Mr. Meyer, I take it if you had
8 to get up to torque a bolt you would be able to
9 see what kind of condition it's in? You'd be
10 close enough to see the condition of the bolt and
11 the connection?

12 A. Be within two feet of it.

13 Q. All right. And then he goes on to
14 say that "our cost for Myer to do the same review
15 for the Station Mall was \$5450.00". Is that true?

16 A. I have no record but it's plausible.

17 Q. And then he sums up, "Based on the
18 above, Trow seems rather expensive. Perhaps we
19 should be approaching Paul with the same terms of
20 reference in getting a proposal from him."

21 And so apart from -- you've told us that
22 you've never -- you weren't aware that Trow was
23 making a proposal, you'd never seen it and you'd
24 never discussed it in those specific terms that it
25 was Trow's proposal he was asking you about.

1 But apart from the discussion describing
2 what he wants, did you have any other discussions
3 after that that you can remember at this point
4 with Mr. Caughill?

5 A. Not off hand, just the concern that
6 there was a very near miss, or near hit with the
7 Station Mall and there was a lot of concern about
8 whether this place had the same design.

9 Q. Okay.

10 A. Or had some of the same design
11 issues.

12 Q. Now your proposal, and I understand
13 was accepted, is at your tab 12, and it's Exhibit
14 No. 455. You have it in front of you?

15 A. Yup.

16 Q. And you've indicated -- now
17 obviously you were contacted by Mr. Caughill and
18 he asked you to submit your proposal to him?

19 A. Hmm hmm.

20 Q. And the answer is, yes?

21 A. Yes.

22 Q. And the first it says.

23 "Our firm is prepared to perform the
24 following design check and review services
25 for the Algo Centre. All work would be

1 done by Paul Meyer, P.Eng.
2 1) Review of the structural design of the
3 Algo Centre, based on the original 'S'
4 structural framing drawings prepared by
5 James Keywan Architects and The Beta
6 Engineering Group Ltd., sealed by J.J.
7 Kadlec P. Eng. This review would be made
8 using relevant Codes in place at the time
9 of the original design and construction.
10 2) On site review and spot check of the
11 structural framing, to confirm that the
12 sizes of members and the connections are
13 in conformance with the original design
14 and accepted construction practices.
15 3) If necessary, a more detailed
16 examination of any areas that are found to
17 be deficient in design or construction, as
18 determined in the structural design
19 review."
20 So pretty much the same as the Station
21 Mall?
22 A. Yup.
23 THE COMMISSIONER: Just scroll down a
24 bit. I just want to get the date, Ms. Kuka. The
25 5th of July.

1 BY MR. CARR-HARRIS:

2 Q. And then you go down to the bottom
3 of that same document, Exhibit No. 455. You say
4 that on the third paragraph at the bottom you talk
5 about the cost. That it's going to be \$4,200, GST
6 for the first two items, and then because item 3
7 is unknown obviously and in fact in this case
8 never developed, you never had to fix any
9 deficiencies as part of this?

10 A. Well we did, but nothing directly
11 related to the structural design.

12 Q. You're speaking of?

13 A. There was -- when I came down to do
14 that we were -- I was invited down that was when
15 this question came up about the damage to the
16 precast slabs that was discovered when they were
17 replacing one of the Gennie joints, so that became
18 additional work.

19 Q. But that wasn't on this project?

20 A. Not part of the same project. It
21 was all in the same time frame.

22 Q. It happened in the same time frame
23 but they were separate projects. You gave them
24 separate numbers and so on, we'll get to that.

25 But for the purposes of this design

1 check, is that what you like to refer to it? It's
2 called a structural design -- review of structural
3 design and construction?

4 A. Yes.

5 Q. Otherwise known as a design check?

6 A. Yes.

7 Q. So the first -- so for the first two
8 items of those \$4,200, which is about a quarter of
9 what Trow in their bid, unknown to you at the
10 time, was asking for presumably to do a design
11 check. And do you know -- I suppose -- so the
12 question is how come you can do it so cheaply?

13 A. Well I did look at -- and this is
14 stuff I've learned since because I was given the
15 documents that Trow prepared. Trow had a history
16 of looking at this facility before. And I believe
17 if you look at their proposal they actually were
18 doing a much more detailed review.

19 They talked about chloride ion testing
20 and a few other things. They were also using a
21 senior engineer out of Toronto to do most of the
22 design review.

23 But I think their scope, from what I
24 read, was a bit more extensive than what I was
25 proposed.

1 Q. Can we go the tab 10, Exhibit No.
2 410. And there's the scope, if you would like to
3 -- I was going to ask you that very question, Mr.
4 Meyer. At page 2, half way down they talk about
5 the scope of the work they're proposing.

6 A. Yeah. For example, they talk about
7 removal of portions of the existing structural
8 steel elements for strength testing.

9 Q. Not too quickly.

10 A. So, for example, in item 11 they
11 talk about removal of portions of the existing
12 structural steel elements for strength testing.
13 They talk about spot checking, welding inspection,
14 torque testing. So they're doing a much more
15 detailed review of the condition of the building.

16 Q. So number 9 includes that torque
17 testing we were talking about?

18 A. Yes.

19 Q. And it was also something they
20 included?

21 A. Yeah. And as I said, they're doing
22 a combination of doing a review of the design
23 itself and saying, Okay, was this designed
24 properly? Are the beams sized correctly? Were
25 the beams that were installed and were the

1 connections made the correct way?

2 That Gerber system requires a certain
3 amount of attention to be paid to the way that the
4 beams and columns are attached to each other.
5 They were also doing, and I'm gathering which is
6 an assumption, that based on their past history
7 they're also doing much more of a condition
8 assessment to say, Okay, what are the -- as they
9 said, Are the bolts tight? That sort of thing.
10 Which is not part of my scope.

11 Q. Okay. So that extent in your view
12 would account for the difference in the cost?

13 A. Well there would be quite a bit more
14 time spent in the field here. They had two visits
15 to Elliot Lake. You know, I'm assuming they would
16 be coming out of Sudbury.

17 Q. Yeah. They had two days --

18 A. Actually they're coming out of
19 Brampton so they've got a couple of days of visits
20 and co-ordination.

21 Q. Yeah. And meetings?

22 A. And meetings with the owner, which
23 is all stuff I would be able to do more
24 effectively because I lived in the area and not
25 coming up.

1 Q. That's item 6 you're referring to?

2 A. Yes.

3 Q. And then item 7 they say, "Random
4 measurements of existing structural members to
5 verify size, dimensions and details in comparison
6 with design details?"

7 A. That would have been something I
8 would have done as well. If the drawings say it's
9 a W6Mx155 is that actually the piece of steel
10 that's up there?

11 Q. And number 8 it says, "Exposing and
12 measurements of existing structural members where
13 details (design) are not available"?

14 A. And that's not something I would
15 have been looking at doing.

16 Q. And that's one of the items they say
17 would have been to the owner's cost of preparing
18 any -- if you look over on the third page of the
19 report.

20 A. Hmm hmm.

21 Q. You see repairs to finish -- number
22 2, top of the page. Number 2, "Repairs to
23 finished areas were removed to examine the
24 underlying structural elements will be conducted
25 by others."

1 So that indicates they were planning to
2 get right in there and have a look at the members,
3 the structure even though they would be covered or
4 hidden. Do you agree?

5 A. Yes.

6 Q. And then number 9, spot checking,
7 which you read?

8 A. Hmm hmm.

9 Q. "Spot is checking of structural
10 steel connections. Carry out building inspection
11 and/or torque testing of bolts where and if
12 required." The spot checking of the connections
13 that was something you were going to be doing was
14 it not?

15 A. The spot checking was verifying the
16 connections are of the right type, which you can
17 see it from a distance. Have they framed over the
18 column or over the top? It wouldn't be
19 necessarily looking at the condition, and that's
20 one of the big things that I see as different
21 between what we were examining and what they were
22 examining.

23 Q. So you would look at them from a
24 distance and decide whether they were in a
25 conformance with the design?

1 A. Yeah.

2 Q. And what kind of distance are we
3 talking about?

4 A. Well you have to go up above the
5 ceiling tiles. But you wouldn't necessarily be
6 going in closely and doing something like a
7 welding inspection, which would be a really close
8 examination of a weld. It would be, Okay, do we
9 have the drawings? Say there's supposed to be
10 stiffeners on both side's of the beams where it
11 passes over the column, for example, are they
12 there?

13 Q. And it could be as much as ten feet
14 away to do that?

15 A. Sure.

16 Q. And in that process would you make a
17 note of what you saw?

18 A. Probably, only if I saw something
19 that wasn't in conformance.

20 Q. Okay. And then number 10 is a
21 "General review to identify any deteriorated
22 structural components"?

23 A. Yeah. And that wasn't part of the
24 scope I was looking at. I mean it would be a case
25 that's similar to the third part of what I had in

1 my proposal. Is if we find any problem, Okay,
2 what do we need to do? But as I said, based on
3 the history, it sounds like they spent more time
4 and allowed for more time to do that examination.

5 Q. But I take it if you did see
6 deteriorated components as a professional engineer
7 you'd report them?

8 A. Right away, yes.

9 Q. And then number 11, "Removal of
10 portions of existing structural steel elements for
11 strength testing of suspect members." And you did
12 not do any of that you've already told us?

13 A. No.

14 Q. Okay. Now --

15 A. The assumption would be if you saw
16 the word Algoma, as in Algoma Steel, written on
17 the side of the beam you were reasonably confident
18 it was coming from -- it was a product of Algoma
19 Steel and would meet all of the requirements.

20 Q. And did you see any of those in your
21 travels?

22 A. Yeah, most of the structural steel
23 had been produced in Sault Ste. Marie by Algoma.
24 They were the only source of that type of steel in
25 Canada for many, many years.

1 Q. And where would they put that
2 sticker?

3 A. It's actually rolled in. When they
4 roll the steel you see the word Algoma.

5 Q. On the beam?

6 A. On the web.

7 Q. On the web. And if they were rusted
8 you would not be able to see it?

9 A. Potentially -- depends on how much
10 relief the letters would have.

11 Q. Now, so just the -- in terms of your
12 mandate then, and let me -- can I take you to?
13 It. Let's head back to tab 12, Exhibit No. 455.

14 A. Yes.

15 Q. Thank you. So item one is review of
16 the structural design as we read it. And I gather
17 the -- if we can summarize it for the sake of our
18 discussion, that you're to review those designs?

19 A. Yes.

20 Q. And to make sure that at -- in 1979
21 when they were used and built they were in
22 conformance with the relevant Codes, including the
23 Business Code?

24 A. Yeah -- the Building Code.

25 Q. The Building Code, yes. And that

1 was item one. And I gather that's an analysis of
2 the drawings themselves that accomplishes that
3 part?

4 A. Yes, and calculations associated
5 with that to verify that the sizes of steel that
6 are shown on the drawings would be adequate to
7 support the design loads.

8 Q. And that doesn't require a site
9 visit, you can do that in your office?

10 A. That portion would be a calculation
11 and you can that at the office.

12 Q. All right. And then item two was of
13 your RFP and it's there, but to summarize it that
14 is to do an on-site inspection or -- and view in
15 order to determine that as it was constructed was
16 in accordance with the original design?

17 A. Yes.

18 Q. And is that the entire mandate as
19 far as you're concerned?

20 A. I believe so, yes.

21 Q. All right.

22 A. They said the follow-up was --
23 really after the Station Mall the real concern
24 was, Okay, there had been changes made. Some
25 things were not built the way they were drawn.

1 That was one of -- that was a problem. So that
2 was -- I think that was probably in I assume in
3 Rod's mind and certainly in mine, Okay, what may
4 have gone on during the construction phase?

5 Q. And that's consistent with, as you
6 say, Station Mall and the wishes of the owner that
7 they wanted to double check the Algo Mall now that
8 they'd seen what happened at the Station Mall?

9 A. Yes.

10 Q. And for the second item to be able
11 to do the check you have go to the site, right?

12 A. Yes.

13 Q. And am I correct that as it happened
14 you were summoned to the site as a result of some
15 problems with the concrete slab. And you went
16 there and it was during the times that you were
17 there fixing that that you conducted the on-site
18 part of the structural review?

19 A. I believe that's correct, yes.

20 Q. And if we go to tab 49, Mr. Meyer,
21 Exhibit No. 63.

22 A. Yes.

23 Q. You're looking at a document which
24 is dated October 1st, 1996 from you to Mr.

25 Caughill, Rod Caughill, reference "Project #9648 -

1 Review of Precast Concrete Slabs at gridline
2 10-10X." And that's the work project that relates
3 to the damaged concrete slabs which you helped to
4 correct over a period of time -- over the
5 September long weekend?

6 A. Yes.

7 Q. And it seems to have a chronology
8 here which you wrote at the time. And if you look
9 at the first paragraph --

10 THE COMMISSIONER: Mr. Carr-Harris, will
11 you be taking us to a diagram of the roof so we
12 know exactly where that is?

13 MR. CARR-HARRIS: Yes, I have a --

14 THE COMMISSIONER: It may have been your
15 intention to do so.

16 MR. CARR-HARRIS: I will eventually so I
17 might as well do it now.

18 THE COMMISSIONER: That's fine. You
19 don't have to.

20 MR. CARR-HARRIS: Exhibit No. 1876, at
21 page -- the one I would like to go to is S4 at
22 this point which is either page 42. So could you
23 just blow that up the top portion, Mr. Kuka.
24 That's good.

25

1 BY MR. CARR-HARRIS:

2 Q. Can you just show us where 10 and
3 10X is on that drawing, Mr. Meyer? I don't mean
4 to spring this on you so just have a look.

5 A. Oh, no. Just by standing?

6 Q. Yes.

7 A. It will be this right here near the
8 middle of the building.

9 Q. And that's an expansion joint?

10 A. Yes.

11 Q. So just before we deal with that,
12 because I will have some questions later on, let
13 me take you through the chronology of that.

14 It looks like the long weekend, the
15 September weekend in 1996. On Friday, August
16 30th, and now referring to Exhibit No. 63. First
17 paragraph,

18 "On Friday, August 30, 1996, I
19 received phone calls from both Bob
20 Leistner and Larry Liautaud informing me
21 of a problem at the Algo Centre Mall and
22 asking me to go to the site to review the
23 expansion joint at gridline 10 on the
24 parking deck."

25 So it appears that they called you and

1 said they got a problem, can you help us, is that
2 right?

3 A. Yes.

4 Q. Then number two.

5 "I travelled to Elliot Lake the next
6 day [which would be Saturday, August 31st]
7 and observed that the gap between the
8 precast slabs along line 10-10X was
9 approximately 10-12mm at 10 o'clock in the
10 morning."

11 Then down to the fourth paragraph it
12 says, "On September 3, I faxed a letter to
13 Coreslab Inc. to inform them of the problem and to
14 notify them that I might be seeking their
15 assistance"

16 The next paragraph down. "On Wednesday,
17 September 4, I returned to the site with you the
18 observe the cutting of the slabs."

19 So it appears that you were down there
20 August 31st, on the Saturday. And did you leave
21 on the 31st or did you stay longer than that? It
22 appears you went back on September -- you went
23 back to the site on September 4th the Wednesday,
24 according to your note?

25 A. Yes.

1 Q. So you were there for a day on
2 August 31st. On Wednesday, September 4th you
3 returned to the site to observe the cutting of
4 the slabs.

5 "On Thursday, September 5, you and I
6 returned to the site..." Suggesting that they
7 must have gone home and then back.

8 And then --

9 A. That would have been -- we would
10 have stayed overnight there.

11 Q. Okay.

12 A. Returning to the site would be going
13 from the hotel down to the parking lot.

14 Q. And if you flip over to the next
15 page, as a matter of fact you say that. "We
16 remained on site through Thursday night and
17 Friday." Which was September 6th, and Friday.

18 Then on -- it says, "On Sunday,
19 September 8, you and I returned to the site and
20 met with Bob Leistner, Larry Liautaud, and Shahid
21 Shaihk." He's the Coreslab guy?

22 A. Hmm hmm.

23 Q. So it looks like you were pretty
24 busy through that period. And I've sort of
25 calculated it at about five days you were on site

1 between the 31st and the 8th, but it may have been
2 more or less. Can you give us your recollection?

3 A. That sounds about right. A lot of
4 that time while I was here would have been while
5 the cutting was going on and that's a very slow
6 process.

7 I think I see where you're going with
8 this. And the question is, wouldn't I have done
9 the reviews of the sizes of the beams and the
10 columns within the building? And that would have
11 been done while the cutting was going on.

12 Q. You don't remember? My next
13 question was you don't remember what day you
14 separated, or part of the day of those scheduled
15 days we've been referring to you would have looked
16 around?

17 A. No, it would have been during the
18 time we were here. As I said, there was quite bit
19 of cutting to do and that's -- you know, they're
20 moving at, you know, sort of millimeters per
21 minute as they're going through there. There's a
22 lot of, Okay, I'll come back in a couple of hours
23 when you have more for me to see.

24 Q. Yeah. And as I mentioned before
25 this -- there really are two separate projects.

1 Because when you do -- at Exhibit No. 63, tab 49,
2 it's the precast concrete slab job is your number
3 9648. And when you go over and look at the final
4 report on the review of the structural design the
5 so-called design check it's Exhibit No 56, that's
6 a different project number 9633. You kept them
7 separately in the books even though they
8 overlapped in terms of execution?

9 A. Yes.

10 Q. Okay. So now can you tell us -- I
11 just want to first of all take you to -- there are
12 two versions, preliminary version and a final
13 version of your report on project number 9633, the
14 review of structural design and construction.

15 And if you look at first what is at tab
16 50.

17 A. That's the preliminary.

18 Q. Preliminary. Exhibit No. 64, at the
19 top right corner. It's "Preliminarily only, for
20 your review and comments." So you sent this to
21 Mr. Caughill for his review once you'd drafted it?

22 A. Yes.

23 Q. And asked him for his comments. And
24 you had worked with him before. Is this the
25 normal way that you would work with him, send him

1 drafts of your reports?

2 A. It's pretty common in the industry.

3 Q. And why would you send it to the
4 owner in draft form and invite comments?

5 A. Well one, it gives him an
6 opportunity to correct something that I may have
7 missed because he was there at the same time I
8 was, so he was one of the participants.

9 It also gives him an opportunity to say,
10 Well look, I want more information about this, or
11 this is not clear to me, or can you please explain
12 what is going on?

13 It's pretty common to have drafts go
14 out. I was reviewing a draft geotechnical report
15 last night.

16 Q. I wasn't being critical.

17 A. No, no, that's really normal.

18 Q. And with somebody you have a
19 relationship with you understand each other after
20 having worked together for a period of time.

21 A. Most of it was with the Station
22 Mall. There was, for want of a better term, some
23 comradery that developed because we'd all been
24 through a fairly exciting time together. And
25 everyone recognized each other's strengths and so

1 we got along fairly well.

2 Q. So Mr. Caughill made some changes,
3 or at least recommended some changes and you made
4 them. There were a couple but, the only one I
5 really wanted to ask you about was -- if you turn
6 to tab a 51, Exhibit No. 65. And we won't be able
7 to do this on the computer but you and I can do
8 it.

9 A. Okay. Flip back and forth.

10 Q. Yes. At tab 50, is the draft -- tab
11 50, Exhibit No. 64. Tab 51 is Exhibit No. 65.
12 Looking at 64, and in the second paragraph on page
13 1 of Exhibit No. 64 you will see that it says in
14 the second sentence, "I have some concerns and
15 observations about the precast concrete slabs
16 found in the parking deck and believe that further
17 monitoring by you is required"

18 And then if you go over to Exhibit No.
19 65, tab 51, you will see that what I just read to
20 you has been deleted. It now reads, "We found a
21 problem with an expansion joint on gridline 10 in
22 the precast concrete slabs at the roof parking
23 area during my investigation and corrective action
24 was taken at that time."

25 So that was as a result of a discussion

1 you had presumably with Mr. Caughill that it was
2 changed?

3 A. Hmm hmm.

4 Q. Is that so?

5 A. And I'm not looking at the final
6 date there, it's about three weeks later. And I
7 -- and I can't say this for certain because I
8 don't -- we're going back quite a while. But they
9 may have been some further questions going on.
10 There was some discussion back and forth about the
11 load carrying capacity of the precast. And I
12 would have been able to, during that three week
13 period, may have received new information from
14 Coreslab.

15 Q. Okay. So are you saying you don't
16 know whether it was at Mr. Caughill's suggestion
17 or was it at Coreslab's suggestion that you
18 changed that?

19 A. No, I'm ultimately the one who would
20 have made the change and agreed to it. My belief
21 is it probably was based on getting some new
22 information and saying, Okay, do you know what is
23 really going on in terms of these slabs?

24 Q. And you don't recall where you got
25 it?

1 A. Well I do have -- I don't know if
2 this has to be an exhibit or not, but I looked at
3 my own correspondence. I did get some information
4 sent to me from Coreslab. Now whether that
5 arrived at around the same time or not I'm not a
6 hundred percent sure. But that may have been part
7 of it is I would have looked at it and said, Okay,
8 do we or don't we have -- you know, are these
9 slabs strong enough or not. And received
10 information from Coreslab saying, Yes, the design
11 is in conformance and therefore it would be
12 acceptable. So focus exclusively on the problem
13 that we determined at the time.

14 Q. And so you recall you said initially
15 you had some concerns that you wanted -- there
16 should have been some monitoring. Do you recall
17 what your concerns were at the time you wrote your
18 first draft?

19 A. Not right now, no.

20 Q. No?

21 A. Probably the strength of the -- the
22 things that would come to mind would be the
23 overall strength on the slabs and whether or not
24 they -- I think that would be the primary concern.

25 Q. And the monitoring, what monitoring

1 were you thinking of? You said in your letter
2 ongoing monitoring by you, meaning Mr. Caughill's
3 company?

4 A. Yeah.

5 Q. What was it --

6 A. Mostly to do with those joints and
7 just see if things were moving on those -- where
8 the expansion joint was because that was where the
9 problem had developed.

10 Q. And you mentioned that you were --
11 that you had made some observations that were part
12 of your concerns. Do you recall what those
13 observations were?

14 A. Not right now, no. As I said, the
15 biggest thing we noticed during the investigation
16 was that there had been a fair bit of longitudinal
17 cracking showing up on some of the precast
18 concrete slabs at the expansion joint and that was
19 the immediate concern.

20 So it may have been that I was wondering
21 if they should be looking to see if that developed
22 anywhere else on the underside of the slabs.

23 Q. And the only other change of any
24 consequence, or at all related to the issues of
25 the travel and live load on the parking deck, and

1 in fact the gates and the accessibility to it --

2 A. Hmm hmm.

3 Q. And you had -- you were proposing a
4 permanent structure be put in to prevent, in your
5 final report, to prevent large trucks and vehicles
6 getting on the parking deck, is that so, sir?

7 A. Yeah.

8 Q. And did that happen do you know?

9 A. No, I wandered around yesterday and
10 those gates are still there, the original gates.

11 Q. And I believe that part of your
12 report dealt with that. I mean there are a number
13 of places that your report deals with it, but you
14 at page 3 of Exhibit No. 65, tab 51, about the 4th
15 paragraph down -- sorry, this is after.

16 It says now,

17 "I was informed during my visits to
18 the site that loaded buses may have
19 travelled on the roof at some time in the
20 past. Gates placed a number of years ago
21 at the ramps to the roof deck now prevent
22 this from occurring..."

23 And that was changed in the final from
24 your comment, which is Exhibit No. 64, tab 50
25 where you said in the same paragraph,

1 "I was informed during my visits to
2 is site that loaded buses did travel on
3 the roof at some time in the past. I was
4 pleased to hear this practice has been
5 discontinued."

6 So I'm not sure what that amounts to in
7 terms of the debate, but clearly --

8 A. Grammatically it's not a lot
9 different. Both cases it's hearsay. I'm talking
10 to somebody from Elliot Lake who said, Oh yeah,
11 there were buses up here. At least I remember
12 there used to be buses up here, but whether there
13 were or not I have no way of actually knowing
14 that.

15 Q. You didn't have a Bible with you to
16 have them swear to tell the truth when you were
17 visiting the parking garage and the witnesses.
18 But this information you got from people at the
19 site I take it?

20 A. Yeah, and obviously I didn't
21 identify who it was. I think it was just in a
22 conversation that someone said, Oh yeah, there
23 used to be a bus stop up here.

24 Q. In any event Mr. Caughill persuaded
25 you that that was more a "may have" than a "did"?

1 A. It was an odd one because I was
2 informed during the visit that it did. But again
3 I have no -- this is something I would never have
4 seen buses up on there.

5 Q. So you just modified this to comply
6 with Mr. Caughill's concern that it may have been
7 hearsay?

8 A. Yeah. And I looked at both
9 sentences and I think they are, you know,
10 essentially they're saying the same thing from
11 what I heard that this happened. I heard that
12 this may have happened. I didn't see that as
13 being significantly different.

14 Q. Thank you.

15 THE COMMISSIONER: You have no
16 recollection of who you garnered this information
17 from, even generically, a construction worker?

18 THE WITNESS: I don't know if it would
19 have been the property manager. Trying to think
20 who we would have talked to at the time. The
21 people working on the building, we could have been
22 talking to them or one of the construction
23 workers.

24 THE COMMISSIONER: You have no
25 recollection?

1 THE WITNESS: No. It's been over the
2 space of five or six days. And people take a
3 break and while they're sitting there having a
4 cigarette it's, Oh yeah, did you know that they
5 used to do this?

6 BY MR. CARR-HARRIS:

7 Q. Well I presume it was in your
8 original report because whoever told you had
9 enough credibility for you to make the statement.
10 It wouldn't just be somebody who was apparently
11 not credible.

12 A. I raised it as a concern because I
13 was saying, Okay, you know, this is important
14 because based on what I know about the structure
15 now we don't want to be putting any heavy traffic
16 up there.

17 Q. I think that becomes clear from your
18 report that that is an issue for you, the traffic
19 that's on the roof.

20 A. Yeah.

21 Q. Now I just want to go back to your
22 final report, Exhibit No. 65, tab 51. And your
23 report deals extensively with loads in the parking
24 deck. You do a fair bit of analysis on that,
25 you'll agree?

1 A. Yes.

2 Q. And I take it it's an analysis
3 that's based primarily on the drawings, as we
4 discussed earlier, although you have to know
5 something of the live load to be able to do it?

6 A. Yes, the live load is described by
7 the Building Code.

8 Q. Yeah. So it's basically again a
9 design analysis on the drawings, correct?

10 A. Design check.

11 Q. Design check. And this analysis, in
12 terms of the loads, was required because you had
13 to determine if the original design was in
14 conformance with the OBC, which includes the live
15 and dead load calculations, is that correct?

16 A. Yes.

17 Q. And I don't want to improperly
18 summarize this, but to simplify am I correct in
19 saying that you found that the loads -- found the
20 loads for the basically the parking deck were in
21 compliance because you, in your opinion, the live
22 load is more properly set at 50-pounds per square
23 foot than it was at 75-pounds per square foot?

24 A. Yes. Based on the known use of --
25 based on the Code as it existed at the time and

1 the fact that only passenger cars could access the
2 roof.

3 Q. And Coreslab and others said that
4 the topping was required to be bonded to the
5 slabs, the precast concrete slabs, to achieve the
6 120-pounds per square foot superimposed capacity,
7 correct? That was their position?

8 A. And that's written here?

9 Q. Yeah, in your report at Exhibit No.
10 65.

11 A. Okay. Okay. Yes.

12 Q. It says in the first paragraph, the
13 second page?

14 A. Yes.

15 Q. They say --

16 A. Sorry, I was just wondering where
17 that was coming from, but that's from me.

18 Q. Your report.

19 A. Okay.

20 Q. It's got to be right.

21 A. Absolutely.

22 Q. So they're saying you have to have
23 this bonded to the slab. And you also found that
24 with the revised live load figure of 50 that no
25 bonded topping was required to achieve the

1 120-pounds per square foot?

2 A. Well I actually came up with it that
3 it totals to 95.

4 Q. That's correct.

5 A. So without the topping you would be
6 able to hold up to approximately 95 based on the
7 spans.

8 Q. Yes.

9 A. But not 120, no.

10 Q. And say in that, this is at Exhibit
11 No. 65, page 3, second paragraph, the last
12 sentence. "This means that the bonding of the
13 existing concrete topping to the precast slabs is
14 not necessary from a structural standpoint."

15 A. Hmm hmm.

16 THE COMMISSIONER: I'm sorry, where is
17 that, Mr. Carr-Harris.

18 MR. CARR-HARRIS: Page 3, second
19 paragraph, last sentence begins.

20 THE COMMISSIONER: I see, I see it.
21 Thank you.

22 BY MR. CARR-HARRIS:

23 Q. And so you said essentially in that
24 paragraph you can look at it two ways. One is as
25 Coreslab looks at it, you have to have a bonded

1 composite topping and precast slab level in order
2 to achieve it. On the other hand, based your
3 calculations which arrive at 95-pounds per square
4 foot, you can do without it.

5 A. Actually that wouldn't be based on
6 my calculations that would be coming right from
7 Coreslab's tables.

8 Q. So that's the basis of your
9 information?

10 A. Yes. Every one of the precast
11 manufacturers, the products were all very similar,
12 but this was Coreslab's own tables which I believe
13 have shown up here previously as an exhibit and I
14 still have my own copy of them. But that's where
15 I got the data. It would have been directly from
16 Coreslab's published information.

17 Q. But whatever you based it on, it's
18 your report that up to 95 pounds per square foot
19 you don't need a bonding. You don't need a
20 topping to increase the capacity?

21 A. For those two numbers, yes.

22 Q. And then and I wanted to ask you
23 this, could we pull up again Exhibit No. 1876,
24 page 42? That's structural number 4. Yes, thank
25 you. Now, can you just bring it in a little

1 closer?

2 As you're aware having looked at this --
3 could you blow it up?

4 You'll see that it indicates -- yeah,
5 I'm sorry, bring it down a little bit. Thank you.
6 There are -- in the middle -- excuse me.

7 If you look at the capacities, the WS
8 figure, you'll see -- and we've been talking about
9 this a fair bit. 120-pounds per square foot?

10 A. Hmm hmm.

11 Q. And then if you bring the drawing up
12 to the detail that's in the bottom left hand
13 corner. Perfect.

14 It indicates a roof topping. And the
15 evidence we've heard has said that in order to
16 have the structural integrity for a superimposed
17 load of 120-pounds per square foot that roof
18 topping needs to be there as a composite to
19 compose a composite slab?

20 A. Which isn't what's shown on the
21 drawing.

22 Q. Which isn't?

23 A. That's not what's shown. I
24 understand that that's what you heard and I agree
25 with that. That's not what's shown on the

1 drawing.

2 Q. What's shown on the drawing?

3 A. What looks like it is there is --
4 well just in reference to the architectural
5 drawings by the way that the sketch or the drawing
6 is done, it's showing some sort of insulation and
7 then the concrete topping above the insulation.

8 Q. Correct. So it's not going to be a
9 bonded composite slab if you build it like that?

10 A. It would have to be very unusual
11 insulation for that to work, yes.

12 Q. Okay. But apart from that that
13 shows the topping. Now would you go to page 41 of
14 the same exhibit, Exhibit No. 1876.

15 And, Mr. Meyer, what we should be
16 looking at should be S3 I think at this -- yes, we
17 are. And again, if you just blow up that part
18 again. You will see that it also talked about --
19 you'll also see that it's calling for WS120-pounds
20 per square foot. And this is the upper level mall
21 floor, Mr. Meyer?

22 A. Hmm hmm.

23 Q. It's the floor below the parking
24 deck.

25 A. Yes, where the stores are.

1 Q. And you will notice and there is no
2 detail on this drawing, or that anybody else has
3 been able to find, that requires there to be a
4 topping on that slab to achieve 120-pounds per
5 square foot. Did you notice that at any time in
6 your examination?

7 A. No.

8 Q. Is there any way you can explain it
9 that it's consistent that the roof -- in order to
10 get 120-pounds per square foot must have, as we've
11 heard, a 3-inch topping to form a composite slab?
12 And yet this floor would not require any topping?

13 A. No. The does -- and I don't believe
14 I have a large size of those drawings, but is the
15 WS identified as a -- on the drawing somewhere?
16 Or Mr. Kadlec said that's the total of the
17 superimposed load so that would other than the
18 precast is what I would assume?

19 Q. Yes, that's right. Then can I go
20 back to your mandate which -- and for your own
21 reference it is tab 12, Exhibit No. 455. But you
22 will agree with me that your proposal, this is the
23 one for the Algo Mall, your proposal says that you
24 are to spot check the structural framing to
25 confirm the sizes of the members and the

1 connections.

2 A. Hmm hmm.

3 Q. And that they are all in conformance
4 with the original design and accepted construction
5 practices. Yet in your report you don't
6 specifically confirm the sizes of the structural
7 members, do you? There's no reference to the
8 sizes or the measurements or the structural
9 members at all?

10 A. Of the steel framing?

11 Q. Yes.

12 A. No, because the -- it was found to
13 be correct. There is a statement in there that
14 says that the members did match the sizes shown on
15 the drawings.

16 So where on one of the previous
17 drawings, as I said, if it's a W21x55 beam or
18 whatever the size that was show, that's the size
19 of steel that's there.

20 Q. I'll take you to that. But it
21 doesn't specifically confirm what the sizes of the
22 structural members or even mention them. And
23 there are no measurements to confirm your
24 inspection. Is there a reason for that?

25 A. Like a listing of, Okay, the drawing

1 says that this is a 21-inch beam and I've measured
2 it and it's 21 inches?

3 Q. Yeah, in the report to your client
4 -- I'm not just talking about the report. I'll
5 get back to asking you what you did, but just in
6 terms of your report for now.

7 A. I wouldn't have given him a list of
8 all of the beams and say, Yeah, the -- I believe
9 the phrase that was used was "spot checking" to
10 verify that the sizes were correct.

11 Q. So you didn't actually convert that
12 to the report, whatever it is you found? You'll
13 agree with me none of that's in the report?

14 A. Other than the assurance that the
15 beam sizes present are what were shown on the
16 drawings.

17 Q. Well I don't even think you say that
18 if you want to have a look at it.

19 A. Oh, okay.

20 Q. And in terms of the connections,
21 there's no mention of the connections at all in
22 terms of what you did, or what you saw, or where
23 you went and so on. Correct?

24 A. Correct

25 Q. And your report, as I read it, does

1 not specifically say that the structural members
2 or the connections conform with the original
3 design.

4 A. I'm --

5 Q. Do you agree with me?

6 A. I'm sure you have looked at this
7 carefully so I'm assuming yes.

8 Q. Okay.

9 A. There is a description given. And I
10 have pointed out that the structural steel framing
11 is in conformance with the Building Code in
12 effect.

13 Q. And that's the complete answer?

14 A. Yes, because I think the question
15 was is there obviously anything wrong with this?
16 And the answer is, No, there's not anything
17 obviously wrong.

18 Q. So that's how you interpret your
19 mandate? Is anything obviously wrong?

20 A. Yes.

21 Q. And in your conclusions you say, and
22 this is at page 3 of Exhibit No. 65, the
23 conclusions. You say.

24 "The conventional portions of the
25 building have been designed in conformance

1 with the Ontario Building Code in effect
2 at the time of the construction. All of
3 the construction reviewed by me on site
4 appeared to be constructed properly and in
5 no significant defects were seen."

6 So there is nothing there about it
7 complies with the original design. And you say
8 that "The conventional portions of the building
9 have been designed in conformance with the Ontario
10 Building Code."

11 And you go on to say, The construction
12 reviewed by me seems to be in accordance with
13 general practices. But you don't specifically
14 mention either the members or the connections.

15 A. No, but that would be the with "no
16 significant defects." So if the drawing called
17 for a say 21-inch deep beam and there was an
18 18-inch deep beam that would a defect. If one of
19 the connections was supposed to have stiffeners
20 and it didn't that would be a defect. So it's a
21 negative as opposed to a positive statement saying
22 that all the beams are the correct size, saying
23 that are none of them are the wrong size.

24 Q. So it he doesn't get any bad news he
25 can assume everything's fine?

1 A. That there wasn't a defect with it,
2 yes.

3 Q. But they had asked you, and I won't
4 press this further, but they asked you to tell
5 them whether the members were appropriately sized
6 and in conformance with the original drawings, and
7 whether the connections were designed properly and
8 in fact installed properly. And you don't say --
9 respond to those specifically at all in the
10 report, except these general statements you're
11 referring me to?

12 A. To identify it again, there were no
13 problems, yes. Or were no significant problems
14 that were observed.

15 Q. And from -- and I ask you this from
16 a professional standpoint, is a report that only
17 reports on what is a problem, is that regarded as
18 complying with a mandate, a professional
19 engineering mandate?

20 A. I think it answered the question
21 that the owner had. And there's also the question
22 as to how much detail you want to include. You
23 could have a table of all of the sizes of every
24 piece of steel in there as determined on site and
25 a list saying, Yes, I, checked all of these and

1 these were all in conformance. I'm not sure that
2 adds a lot of value to the report.

3 Q. Your report does not say where you
4 looked on the site and what you saw. We have your
5 general conclusions you made that we read
6 together. But your report doesn't, as I read it,
7 does say, I went here. I looked at this and this
8 is what I found or didn't find. There's just none
9 of that in the report, do you agree?

10 A. Correct.

11 Q. And what's the reason for that?

12 A. Probably trying to keep the report
13 reasonably concise. As I said, the concern was
14 really what, you know, do we have a problem here
15 or not?

16 And unfortunately, as I said, I don't
17 have my field notes from the inspection that I
18 would have made. But those would have been
19 available and if a question had come up saying,
20 Okay, did you get a chance to go over top of the
21 such-and-such store? Did you look in there? I'd
22 have notes that would identify what I had and had
23 not looked at.

24 Q. They're long gone now I take it?

25 A. Yes.

1 Q. And what about photographs? Did you
2 take any specific photographs of what you did look
3 at?

4 A. There's quite a few in here. Most
5 of them are the photographs associated with the
6 work being done on the construction joint.

7 Q. There are, I'll take you to them if
8 you like, they are all noted as part of the
9 project for the repair of the slab and not for
10 this.

11 But some of them -- and so they tend to
12 -- they tend to have their -- they tend to be
13 photographs of people working on the slab. There
14 are three that I've identified that are apparently
15 taken of the soffit?

16 A. And some close-ups on a lot of the
17 work on the precast as well.

18 Q. On the precast?

19 A. There's a few where I have my watch
20 sitting there, or a pencil, or a measuring tape on
21 the precast.

22 Q. But in terms of the review of the
23 structure and construction, in terms of the
24 looking at the steel members and the connections,
25 you agree with me there's a total I have -- that

1 we've been given of 32 photographs.

2 A. Hmm hmm.

3 Q. Twenty-nine of them are up on the
4 roof, three of them are in the soffit of the roof?

5 A. Okay.

6 Q. And will we agree that the ones that
7 are in the soffit are the ones that tended to be
8 the ones that reflect the picture of -- I'll show
9 them to you -- but they tend to be the ones that
10 are the ones toward the project.

11 A. Closer to the big construction
12 joint.

13 Q. And the design check. Most of them
14 are to do with the joint fix that you were
15 involved in?

16 A. Yes.

17 Q. And that project was one project.
18 The project for the design check, as you call it,
19 was focused on the structure?

20 A. Hmm hmm.

21 Q. And so can I take you to what is
22 Exhibit No. 2121 and it's at tab 18.

23 A. Okay. It's a photograph done from
24 below.

25 Q. Yes. And is this a photograph taken

1 -- if you look -- I don't know if we have it. But
2 on the back of the document itself it's described
3 as a photograph, Algo Centre, Elliot Lake, review
4 of parking deck slab?

5 A. Hmm hmm.

6 Q. Project number is 9648. Which is
7 not the design check project?

8 A. Right.

9 Q. However, are you saying that you
10 took photographs of these for the design check,
11 some photographs?

12 A. There would also have been
13 photographs taken for the design check as well,
14 but they obviously weren't included in the report.
15 I'm curious why -- I don't know why it would have
16 had something from G4, it may be showing a
17 typical -- for the owner's information, a typical
18 look at what is under the parking deck in a
19 different area. I'm not sure why that's there.
20 But that's not close to the construction joint.

21 Q. Okay. Is that it appears to be some
22 way away. So Exhibit No. 2121 is that supposed to
23 be a picture of something you looked at at the
24 time of the inspection for the design check?

25 A. Yes, it would be.

1 Q. And what does it show?

2 A. One of the vertical -- it looks like
3 that's a light underneath and this would be one of
4 the steel girders, or steel beams. Based on the
5 grid location I'm not 100 percent sure where it
6 is, but substantially to the left of G10.

7 Q. Yes, I think that's right?

8 A. So it's somewhere above one of the
9 stores. I'll look at some of the steel that's
10 present at the time.

11 Q. Yes, it's near G4, near this
12 cross-section of G4.

13 A. Yes.

14 Q. And so from the standpoint of the
15 design check you can see there appears to be rust
16 on this member, is that correct, in your picture?

17 A. It's brown, yeah.

18 Q. And would that be rust -- some level
19 of rusting?

20 A. Probably, yes. The steel at that
21 time was often shipped to construction sites with
22 what they called a red lead primer. I don't think
23 they were still using lead at the time, but that
24 was the name they used. So it would -- the colour
25 would be very similar whether it's the primer or

1 some surface rust.

2 Q. You can't tell from this photograph
3 which it is?

4 A. No.

5 Q. And do you recall which it is?

6 A. There was -- I believe I made a
7 comment at some point that there was some minor
8 surface rusting that you could see on some of the
9 beams. That would be fairly common because the
10 steel is erected outdoors long before the building
11 goes up and develops a little bit of a bloom of
12 rust on it, just because it's common to supply it
13 not fully painted and protected. So once it's
14 installed it looks like slightly old steel.

15 THE COMMISSIONER: If you can blow that
16 up, Ms. Kuka. I can't make anything out on my
17 screen. And you say that you see rust there?

18 THE WITNESS: Yeah, it's probably a
19 combination. It's hard to tell from the
20 photograph, but it's probably -- that would be
21 pretty typical for any steel inside a commercial
22 building, you would see some rust on it. And as I
23 said, that would have been there from the day it
24 was erected.

25

1 BY MR. CARR-HARRIS:

2 Q. And we can't see any connection
3 there obviously at this distance. How far away --

4 A. From the photograph we can't see it.
5 I mean obviously there is a connection there and
6 it would be something that is hard to photograph
7 because of the presence of the fluorescent light,
8 but it would be fairly easy to see.

9 Q. And is this -- if you take it back
10 to its originally level of size how far away are
11 you from the beam? Did you take this photograph?

12 A. Yes.

13 Q. And how far would be from the beam
14 when you took it?

15 A. Probably two or three meters.

16 Q. And is that as close as you would
17 get it to with your ladder?

18 A. Would depend on what store we were
19 in. If we were putting our heads through the
20 ceiling. I'm not sure today what the
21 floor-to-floor height is. But, you know, you'd
22 have to -- I'd have to get up above whatever false
23 ceiling was present to get up there. So the
24 distance could be, you know, a couple of meters
25 between me and the piece of steel that I'd be

1 looking at.

2 Q. Or more?

3 A. I don't know that the -- as I said,
4 I don't know what the floor-to-floor height on the
5 building is. But there's not a huge amount of
6 space typically between the drop ceiling and the
7 structure above. There's got to be enough room in
8 there for the sprinklers and the HVAC system, but
9 it's not usually a massive amount of space once
10 you're above the ceiling.

11 Q. Do you have a recollection at this
12 distance how far away?

13 A. Like I said, one or two meters. If
14 it was more than two meters I would be very
15 surprised.

16 Q. Certainly it looks like more than
17 one or two meters.

18 A. Well again, I am looking out
19 horizontally so I'm a meter and a half from this
20 thing that I took a picture from.

21 Q. And can I have you look at tab -- or
22 Exhibit No. 2122 which is another photograph I
23 think.

24 A. Yes.

25 Q. It looks like it's of the same

1 place. They are all near grid 4, according to
2 your note on the back of the photographs. And
3 what was the purpose of this paragraph, do you
4 remember?

5 A. Would have been just establishing a
6 record of some of the things I looked at while on
7 site.

8 Q. Can you blow it up any? And what do
9 you see there? Do you see any rust?

10 A. There might be a bit on the top
11 surface of the bottom flange, but again nothing
12 that I would think would be a significant
13 deterioration of the seal. Up on the top surface
14 of the top flange I don't really see anything.

15 Q. There are -- then the last one I
16 have is Exhibit No. 2123. Again this looks like
17 the same area?

18 A. The one diagonal beam.

19 Q. And again there is no -- there is
20 not a sign of any connections. Agreed?

21 A. Well you can't see them in the
22 photograph, but on the far left of the photograph
23 you would be able to see where those two beams
24 frame into whatever they're coming into on the far
25 right. The connections would be visible to anyone

1 up in the ceiling space.

2 Q. But you -- I mean we can't see them
3 in this photograph is my point.

4 A. No.

5 Q. There's no sign of them.

6 A. No.

7 Q. Okay the rest is the beam and what
8 would you say about the condition of that one?

9 A. Looks like typical structure steel
10 that you would expect to see in a commercial
11 building.

12 Q. And what about the rust? Do you
13 see --

14 A. Certainly don't see anything that
15 would give me concern.

16 Q. And those are the only three that
17 appear to be inside. Have you looked through the
18 other photographs that we have sent you that were
19 originally yours?

20 A. Yes, and most of them were focused
21 specifically on the joint repair.

22 Q. And not the design check? These
23 three are the ones that you say are focused on the
24 design check?

25 A. Like I said, they were included with

1 the other report, but they aren't in the same area
2 as the work that we were doing. So I assume that
3 somehow or other they were included or they have
4 been referenced.

5 This would not be the only photographs
6 that exist or were taken. Actually they would be
7 the only ones that exist because I don't have any
8 of my previous records. But there would have been
9 a lot of other photographs taken just not
10 necessarily included in the 9633 report.

11 Q. You're right because in the bottom
12 of your report at tab 49, Exhibit No. 63. Go to
13 the page at the end. The last paragraph says.

14 "As soon as they are labeled I will
15 be sending you two copies of each of the
16 eighty-odd photographs that I took during
17 our investigations on site".

18 A. There you go.

19 Q. And that is attached to the report
20 project 9648. Which is the --

21 A. That's 33. That's actually the
22 review of the parking deck. Sorry, that's the
23 design check report.

24 Q. No, it's not. Exhibit No. 63 is the
25 review of the precast concrete slabs if you go to

1 the first page.

2 A. Oh, okay. I've got the wrong header
3 on there, sorry.

4 Q. Yeah, go to tab 49?

5 A. I'm looking at it. It's one of
6 those nice little glitches. The parking deck.

7 Q. Well this --

8 A. It still says 9633 on the second
9 page but probably shouldn't.

10 Q. Yeah, it looks like all you're
11 talking about is the precast concrete slabs in
12 here, correct?

13 A. Yes.

14 Q. And that says that there are
15 eighty-odd photographs associated with that
16 project according to this, is that correct?

17 A. Well photographs that I took while
18 on site.

19 Q. And so there are. We have 32 by my
20 count so we're missing some. But to the best of
21 your recollection what we have is three
22 photographs that are reflective of the design
23 check review?

24 A. That's what you have, yes. Yes,
25 that's correct.

1 Q. You have no specific recollection
2 otherwise of what -- how many you took for the
3 design check?

4 A. Well as I said, there was the --
5 when I mentioned about having the 80 photographs I
6 took during the investigation, that's probably a
7 combination of both projects.

8 Q. But the ones that we have are only,
9 apart from the three we looked at, are all to do
10 with the precast slab job?

11 A. And were include with that report,
12 yes.

13 Q. Well I just want to get a clear
14 answer to this?

15 A. Yes.

16 Q. Of the 32 photographs, all of which
17 are tagged as being associated with the precast
18 slab project and not the design check?

19 A. Yes.

20 Q. Three of those you told us, and we
21 looked at them, are in fact should be associated
22 with the design check project?

23 A. They're certainly applicable to it.
24 I can't recall why they would have been included
25 with the 9648. I can't really explain why they're

1 there. They're certainly helpful for the 9633,
2 the design check. But why they were included in
3 the other report I'm not -- I don't recall.

4 Q. They should have been included with
5 the final report, or do you remember?

6 A. I don't. I don't remember. As I
7 said, I'm not quite sure why they would have been
8 there. Some typographical errors I can
9 understand, but why those would have been included
10 I'm not sure.

11 Q. Okay. Can I ask you a few more
12 questions and we're done. When you were retained
13 to conduct your mandate, which we've now talked
14 about. Were you aware that the parking structure
15 had been leaking chloride ridden water for
16 virtually since it was constructed?

17 A. Not specifically.

18 Q. When you say "not specifically" can
19 you tell us what you did know before you were
20 retained to do this retainer?

21 A. Didn't know a lot about it other
22 than the design had been done by the same engineer
23 who had done the Station Mall. I knew that the
24 owner was concerned about it. I have no specific
25 recollection of discussions saying, you know, this

1 has been a problem ever since we bought this
2 building or ever since we built this building that
3 it's been leaking.

4 Certainly when we were looking at
5 replacing the construction joint. I find it would
6 probably be hard for me not to have heard
7 something that said, Yeah, we have to do this on a
8 regular basis because we've got a surface where
9 the waterproofing is at the surface. I can't
10 imagine that it wouldn't have come up, but it
11 didn't really -- you know, it wasn't something
12 specific to the engineering question I was dealing
13 with.

14 Q. And I think you write in your report
15 you mention that some of these things they should
16 do to help stop any leaking that's going to come
17 down?

18 A. Hmm hmm.

19 Q. But my question really is, were you
20 aware the length of time, virtually since -- 15
21 plus years that this structure had been leaking
22 through the roof.

23 A. No.

24 Q. The parking roof, chloride-ridden
25 water for all that time?

1 A. No.

2 Q. And had you ever seen the Trow
3 reports prior to us providing them to you?

4 A. I don't recall ever seeing them.
5 When I saw them the first time they seemed to be
6 new to me. I don't recall ever seeing them.

7 Q. Did you ask the owner, Mr. Caughill
8 or ACP if they had any prior engineering reports?

9 A. I didn't ask him about it, what I
10 would have asked for is any information they had
11 on the structure, on the design -- or sorry, the
12 structural drawings, shop drawings, such as the
13 Coreslab, any steel shop drawings they had. I
14 wouldn't -- I would have said to him, What else
15 have you got?

16 I wouldn't necessarily have been
17 interested in someone else's design check.
18 Because the intention of the design check is to do
19 it as an independent review and not necessarily
20 colour your opinion by what someone else has said.

21 I'm not sure if Ontario has adopted this
22 at this point, but I know for example in BC they
23 are fairly clear on saying that the person who
24 does the design check of a project should be
25 someone who's not associated with it and hasn't

1 been directly involved. Because that way they
2 they're not going to sort of fall into the same
3 traps as the first engineer did.

4 And so I wouldn't have been interested
5 in seeing someone else's analysis on it. Like
6 looking at, for example, if Mr. Kadlec's
7 calculations were there my reviewing those
8 calculations wouldn't have been helpful. Because
9 I would have said, Oh yeah, he's done that. Okay,
10 that makes sense. The idea was to look at it with
11 a completely fresh set of eyes and say, If I was
12 starting from scratch with this design what size
13 members would I come up with and is that reflected
14 in what Mr. Kadlec's design shows.

15 Q. So just to be clear then, you did
16 not ask for any prior condition reports, or
17 studies, or engineering assessments of the
18 building prior to taking on this retainer?

19 A. I think I would have asked what was
20 available. But anything that had to do with, as I
21 said, the focus from my standpoint was on the
22 structural design. So I wouldn't have been
23 interested in seeing someone else's review of the
24 design.

25 I didn't -- didn't, you know -- the

1 review of the condition other than what I was
2 going to see on site wasn't really part of the
3 scope that I had. So I would not have been
4 saying, Okay, what have you got in terms of the
5 history on this place?

6 Q. And did they give you anything when
7 you asked those questions?

8 A. I got all of the -- I believe I got
9 the Coreslab drawing, the shop drawings, copies of
10 the Kadlec drawings, may have had some of the
11 architectural drawing because some of the details
12 would have been on those, and I don't recall if we
13 had steel shop drawings or not.

14 Q. Okay. And the Trow reports, you
15 told me that -- I asked you whether you had ever
16 seen them before we gave to you as part of the
17 investigation of this Commission?

18 A. That's certainly the first time I
19 saw them, you know, a month ago. They all seemed
20 like something I had not seen before.

21 Q. And were you aware that Trow had
22 been there before doing some work, whether you
23 knew what they were doing?

24 A. Whether I specifically knew Trow was
25 there or not?

1 Q. Yes.

2 A. I don't know. I imagine Rod had
3 said, Yeah, we've had other people looking at this
4 over the years. Because as I said I'm sure he
5 would have shared that information with me. I
6 don't remember at some point on the drive between
7 Elliot Lake and here he said, Oh by the way, we
8 hired this person and this person from Trow and
9 this is what they did.

10 Q. You have no recollection of those
11 discussions?

12 A. Not specifically, but again I
13 imagine that I would have known going into it that
14 I wasn't the first person who had looked at the
15 building. But again my focus was primarily on the
16 structural design and doing a review of it based
17 on again what we had learned from the Station
18 Mall.

19 Q. I want to show you a couple of
20 passages. Would you turn to Exhibit No. 35. This
21 is the 1991 report of Trow and it's entitled "An
22 Investigation of the Parking Structure of Algo
23 Centre at Elliot Lake Ontario", carried out by
24 Trow Consulting. This would not be a -- you would
25 not describe this undertaking as a design check,

1 correct?

2 A. No, this was a much more thorough
3 examination of the structure itself. They did a
4 lot more in terms of looking at things from both a
5 building science standpoint, architectural
6 standpoint, that's one of the reasons I think that
7 their 1996 proposal is probably done with
8 something more like this in mind I would think,
9 but I can't confirm that of course.

10 Q. Okay. So just can I refer you to
11 page 13 of that Exhibit No. 35 where they had the
12 conclusions. And I just want to read some
13 passages to you and then I want to ask you a
14 question or two.

15 On page 13, paragraph 12.0 it says,
16 "CONCLUSIONS
17 Based on the data obtained from this
18 survey, we are able to make the following
19 conclusions:

20 1. The concrete topping top surface of
21 the roof slab is in an initial state of
22 deterioration. The high chloride ion
23 content in the concrete, coupled with the
24 effect of freeze-thaw action will likely
25 cause further deterioration to the

1 concrete topping wearing surface.

2 2. The soffit of the precast hollow core

3 structural slab exhibits numerous signs of

4 leakage mainly through the control joints

5 between the precast panels and expansion

6 joints and some cracks. Water and salt

7 penetration through the cracks and joints

8 will cause deterioration of the concrete,

9 prestressed cables, steel beam sprayed on

10 fireproofing, false ceiling tiles and

11 electrical conduits to increase.....

12 4. Many of the control joints in the

13 concrete topping with broken, contain

14 debonded sealant and are leaking. At many

15 locations the concrete topping is debonded

16 from the precast slabs....

17 6. It is our opinion that the design used

18 for this roof slab is inappropriate in

19 achieving a watertight condition over

20 commercial areas."

21 So there is the description of this in

22 1991 which is five years before you came.

23 A. Hmm hmm.

24 Q. And then there is at our tab 5,

25 Exhibit No. 44, you're looking at what is a

1 November 9th, 1994 -- did I say Exhibit No. 44?
2 November 9, 1994 report and this is an update on
3 the earlier report, three years later.

4 And if you go over to page 15 on the
5 conclusions you will see it says,

6 "Based on the data obtained from this
7 survey, we are able to make the following
8 conclusions:

9 1. The high chloride ion content in the
10 concrete topping, coupled with the effect
11 of freeze-thaw action, will likely cause
12 further deterioration to the concrete
13 topping wearing surface. Based on the
14 test results, it appears that the
15 chlorides have begun to contaminate the
16 precast slabs which could likely cause
17 rusting of the prestressing strands in the
18 slabs. This is most likely to occur at
19 areas of leakage.

20 2. The soffit of the precast hollow core
21 structural slab exhibits numerous signs of
22 leakage, mainly through the control joints
23 between the precast panels. Water and
24 salt penetration through joints will cause
25 deterioration of the concrete, prestressed

1 cables, steel beams, sprayed-on
2 fireproofing for steel beam, false ceiling
3 tiles and electrical conduits to increase.
4 3. Based on our review of the structural
5 steel beams at selected locations where
6 the worst evidence of the leakage was
7 noted, the beams appeared to be sound but
8 with some surface corrosion."

9 Now you have read these reports?

10 A. Yes.

11 Q. You've told me, and I should add to
12 this fact that we heard in evidence here, Mr.
13 Meyer, that between 1991 and this update report of
14 1994 the soffit of the precast slab had signs of
15 leakage there had virtually doubled in those three
16 years.

17 So having read those reports, and if you
18 had them -- had read them and had them available
19 to you when you were doing your inspection do you
20 think they would have been helpful to you?

21 A. For the purposes of what I was doing
22 they wouldn't have been. Because again the
23 intention of the review that I was doing was
24 largely to verify the design; to deal with the
25 issue of, Okay, has the steel design been done

1 correctly? And are there issues with the steel
2 framing that should be brought to the owner's
3 attention?

4 So the condition assessment would be
5 more a case of, Okay, if I spotted something that
6 I thought was of concern, and again my focus would
7 have been primarily on the steel, was to bring it
8 to the owner's attention.

9 So this is -- definitely this was
10 definitely interesting but it's not something that
11 was necessarily something that was what I was --
12 what I was focusing on at the time.

13 Q. Well in terms of your calculations
14 of the loads, would it not have been important to
15 know that there could be some serious damage in
16 the structural integrity of the structure already
17 given what Trow discovered in their reports?

18 A. Yes, and I notice here that they
19 have identified that the structural steel seems to
20 be sound. So I'm not sure what I would have
21 gained from that.

22 Q. Well it's -- what they recommended
23 is that the thing be fixed. It's not fixed and it
24 continues to leak three years later when you're on
25 the scene. Would it have been helpful to you in

1 your inspection, and might you have done something
2 differently in terms of your observations if you
3 knew the background of this building was the one
4 that you heard, that I've just read to you that
5 it's been leaking internally with salt and water
6 for what is now 18 years?

7 A. Yeah, and as I said I didn't know
8 that at the time.

9 Q. What would you have done differently
10 if you had known that?

11 A. Probably, because I am exclusively a
12 structural engineer and I don't have any
13 specialized knowledge in waterproofing, I probably
14 would have reminded the owner that it was fairly
15 critical to make sure that this thing didn't leak.

16 I think the owner knew that because
17 they, as we've been reading here, if they have a
18 client who has water dripping down into the store
19 the client is probably not very happy. So they
20 would have an incentive to stop it from going on.
21 I'm not sure me adding to that -- it may have
22 helped. But I don't know that I would have done a
23 lot different on it other than saying, You've got
24 to get the leaking stopped because you have a
25 steel structure underneath.

1 Q. And you didn't say that at the time
2 because you didn't know it?

3 A. I didn't know about the extent of
4 the leaking at the time, no.

5 Q. And might you also have warned the
6 owner that if it isn't fixed that the structure
7 may fail?

8 A. That's hard to know now. I now work
9 in heavy industry and we deal with corrosion,
10 that's one of our primary concerns that we deal
11 with. So thinking back to what I would have known
12 at the time, would I have been as conscientious
13 about corrosion as I am now? Probably not. Could
14 I have brought it to their attention to say,
15 You've got a leaking problem and you've been
16 getting told repeatedly you have to fix that and
17 you need to get on that. But that's something you
18 have to speak to an architecture or building
19 science engineer on.

20 MR. CARR-HARRIS: Those are my
21 questions, Mr. Commissioner, thank you.

22 THE COMMISSIONER: It's appropriate to
23 take our morning break. Mr. Registrar, 20
24 minutes.

25 --- Morning break taken at 10:45 a.m.

1 --- Upon resuming at 11:00 a.m.

2 MR. CARR-HARRIS: Mr. Commissioner, just
3 before my friends begin. As you know Mr. Meyer
4 brought some documents and I'm going to have a
5 look at them to see if it's necessary to have them
6 marked before he leaves. And that concludes my
7 questioning.

8 THE COMMISSIONER: Thank you. Mr.
9 Bisceglia, you're next.

10 CROSS-EXAMINATION BY MR. BISCEGLIA:

11 Q. Good morning, sir.

12 A. Good morning.

13 Q. My name is Joe Bisceglia and I'm
14 Greg Saunders' lawyer. Greg Saunders is an
15 engineer that was with M.R. Wright at the time of
16 the collapse.

17 I would like to deal firstly with the
18 issue of the terms of being retained and the
19 relationship between the client, if you will and
20 the engineer.

21 You've testified to questions put to you
22 by my friend that you were approached by Algoma
23 with respect to conducting a design review. And
24 as a consequence thereof I see Exhibit No. 455 at
25 tab 12 of your documents as being the outline that

1 you prepared to the client setting forth the terms
2 of reference, is that fair?

3 A. Yes.

4 Q. And I gather that within the
5 profession when an engineer is retained he or she
6 outlines the scope of work that he or she
7 undertakes to do for that particular client?

8 A. That is sort of the first step, To
9 the extent that you know how much scope there is.
10 In some cases it's very -- it's hard to know the
11 scope until you start doing the project, but yes.

12 Q. And you try to outline, as best you
13 can, the cost to the client for that particular
14 service?

15 A. Yes.

16 Q. Is that fair?

17 A. Yes.

18 Q. And you proceed to do the work that
19 you undertake and prepare a report for the client.
20 And as you indicated to my friend earlier this
21 morning, you draft a report and that report goes
22 to the client and it's for the client to review.

23 A. Yes.

24 Q. And you expressed certain reasons as
25 to why that's done. But just to be clear, would I

1 be correct in saying that first and foremost you
2 send the letter to the client (A), to get some of
3 the facts confirmed or the premises that you
4 worked out in that report?

5 A. Hmm hmm.

6 Q. Correct?

7 A. Yes.

8 Q. Secondly, I put it to you that you
9 do that in order to make sure that you respond
10 properly to what the client was looking for in
11 terms of the level of service, is that fair?

12 A. Yes.

13 Q. In other words if you prepare a
14 report and you don't answer the questions that
15 were asked of you to answer that would not be
16 fulfilling the client's obligation?

17 A. Correct. And then you don't get
18 paid which is very bad.

19 Q. Yes. And so based upon the terms
20 set out, the nature of the work that you're going
21 to carry out, the cost and the questions you have
22 to answer, you limit yourself to that particular
23 function or work, is that correct?

24 A. Seems fair.

25 Q. I guess what I'm saying is that my

1 friend put a number of questions to you with
2 respect to the condition of the beams, the issue
3 of corrosion, et cetera, and your response to that
4 was that you saw that as being outside the scope
5 of your retainer.

6 A. In the sense that it wasn't a
7 specific requirement to say, Okay, what we're
8 going to do is evaluate, you know, the condition
9 of the building.

10 I think in a broad sense if I identified
11 something that I thought was a safety concern of
12 course I would have a professional responsibility
13 to report it to them.

14 And the third part of my proposal, which
15 is showing up here, does say, you know If there is
16 something that is deficient in design or
17 construction then, you know, further work will be
18 required.

19 Q. Right.

20 A. So you're keeping an eye open for
21 something like that, but it's not part of the
22 scope to necessarily do that. That's not what we
23 were looking for. The primary focus in this case
24 was very much to deal with the design and -- the
25 design I guess.

1 Q. What I understand you to say, sir,
2 and you can correct me if I'm wrong. In the
3 course of fulfilling your duties and obligations
4 under the terms of reference, if you see that
5 there's an issue or a problem or a safety concern
6 you would be bound to report that?

7 A. Absolutely, we are.

8 Q. Is that what you're really saying?

9 A. Yes.

10 Q. Thank you.

11 A. Not as eloquently as you have.

12 Q. That's fine. And with respect to
13 how you were going to discharge your
14 responsibilities to the client within the terms of
15 your retainer, I gather from the agreement that
16 we've made reference to, or at least you letter,
17 Exhibit No. 455, that you were going to in essence
18 look at the drawings that you had been provided by
19 Algoma, correct?

20 A. Yes.

21 Q. And you were going to come on site
22 after reviewing the drawings and do a visual
23 inspection with respect to what was actually
24 built, is that fair?

25 A. Inspection or verification.

1 Q. Yes.

2 A. Essentially confirming that the
3 sizes -- the member sizes were correct, the beams,
4 columns, girders were all sized correctly. That
5 the way the connections had been done was in
6 conformance with the recommendations that CISE has
7 for Gerber girder buildings.

8 Q. But to achieve that you weren't
9 going to check every piece of beam that was there.
10 In other words, you weren't going to check every
11 beam?

12 A. No. But if you -- for example, one
13 photograph if you look up -- stick your head up
14 into the Zellers store you can see this beam and
15 30 others that appear to be identical. You can be
16 reasonable confident they are all going to be the
17 same. So if you confirm the size of one of them
18 you can be assured that the rest of them will be
19 the same size.

20 Q. So that's what I said, you did a
21 visual inspection?

22 A. Yes.

23 Q. And that's what you did here?

24 A. Yes.

25 Q. You didn't take down insulation?

1 You didn't remove insulation or fireproofing from
2 the steel beams to determine that every joint that
3 was involved in the structure was in accordance
4 with the design?

5 A. No, but where we would have had --
6 well some of the stuff you can see through the
7 fireproofing. For example, like if there are or
8 aren't stiffeners on a beam that cantilevers over
9 a column. You'd be able to tell if there's
10 stiffeners there regardless of whether there's
11 fireproofing on it or not.

12 Q. Again you didn't look at every
13 joint, you didn't look at every connection, is
14 that correct?

15 A. No, I didn't.

16 Q. You looked at a sufficient number to
17 get a proper random sampling, is that fair.

18 A. Yes.

19 Q. And you exercised your personal
20 judgment as to what areas and how many areas you
21 would look at to make that determination, is that
22 correct?

23 A. Yes.

24 Q. Thank you. Now, just so that I
25 appreciate this, after your negotiations and

1 discussions with Algoma you had made arrangements
2 to come to Elliot Lake to conduct this review or
3 investigation, whatever we want to call it, but
4 you got a phone call before that by Algoma saying
5 that they had an issue to look at and that was
6 with respect to the expansion joint?

7 A. Yes.

8 Q. Have I got that right?

9 A. Yes. And I was trying to remember,
10 and I'm not sure, and of course I -- unfortunately
11 I don't have my own records. I'm not sure when I
12 received confirmation from Algoma Central
13 Properties that I actually had the go ahead on the
14 review. Obviously I did because I ultimately
15 issued the report to them, but my proposal was
16 done in July. I was away for about 3 week of July
17 of that year so it was on my return when I got
18 back I realized they had a big problem.

19 Q. I appreciate your answer but we'll
20 be here much shorter if you simply answer my
21 question.

22 A. Oh, okay.

23 Q. I'm not trying to cut you off. You
24 give me as complete an answer as you go.

25 Just so I'm clear on this, you had by

1 that time received the drawings with respect to
2 the building in Elliot Lake and you had them in
3 your hand, so to speak, and then you got the call
4 to come to Elliot Lake?

5 A. That I'm not a hundred percent sure
6 about whether I started the review of the building
7 prior to that point or not.

8 Q. So you came to Elliot Lake at the
9 request of Algoma. And I gather you were asked
10 for your expert opinion to deal with the expansion
11 joint problem that had closed, instead of being 2
12 inches it was in fact touching, is that correct?

13 A. Yes. And the issue was the cracking
14 of the precast.

15 Q. Well, was the issue the fact that
16 expansion joint was no longer there causing the
17 other parts of the slab to crack, or was it the
18 cracks and then you saw that it was in fact the
19 expansion joint? Help me out.

20 A. They phoned me and said they had a
21 concern. And I believe the reason that they
22 called me as a structural person was because there
23 were cracks in the precast. And the question was,
24 How bad are these? Is something going to fall?
25 Down.

1 Q. The point I'm coming to is there
2 seemed to be a lack of appreciation for the fact
3 that the expansion joint that should have been
4 there wasn't actually functioning as an expansion
5 joint, and other areas of the slabs were in fact
6 cracking or buckling, is that correct?

7 A. Well the area that I'm aware of
8 where the cracking occurred was at the expansion
9 joint.

10 Q. So each side of the expansion joint
11 there was a slab, is that correct?

12 A. Yes.

13 Q. And the slabs ran in a general
14 east-west direction, is that correct?

15 A. Yes.

16 Q. And where the two slabs were
17 touching they shouldn't have been touching, there
18 should have been a 2-inch gap, is that correct?

19 A. Yes.

20 Q. And where was the crack in each of
21 those slabs that were touching?

22 A. They were generally running in the
23 east-west direction. And so it was as if the
24 hollow core -- if you think of this -- the hollow
25 core was splitting and there were cracks in the

1 webs, which is the concrete between the circular
2 holes in the hollow core. There was actually
3 cracks in those webs.

4 Q. So when you came here to look at the
5 problem of the cracking in the slabs that were at
6 I think 10 and 10X was the reference?

7 A. Yes.

8 Q. You determined that the cause of
9 that was the thermal expansion with the two slabs
10 coming into contact, is that correct?

11 A. Yes.

12 Q. And at that point I gather that you
13 thought that that was a serious problem?

14 A. The cracking was definitely, I had a
15 concern about it. It was -- the concrete was
16 definitely had a lot of vertical cracks which was
17 not a good sign.

18 Q. But I interpret your reports, and
19 your evidence, and your letters, and so on to
20 Algoma that you thought that the issue of the
21 nonexistence of the expansion joint was a serious
22 problem. But look at what you did.

23 A. Okay.

24 Q. (A) You stayed in Elliot Lake, (b)
25 you contacted Coreslab, (c) you supervised the

1 cutting of the slab. You made immediate contact
2 with Coreslab and asked the representative to come
3 to Elliot Lake. I gather that that indicated to
4 you that it was a serious problem and had to be
5 looked after, is that fair?

6 A. Yes.

7 Q. Correct?

8 A. Yes.

9 Q. Thank you. And why was that taken
10 to you -- taken by you to be a serious problem?

11 A. The concern I had was that the core
12 slab has all of its strength the prestressing,
13 resists bending, but all of the resistance to
14 sheer failure is just by the concrete webs. And
15 the amount of cracking I saw made me concerned
16 that there was potential that the slabs could
17 actually fail and fall.

18 Q. And also put inappropriate pressure
19 in other areas of the structure?

20 A. That would be a secondary concern.
21 When we were looking at the precast in question
22 and we were standing in the diaper section of
23 Zellers, and I remember thinking this would be a
24 really bad place for a collapse to occur.

25 Q. Now, in your review of the situation

1 with respect to the expansion joint was there any
2 attempt to determine what caused the expansion
3 joint to close, or that gap to close?

4 A. I had no way of knowing what had
5 caused that.

6 Q. Was there any efforts to determine
7 the nature and extent of any structural changes
8 that brought around 200 feet of slab, wasn't it,
9 that you lost the expansion joint?

10 A. Approximately, yes. Between that
11 and the next expansion joint.

12 Q. Was that not a serious concern to
13 you as an engineer, and or on the part of the
14 owner, as to why a building and structure of that
15 size, over 200 foot would lose that expansion
16 joint?

17 A. If I'm recalling right, I think we
18 did identify -- one question we had was whether
19 the steel was moving or not. And I think we
20 determined that it was pretty clear that we didn't
21 think that the steel had moved. The columns were
22 still vertical and the beams were still in the
23 same place.

24 Q. So you did check the columns?

25 A. Yeah.

1 Q. Just speak about that for a moment.
2 I gather you didn't go to the Building Department
3 for the City of Elliot Lake before you did your
4 structural review?

5 A. No.

6 Q. Do you not think that you should
7 have gone there to see what drawings or plans had
8 been filed with the municipality?

9 A. I was able to get all of the
10 drawings that I needed from the building's owner.

11 Q. How do you know that? How do you
12 know that?

13 A. Well I had all the drawings that I
14 required in order to do the scope of work that I
15 had, which was the structural drawings and the
16 drawings from Coreslab.

17 Q. Did you have any knowledge, or
18 information, or drawings with respect to an
19 anchoring system that was installed at the mall?

20 A. How do you mean an anchoring system?
21 I'm sorry.

22 Q. Well are you aware that the building
23 when it was being constructed was out of plumb?

24 A. I learned that in the last month
25 that there was some work done to straighten up the

1 steel structure during the erection phase.

2 Q. So at the time of your design review
3 (A) you didn't go the building department to check
4 to see what the drawings were? Because you're
5 supposed to file any changes to the drawings with
6 the building department aren't you?

7 A. That would be common procedure,
8 yeah.

9 Q. And you did not have any knowledge
10 or information, at a time of your design review,
11 that 16 columns on the north wall were all
12 anchored in to the side of the hill or the rock
13 mountain?

14 A. I don't recall having that knowledge
15 at the time, no.

16 MR. BISCEGLIA: You want to bring up
17 Exhibit No. 25, Mrs. Kuka, please. Document
18 number AGCP6647.

19 BY MR. BISCEGLIA:

20 Q. Would you go to page 6654? This is
21 a drawing that was prepared by Trow on behalf of
22 Algoma on January 22nd, 1980. It's been filed as
23 Exhibit No. 25 in this proceeding.

24 And the evidence would indicate so far,
25 sir, that during the course of construction of the

1 mall the building was out of plumb. And in order
2 to make it plumb anchors were put in to all of
3 those sections that are shown on that page and
4 anchored into the mountain, and the building was
5 straightened out, so to speak or wrenched back.
6 These are my words not the evidence, in order to
7 make it plumb. Do you have any knowledge or
8 information about that?

9 A. As far as I know this is the first
10 time I've ever seen this.

11 Q. Would you agree with me that
12 conducting a review of the integrity of this
13 structure, in terms of structural design as built,
14 to know what was keeping this building straight,
15 or supposedly straight, would have been this
16 information?

17 A. Well the building -- presumably the
18 design of the building didn't -- because this is
19 done by Kadlec, so I assume his design was based
20 on the assumption to design the building so it
21 could support itself laterally as a free-standing
22 structure, and this was done to deal with a
23 construction problem.

24 Q. Sir, you were asked to look at the
25 original drawings?

1 A. Yes.

2 Q. And you were then asked to determine
3 if the building as built was in compliance with
4 the original drawings?

5 A. Yes.

6 Q. That was your mandate?

7 A. Yes.

8 Q. Correct? And I put it to you, to
9 what extent, if any, did you review the structure
10 and all of the changes or change orders, if you
11 will, that were made to those drawings in order to
12 confirm to your client that the building was built
13 in accordance with the Ontario Building Code as
14 you have indicated in your reports? Or in
15 accordance with the design? If you got this kind
16 of situation appearing, you'd agree with me that
17 it is most unusual?

18 A. It seems odd, yes.

19 Q. So in going back to the issue of the
20 slab and the loss of the expansion joint and
21 trying to determine what would cause a 200-foot
22 section of this roof slab to tighten up, wouldn't
23 it have been relevant to know where or not the
24 building had been built plumb, or was out of
25 plumb, or if there had been a shift?

1 A. The way the frame on a building
2 works is that there is a substantial number of
3 beams that also run east-west connecting the
4 columns, as well as the beams that are running
5 north-south. So the north-south beams are holding
6 up the precast.

7 But the distance between all of those
8 beams is pretty much fixed by the beams that are
9 running east-west. So I'm not sure that there's a
10 potential for the -- for all of those links to
11 change. And as I said, we didn't observe any
12 significant tilting on the columns.

13 Q. So just so I'm clear about your
14 evidence then, is it your evidence today under
15 oath that you were unable to determine the cause
16 of the loss of the expansion joint in the areas of
17 10 and 10X that required a 200-foot cut?

18 A. Wasn't aware of what had caused it,
19 no.

20 Q. Now there's a letter at tab 48 of
21 your book. And that's the letter from Coreslab?

22 A. Yes, I found it.

23 Q. Exhibit No. 449. This is the letter
24 from Mr. Shaihk of Coreslab to Algoma on the date
25 of September 11th, 1996. And he outlines what in

1 fact was to be done with respect to the expansion
2 joint?

3 A. Hmm hmm.

4 Q. I'm interested in item 6 that says,
5 "Maintain the 2" expansion joint, (Do Not Grout)."
6 And he puts that in bracket. Was there some issue
7 on site, observed by you and Mr. Shaihk, with
8 respect to grouting between the core slabs that
9 were visible or you were able to see that had been
10 done in the past? Or parts of the expansion
11 joint?

12 A. I don't recall, I'm sorry. I know
13 that the intention there is to make it clear that
14 we're not, that that gap has to be maintained so
15 that the slabs are not pushing against each other
16 again.

17 Q. And if you look earlier in that
18 letter again item 2 says, "Remove all loose
19 concrete." Do you recall making any observations
20 with respect to whether or not either there was
21 loose concrete where the joint should have been,
22 the expansion joint, or there'd been grouting in
23 some areas? I'm just getting back to the issue of
24 causation here. Why you would have this -- it was
25 thermal expansion to some degree that may have

1 caused some the problem?

2 A. Possibly.

3 Q. So was there any regard given to
4 that? Did anyone look to see if there was grout
5 or concrete placed in the joints, whether it be
6 the expansion joints, or the butt joints, or the
7 joints involving the slabs?

8 A. I think by the time I got there they
9 had already take out the construction -- the
10 expansion joint out. So whether there was grout
11 in between or not I don't recall.

12 Q. They had already cut?

13 A. No, they had been removing the
14 Gennie joint in order to take the replacement of
15 the Gennie joint. And that's when the workers on
16 site identified the crack and said, Okay, We have
17 to have someone look at this because we're not
18 happy with what we're seeing.

19 And removing the loose concrete would
20 also involve removing all of the material that
21 would have chipped during the cutting. There was
22 quite a bit of concrete during that cutting of the
23 repairs.

24 Q. Just so I'm clear about this then,
25 based on your evidence, and correct me if I'm

1 wrong, not only were you unable to determine the
2 cause of the slab movement for that area closing
3 in, there was no determination as to whether or
4 not it was thermal expansion. And there was no
5 determination as to whether or not perhaps
6 grouting or cement had gotten into the joints or
7 been put into the joints before you arrived there?

8 A. I commented on the thermal
9 expansion. We know that that was a contributing
10 factor. I took a photograph and it showed that at
11 10:00 in the morning there was a gap, by 2:00 in
12 the afternoon there was no gap. And so it was
13 pretty clear that that was part of what was
14 forcing the slabs together.

15 I also mentioned in my report that there
16 was a possibility that some of the steel had
17 moved, but we didn't see any strong evidence of
18 that.

19 Q. Where did you think that there might
20 have been a possibility that the steel had moved?
21 In what area if any?

22 A. Essentially it would have had to
23 have been the whole structure west of grid line 10
24 would be the most likely, just because that was --
25 I think if there was movement going on on a

1 portion to these two. You have the tower there
2 and the other parts of the building there.

3 Potentially the steel -- the two pieces
4 of the building, if you will, may have moved. The
5 steel framing may have moved, but again you'd
6 think that something would have shown up on the
7 architectural finishes inside the building. Or
8 you would be able to tell that the columns were
9 out of plumb.

10 Q. Well weren't some of the columns
11 covered by drywall or encased?

12 A. Below the ceiling level, yes.

13 Q. So in all of the stores, other than
14 the small section above the T-bar ceiling, it
15 would have been pretty difficult to determine the
16 nature and extent of the movement, if any, because
17 you only had maybe a couple of feet above the
18 T-bar ceiling to look at.

19 A. Or 3 or 4-meters depending on --

20 Q. Yeah?

21 A. I'm not sure of the distance between
22 the T-bar and the roof, but there's not a huge gap
23 in there. But you would expect that if you had
24 steel columns encased in drywall and there was
25 significant movement you would see cracks in the

1 drywall. You'd have --

2 Q. Only if the drywall, I put it to
3 you, was in fact attached to the beam. But
4 usually when they box those in they don't
5 necessarily attach the drywall or the framing, the
6 2X4 framing around the beam. It's usually free
7 standing.

8 A. If it's part of the fireproofing
9 it's actually attached to the steel.

10 Q. You don't know that?

11 A. Yeah. If it's part of the
12 fireproofing it would be required to be attached
13 to that.

14 Q. But you didn't look at it? You
15 didn't actually investigate that. There was no
16 investigation to determine if the beams had moved?

17 A. The columns.

18 Q. The columns rather, thank you?

19 A. Other than looking at it and saying,
20 Okay, we aren't seeing any signs of that. The
21 doors are still working around the stores, and
22 there no cracks in the drywall so there doesn't
23 seem to be a lot of movement here.

24 Q. So when you were on the site, and
25 after the slabs were cut, you were there when that

1 was done, correct?

2 A. Yes.

3 Q. Not necessarily through the whole
4 period of time that the slab was being cut, but
5 after it was cut and before the cement was poured
6 you would the conduct a review or look at the area
7 where the concrete slab had been located?

8 A. Yes.

9 Q. And just so that I'm clear about
10 this, when you look down there would have been a
11 hole, right? You would have seen right through?

12 A. Yes.

13 Q. In the area where it was cut?

14 A. Yes, there are photographs taken at
15 the time.

16 Q. Right. And the areas that you were
17 able to look down and see where the beams were
18 located, did you make any observations with
19 respect to the condition of those beams?

20 A. Nothing showed up that I thought was
21 significant.

22 Q. And when you looked at the slabs did
23 you see where -- the area that had been cut, was
24 there any area where the strands or the steel
25 cables that are inside the hollow core slab, were

1 any of those visible?

2 A. Normally it would be just the cut
3 ends of the strands would be all you could see
4 because it's surrounded with concrete on all -- on
5 its perimeter.

6 Q. And since they ran east to west and
7 they were about 30 feet in length, correct?

8 A. Hmm hmm.

9 Q. Were you able to make any
10 observations with respect to the butt joints of
11 those slabs?

12 A. How do you mean?

13 Q. Well when the two slabs were tied
14 together were you able to make any observations
15 with respect to the joints where those slabs came
16 together?

17 A. So adjacent slabs one north or south
18 of the other.

19 Q. Yes?

20 A. Yeah, we could see all of those
21 joints.

22 Q. And did you make any observations
23 with respect to the condition of those joints? In
24 other words, was there caulking in there? Was
25 there cement, can you help us out?

1 A. I could look back at the
2 photographs, but normally what would happen is
3 that would be filled with a grout material to
4 allow the precast joint -- precast planks to all
5 work as a unit. And there may or may not be
6 reinforcing bars placed in that to tie it to the
7 structural steel. All the detail was there. I
8 believe I made an observation --

9 Q. One of my friends may ask you
10 questions about that, but I understand that
11 there's supposed to be rebar between the slabs and
12 filled with grout in order to do that?

13 A. Yes. That is typical when it ends
14 on a steel beam, yes.

15 Q. But my question to you is were you
16 able to make any observations or see any of that?

17 A. The grout was there, I wouldn't have
18 seen the rebar.

19 Q. So but my question to you is what if
20 anything did you see?

21 A. I would have to look back at the
22 photographs --

23 Q. Take your time. Look at your
24 material. We're not in any rush.

25 A. So I'm looking at my tab 15, for

1 example, and one of those joints in question,
2 there is actually -- we're not seeing that it's
3 100% filled. I have no way of identifying it by
4 what my tab number is.

5 Q. Exhibit No. 2119. What does that
6 show, sir?

7 A. That's where some material has been
8 removed and we can see what's in the joint. And
9 at that point there's nothing at the top of the
10 photograph, there's nothing in the joint. Now
11 whether that's been cleaned out as the workers did
12 the saw cutting, or whether it was never put in is
13 something I don't know.

14 Q. Just to be clear, this is a
15 photograph taken looking down on the hollow core
16 slab?

17 A. Yes.

18 Q. After the cut was made?

19 A. Yes. This would be before -- I'm
20 not sure to tell you the truth. There has been a
21 cut made around to expose the joint. That's my
22 measuring tape there. But whether we have made
23 the full north-south cut at that point I don't
24 know. What's happened is we've exposed some of
25 the areas where the concrete has spalled.

1 Q. So the answer to my question is
2 today you have no independent recollection as to
3 whether or not the slabs were interconnected with
4 either rebar or grout, you can't recall?

5 A. Based on what I'm seeing here it's
6 not there, but whether this is a localized example
7 where it's not, or whether that would be
8 reflective of the entire roof I don't know.

9 Q. And I gather from your evidence
10 there was an attempt by you, or the chap from
11 Coreslab, to check out and see whether or not that
12 had been done?

13 A. Well it's hard to imagine it not
14 having gone in there.

15 Q. That's not what I'm asking you, sir.
16 I don't want to be difficult and if I'm out of
17 order the Commissioner will advise me.

18 A. When the topping concrete was put on
19 the gap between the two pieces of precast is a bit
20 of a Vee. So you'd have to actually work
21 somehow to keep the concrete topping out of that
22 joint. So in most cases that joint would have --
23 would have concrete in it unless someone actively
24 tried to not have it go in there.

25 Q. But the question is to whether or

1 not there was rebar placed in between the
2 Coreslabs and grouting put inside the hollow core
3 slab as required by the specs, you aren't not able
4 to help us out today?

5 A. It's not put in the core, but it's
6 put in the joints between slabs.

7 Q. Okay, thank you.

8 A. I would make reference maybe to my
9 17.

10 Q. I'm sorry, what was that?

11 A. My tab 17 there's maybe a better
12 view. I don't think it's in the same area but
13 it's of a similar joint.

14 Q. Exhibit No. 2120. I'm sorry, Mr.
15 Meyer, just to be clear --

16 A. I believe what I'm looking at is a
17 joint -- one of the types of joints we've been
18 describing. And the walls of that joint are very
19 vertical. And so it almost looks to me like it
20 has been cut which is why we're not seeing the
21 grout between the two pieces of precast. That
22 definitely looks more like a saw cut. And I think
23 that's why we're not able to see any grout or any
24 of the concrete topping down in the joint between
25 the precast planks. So I think that is why we're

1 not seeing it there. But it would be my
2 expectation that it would be there between all of
3 the planks.

4 MR. BISCEGLIA: May I just have a
5 moment, Mr. Commissioner, I'm just checking my
6 notes but I believe I'm done.

7 BY MR. BISCEGLIA:

8 Q. Now, Mr. Carr-Harris asked you the
9 difference between your preliminary report and
10 your final report. And your preliminary report
11 that you sent to Algoma for their review and
12 comment had the expression that you had some
13 concerns with respect to the parking deck, and
14 that you thought the matter should be monitored.

15 A. Hmm hmm.

16 Q. In response to his questions you
17 indicated that maybe you had received some
18 additional information from the Coreslab people
19 that prompted you to change that.

20 In looking at the Exhibit No. 64 at tab
21 50 of your material, sir. Could you help us out
22 as to that handwriting? Is that hand writing that
23 you recognize either at the first page of your
24 report or at page 3 of the report?

25 A. No, I don't. I would take a wild

1 guess that it would probably be Rod's given that's
2 it's coming with a header that shows that it was
3 faxed to him. But I couldn't -- I wouldn't know
4 his handwriting.

5 Q. Would you have had any concerns that
6 you may have expressed with respect to the slab
7 because of the fact that you're unable to
8 determine what caused the movement of those slabs
9 to such a degree and extent?

10 A. No. I think the concern I had was
11 whether probably at that point was are there other
12 issues with cracking? And do we need to keep look
13 after that?

14 As I said earlier and the load carrying
15 capacity. Some of that information about the load
16 carrying capacity we were just getting at the time
17 the reports were being prepared.

18 Q. But, sir, (A) you look at all of the
19 drawings; (B) you looked at the shop drawings of
20 Coreslab?

21 A. Hmm hmm.

22 Q. You were on site and you looked at
23 the actual structure itself; you had the slabs cut
24 and opened so that you could observe, at least in
25 part, what that was all about; you had the

1 representative of Coreslab up there, or up here I
2 should say, with you in looking at that slab
3 issue. Why would you in your preliminary letter,
4 having gone through all of that, say, Monitor the
5 slab because you were concerned about a weight
6 issue?

7 A. I'm not sure if it was weight. I'm
8 not sure what the change was. It appears that
9 whatever concerns I had were alleviated between
10 the 1st and the 23rd.

11 Q. At the end of the day you were
12 supposed to certify to Algoma that all of that was
13 okay. That structurally the building complied
14 with the drawings and was built in compliance, as
15 you put it, to the Ontario Building Code. What
16 would be the issue of monitoring about the slabs?

17 A. And as I said, I don't recall really
18 what was going on. I suspect it had to do with
19 the movement of the joints. Was there additional
20 cracks that may have developed? I don't know.

21 Q. I agree with you. Since you hadn't
22 figured out what had caused this problem of the
23 shifting, or the closure of that joint, you wanted
24 the situation monitored because there was no real
25 answer that you were able to give, nor Coreslab,

1 as to what movements that building had gone
2 through, isn't that fair?

3 A. Certainly I wasn't too sure what was
4 closing it up or what all of the factors were.

5 Q. And I'm going to put it to you quite
6 bluntly that when you put that in your preliminary
7 report that was unsettling to someone at Algoma.
8 That they had a problem with respect to the
9 movement of that structure. You wanted them to
10 monitor it. It would suggest that there was an
11 ongoing problem and they were uncomfortable with
12 that and they had you remove it?

13 A. Don't know that that's the case.

14 Q. Those are my questions to you, sir,
15 thank you.

16 MR. MACRAE: Mr. Commissioner, I was
17 going to go next but I need a short break prior
18 to. I need to retrieve another document so if I
19 might delay my examination?

20 THE COMMISSIONER: Would you like me to
21 take a few minutes or are you content that someone
22 else go ahead?

23 MR. MACRAE: I'm content that someone
24 else go ahead.

25 THE COMMISSIONER: Mr. Cassan.

1 CROSS-EXAMINATION BY MR. CASSAN:

2 Q. Mr. Meyer, my name is Paul Cassan
3 and I'm counsel for the City of Elliot Lake. I
4 will be asking you questions with respect to the
5 City's interest and the inspection that you did.
6 I'm not an engineer.

7 And just so I understand it, with
8 respect to the slabs, they're structural members
9 that hold up the weight of the roof, right?

10 A. They form the roof and part of the
11 roof, yes.

12 Q. And so the core slabs themselves are
13 structural members that hold the cars and the
14 people on the roof, the snow, what have you?

15 A. Yup.

16 Q. And so those slabs actually bear the
17 loads that the building is subjected to?

18 A. Some of them, yes, the gravity
19 loads.

20 Q. Sure. And now Mr. Bisceglia took
21 you through some pictures and it appears to me
22 that your repair work involved cutting into those
23 core slabs. And in the pictures that we looked at
24 it appeared that the core slabs were cut right
25 through in places so that you could see the

1 portions of the steel beams underneath them, is
2 that a correct understanding?

3 A. I don't think they cut right down
4 the steel. But we could see the -- it's hard to
5 describe, the -- in some cases the concrete had
6 broken off of the bottom of the core slab. And so
7 when we made the cuts down through the core, that
8 is the hollow part of the slab, you would be able
9 to see down to the top part of the steel. I
10 believe the steel at joint 10, and I don't have
11 the drawings, but the gap between the flanges of
12 the steel was probably more than 2 inches, or
13 could have been about 2 inches. Which means that
14 the precast slightly overhung the steel so you may
15 or may not have been able to see the top surface
16 of the steel.

17 Q. But in the photos that you showed us
18 could you see the steel?

19 A. Some of the steel would show where
20 the bottom -- that's not really a flange, but the
21 bottom part of the hollow core was missing you
22 would be able to see down to the top of the steel.

23 Q. And when was all cut open and filled
24 in with concrete you were able to see the
25 condition of the Coreslabs themselves? You were

1 able to see, I suppose, a portion of the topping,
2 because I understand the topping was removed in
3 the area you were working in?

4 A. Yes, we had to cut the topping back
5 a fair distance from the Gennie joint in order to
6 run the big saw that was being used to cut the
7 core slab we had to actually make that surface
8 flat. We had to make the surface flat so we took
9 the topping back I think about two feet so that
10 there was something for the saw to run on. So we
11 were able to see the tops of the core slab as well
12 as the -- in some limited locations the tops of
13 the top flanges of the steel beams.

14 Q. One of the things I'm confused
15 about, not being an engineer, is whether this
16 topping coat is or is not part of the structural
17 portion of the roof?

18 A. You and a lot of people, yes. There
19 seems -- it can be. It can be used to in some
20 cases to enhance the overall bending strength of
21 the slabs.

22 There's a bit of a tradeoff and it
23 depends -- we've seen a few different tables
24 prepared by different people. At some point
25 the -- adding the concrete to the top gives you a

1 slightly different compression flange. So with a
2 bit more concrete on the top you're able to use a
3 bit more of the available strength of the
4 prestressing strands below and get somewhat more
5 bending strength out of the overall precast plank
6 as a composite structure. But the catch is you're
7 also adding weight to that structure. So
8 depending upon how long the span of the precast
9 is, and how thick the topping is, in some cases
10 adding some depth of precast will make the overall
11 plank able to carry more net load, in some cases
12 it will actually reduce it because the additional
13 strength you gain isn't enough to overcome the
14 fact that you are now carrying an extra two inches
15 of three inches of concrete.

16 So it's not -- it's like a lot of
17 engineering, it's not really a simple answer.
18 Overall it makes the section stronger if it's done
19 as a composite pour. But that additional strength
20 may get used up in carrying the weight of that
21 concrete. So it can be a structural element,
22 doesn't always have to be.

23 Q. In this case at the mall in Elliot
24 Lake it was a structural element?

25 A. Well in the original drawing it

1 wasn't shown as being such.

2 Q. Well the original drawings, and you
3 took Mr. Carr-Harris to the original drawings, and
4 if I understood your evidence correctly, you said
5 it wasn't because there was a layer of insulation
6 underneath the top coat in the drawing?

7 A. Well there was no topping shown on
8 the drawings that I've seen. And I could refresh
9 my memory of the lower floor. On the roof deck
10 level it was pretty clear that there was
11 insulation and then a wearing concrete up above.

12 Q. But that's not what you saw when you
13 cut into the --

14 A. No, the concrete was bonded directly
15 to the precast.

16 Q. So would that leave us with the
17 conclusion the top coat was a structural portion
18 of the roof?

19 A. Yes.

20 Q. In this case?

21 A. Yes.

22 Q. Okay. Good. Now when you were
23 working on the top coat and the slabs did you tell
24 ACP to get a building permit?

25 A. No, that's normally their

1 responsibility as the owner.

2 Q. And did you see a building permit?

3 A. No.

4 Q. But you would agree with me that a
5 building perm was required in that case?

6 A. That's normally up to the chief
7 building official for the authority that has
8 jurisdiction, which is the -- the chief building
9 official. It really varies depending on whether
10 or not -- like when you talk about like in the
11 Ontario Building Code, and BC is very similar,
12 because they are all based on the National
13 Building Code. It talks about alterations or
14 renovations being done to a structure, a building
15 permit is required.

16 Q. In fairness and, I hate to
17 interrupt, you but I'm going to take you to that
18 so we can look at that together?

19 A. Okay, sure.

20 Q. What I'm going to show you is from
21 the 1992 Ontario Building Code which was in force
22 in 1996 when you were doing this work.

23 A. Hmm hmm.

24 Q. And so as I understand it the way
25 that the Code is set up is they have definitions

1 at the beginning. And the interesting one for us
2 that goes to your point, that you were just making
3 before I interrupted you, is that the definition
4 of "construct" means "to do anything in the
5 erection, installation, extension or material
6 alteration or the repair of a building". That's
7 why I was asking you at the outset if these are
8 structural members that you're cutting into?

9 A. Hmm hmm.

10 Q. And so I would suspect that you'll
11 agree with me that that was a material alteration
12 or a repair of a building?

13 A. Um...and that's where -- that's
14 where it is a fuzzy area. Whether you're -- are
15 you -- because nothing was being done to change
16 the way that the building worked, if you will.
17 Certainly no change in the occupancy, no change in
18 the structural system itself.

19 I think that something like repairing a
20 construction joint that is on the border of
21 whether you would consider that a material
22 alteration.

23 Certainly if you were replacing a beam,
24 welding a -- increasing the size of a piece of
25 steel or replacing a piece of steel that would be

1 pretty clear.

2 In a case like this, if you were
3 changing the siding -- replacing the exterior
4 siding on a building, probably wouldn't consider
5 it a material repair. This one -- this is in a
6 bit of a grey area whether it's a material change
7 or not.

8 Q. Certainly the --

9 A. It's -- I don't think it's as
10 clear-cut as saying, Okay, we're taking out a
11 building column and replacing it with a bigger
12 beam or something like that where there's a
13 definite change in the load path to ground on how
14 gravity loads are getting down.

15 In this case it's something is cracked,
16 we're fixing the cracks. That would be where you
17 defer to the CBO -- sorry, chief building official
18 to get a ruling on that.

19 Q. Your earlier evidence was that the
20 cracks caused you concern that there might even be
21 potentially a failure or a collapse at Zellers?

22 A. Yes.

23 Q. And then I understand that in the
24 course of the work after cutting it open you then
25 filled it with concrete and perhaps some gravel in

1 the cores.

2 A. Yes. Well concrete with small
3 aggregate.

4 Q. Okay. Sorry, I understand now that
5 you put it like that. That had the effect -- or
6 your work had the effect of shortening the core
7 slab and changing --

8 A. Shortening them? I'm sorry?

9 Q. Well didn't you cut the ends off of
10 them so they weren't butting up against each other
11 anymore?

12 A. Yes, I see what you mean.

13 Q. I thought I understood that?

14 A. Okay.

15 Q. So the slab itself has changed?
16 Perhaps only two inches, but that's changed. And
17 then you fill the cores with concrete so that the
18 design of the slab is no longer quite the same as
19 it was when it was put on?

20 A. We filled them back I think about
21 600 millimeters.

22 Q. Right, that was my understanding.
23 So certainly it could be construed as doing
24 anything in the repair of a building, you were
25 repairing the structural members.

1 A. Hmm hmm, okay.

2 Q. If I can pull up section 8. So
3 again this is the Ontario Building Code and it
4 indicates that.

5 "No person shall construct or
6 demolish a building or cause a building to
7 be constructed or demolishes in a
8 municipality unless a permit has been
9 issued therefore by the Chief Building
10 Official"

11 So if you accept that the definition of
12 the word "construct" meets the work you were doing
13 this section would require a building permit, do
14 you agree?

15 A. Hmm hmm.

16 Q. And if I can get you to change to
17 the next page --

18 A. And again I'm not a lawyer, this
19 doesn't make reference to repairs it talks about
20 construction or demolition. So unfortunately --

21 THE COMMISSIONER: You have to go back
22 to the definition of construct.

23 THE WITNESS: To construct a building
24 and that includes repairs.

25

1 BY MR. CASSAN:

2 Q. That is why I took you to the
3 definition at the outset, because I would suggest
4 that the legal interpretation would view that as a
5 defined term and go back to the definition as the
6 Commissioner indicated. So do you agree that that
7 would have required a permit?

8 A. If the CBO agreed that that was a
9 material change, yes.

10 MR. CASSAN: And then, Marc-André, if I
11 can get you to change to the next page that I gave
12 you?

13 Just pointing out to you paragraph 12,
14 subsection (1) deals with the ability of an
15 inspector to enter the property to have a look at
16 what you're doing under the building permit,
17 you're familiar with that?

18 A. Yes, and that inspector is actually
19 an agent of the CBO.

20 Q. Sure, it's one of the municipal
21 building inspectors.

22 A. Yes.

23 Q. And the trigger, if you will agree,
24 is the application for a building permit to let
25 the inspector know that the work is being done?

1 A. That would certainly help, yes.

2 Q. And the next paragraph is more for
3 information because no order was issued. But if
4 the inspector, on looking at the work when it was
5 open, if he saw something that he or she didn't
6 like, it wasn't in compliance with the Code, they
7 could make an order requiring it to be changed or
8 fixed or repaired, right?

9 A. Yes, and they actually have the
10 right to do that.

11 Q. Now, you've said that this is a grey
12 area and it's up to the CBO. Did you talk to the
13 CBO about this at all?

14 A. Myself? No.

15 Q. And did you instruct ACP that they
16 ought to talk to the chief building official to
17 find out whether he or she -- he in this case,
18 would like them to have a permit and to ensure an
19 opportunity to inspect the work as it was being
20 done?

21 A. I don't recall having told them to
22 do that.

23 Q. Do you think you might have done
24 that or you might not have done that?

25 A. I suspect that at the time I got

1 there my primary concern was that I thought the
2 structure at that point wasn't safe. And so I
3 think that most of my attention was focused on
4 affecting the repairs. And whether they had or
5 hasn't gotten a building permit for the change to
6 the construction joint I wouldn't have known -- or
7 sorry, the expansion joint.

8 I was aware that they had made changes
9 to the expansion joint in the past. And that, you
10 know, this was something they had done previously.
11 They were replacing the Gennie joint and this is
12 something they have to do every so many years.
13 And this would have been a routine thing for them
14 to have done. And I would assume that they know
15 what they're doing in terms of permits or WSIB
16 notices, whatever it is they're required to do.

17 Q. I'm not sure if I heard the
18 beginning of your answer, but you said you were
19 concerns when you got there that the building was
20 unsafe?

21 A. That was a concern, certainly.

22 Q. And so does that not lead you to an
23 obligation to alert the chief building official?

24 A. I don't know because we were
25 affecting the repairs at the time.

1 Q. And once the work is completed, the
2 cutting is done, you've done whatever measurements
3 and calculations you have the do, and the concrete
4 is put back in place. It's then impossible for
5 anybody to inspect the slab, the steel underneath
6 the slab, the strands that were disclosed in the
7 -- in the photos that we've looked at, right?

8 A. Other than looking at the
9 photographs themselves, right. Which is why we
10 took a lot lot of pictures at the time.

11 Q. So in this case there was no
12 building permit obtained. And I presume you
13 didn't see a building inspector there from the
14 City, to be clear?

15 A. No one -- I don't recall anyone
16 identifying them as such.

17 Q. And I would put it to you that if
18 the City wasn't alerted they wouldn't have had an
19 opportunity to come and inspect this job to the
20 extent of any official channels?

21 A. I don't know what correspondence
22 there would have been from ACP to the City. On
23 the other hand, it was the only shopping mall in
24 town, a large chunk of the parking lot was blocked
25 off. And anyone working for the City, going to

1 Zellers would have clearly seen there was
2 construction going on.

3 Q. So you rely on that?

4 A. I didn't rely on that at all.

5 Q. I understand you did not give a copy
6 of your report to the City, is that true?

7 A. I believe it was sent to Rod.

8 Q. And certainly that's consistent with
9 the evidence?

10 A. I have no indication that it was
11 sent to the City.

12 Q. Do you think in this case it would
13 have helped for there to be an obligation for a
14 structural engineer like yourself to provide a
15 copy of your report to the City? Do you
16 understand my question?

17 One of the things the Commission is
18 doing is making recommendations. And do you think
19 it would be helpful if there was a requirement
20 that reports prepared by engineers like yourself
21 on a mall like this would be provided to the City?

22 A. Yeah. It is a requirement already
23 on new construction. And as I said, when you're
24 getting into repairs and -- as I said repair work,
25 that's where I said I'm not sure that it's clear.

1 It's very clear somewhere in here that,
2 you know, field review reports on new construction
3 are copied to the municipality or to the authority
4 having jurisdiction, that's pretty much a given.

5 In a case like this where you're saying,
6 we're dealing with a repair in the shorter term as
7 I said it -- I can see where requiring that --
8 those reports be issued to the authority would be
9 of benefit, yes.

10 Q. On that issue, do you think that it
11 would make your clients less likely to involve
12 engineers if they knew that the reports would be
13 provided to the City?

14 A. Based on the clients that I work
15 with, no.

16 Q. Okay. Thank you very much, Mr.
17 Meyer, those are my questions.

18 MR. CASSAN: Thank you, Mr.
19 Commissioner.

20 THE COMMISSIONER: Mr. Aube? Ms. Carr?
21 Mr. Richler?

22 MR. MACRAE: I wonder, Mr. Commissioner,
23 if we might take a ten minute break at this time.
24 I don't anticipate that I'll run through the lunch
25 hour. But I'm in your hands from that perspective

1 we could also break for lunch now.

2 THE COMMISSIONER: You're still waiting
3 for your document?

4 MR. MACRAE: Yes.

5 THE COMMISSIONER: Let's take ten.

6 --- Break taken at 12:05 p.m.

7 --- Upon resuming at 12:15 p.m.

8 MR. BISCEGLIA: Mr. Commissioner, as a
9 result of an off-the-record discussion, sir, I
10 wish to correct, and I apologize to you and to the
11 witness. When we were talking about the expansion
12 joint and the slabs, I had the points of my
13 compass incorrectly. The tower area for the
14 purposes of the construction is north. And so
15 that makes the expansion joint run in a general
16 east-west direction and the slabs in a north-south
17 direction. I think that the witness and I
18 confirmed that off the record, so to speak. Thank
19 you.

20 THE COMMISSIONER: All right, thank you.

21 MR. MACRAE: Thank you very much for
22 that indulgence, Mr. Commissioner.

23 CROSS-EXAMINATION BY MR. MACRAE:

24 Q. Mr. Meyer, my name is Rob MacRae and
25 I'm a solicitor on behalf of Bob Wood. I think

1 you remember Bob from Sault Ste. Marie?

2 A. Yes.

3 Q. He was involved in an inspection in
4 2012 at the mall prior to the collapse?

5 A. I had heard that, yes.

6 Q. Mr. Meyer, you indicated in your
7 evidence that you were involved with the Algoma
8 Central Railroad Properties as a result of the
9 collapse in Sault Ste. Marie, and Mr. Kadlec's
10 involvement as well?

11 A. Yes.

12 Q. Who first made you aware that Mr.
13 Kadlec had lost his license to practice as an
14 engineer?

15 A. I think I believe -- I believe I may
16 have found that out on my own. Or I may have been
17 told by someone from ACP.

18 Q. But --

19 A. I'm not a hundred percent sure. I
20 know that I kept copies of old Engineering
21 Dimensions and I was able to look back. And it
22 actually wasn't that long prior to the Station
23 Mall collapse that it was actually in the blue
24 pages of the magazine.

25 Q. And when you say Engineering

1 Dimensions you're not talking about dimension but
2 an actual magazine?

3 A. That's the publication put out by
4 PEO monthly or semi monthly.

5 Q. And that provides information with
6 respect to the disciplinary hearings or --

7 A. The centre part is nicknamed the
8 blue pages because they're on blue paper. It
9 usually has reference to disciplinary hearings or
10 findings that have been concluded.

11 We determined afterwards that Mr. Kadlec
12 had lost his licence. I think we'd been trying to
13 find him because we had questions about the cause
14 of the collapse at the Station Mall. What makes
15 sense is we would have contacted PEO and were told
16 that he was no longer registered as a professional
17 engineer and has left Canada at that point.

18 Q. All right, thank you. But in any
19 event at the time that you attended in Elliot Lake
20 to do the inspection on behalf of the ACR I'm
21 correct that you understood Mr. Kadlec's license
22 had been suspended, or rather he was no longer a
23 licensed engineer?

24 A. At that time, that's correct.

25 Q. And with respect to that, dealing

1 with my questions I hope to be able to keep them
2 distinct in that you were actually -- there's two
3 areas that you're receiving questions about this
4 morning. One is with respect to your overall
5 review, and the second is with respect to the
6 emergency repair that occurred.

7 A. Yes.

8 Q. With respect to the emergency repair
9 that occurred am I correct that when you attended
10 at the site there was a contractor there who was
11 already replacing the expansion joint?

12 A. Yes.

13 MR. MACRAE: And if I might have Exhibit
14 No. 1876, the structural drawing S4. And is it
15 possible to have that projected onto the
16 whiteboard?

17 BY MR. MACRAE:

18 Q. This has been before you today?

19 A. Yes. That's the roof level framing
20 plan.

21 Q. All right. I'm just going to get
22 the microphone or I'll ask you some questions
23 while I'm waiting for the microphone. It appears
24 to me that there's three expansion joints on the
25 building. One that is between 10 and 10X; and

1 then there's another one that runs between 16 and
2 16X?

3 A. 16X and 17.

4 Q. 17?

5 A. Yes.

6 Q. And that runs the entire length of
7 the building?

8 A. To the corner of the hotel.

9 Q. And then am I correct at line 11 or
10 11X? Or rather I.

11 A. It's F.

12 Q. But there's another expansion joint
13 as well?

14 A. Yes.

15 Q. So in total there were three
16 expansion joints on the building as you understood
17 it?

18 A. Hmm hmm.

19 Q. And was work being done on any of
20 the other expansion joints at that time?

21 A. No, this was the only one we were
22 aware of.

23 Q. And as I understand the evidence,
24 the contractor exposed that joint in an attempt to
25 replace the Gennie joint and discovered that the

1 slabs had closed?

2 A. They had -- they observed the
3 cracks. I don't know if it had closed at the
4 time, but they had seen the cracks. The big
5 concern was the cracks in the concrete.

6 Q. The cracks in the concrete slabs?

7 A. In the precast concrete slabs.

8 Q. And when you arrived in Elliot Lake
9 the joints were already exposed, the butt joints
10 were already exposed, am I correct?

11 A. Yes.

12 Q. And you were able to -- there's some
13 pictures where you had a clock or a watch in the
14 picture. You were able to time how quickly the
15 expansion joint closed. Is that what you were
16 doing?

17 A. Just identifying that, Okay, at this
18 time in the morning -- it's a handy way to
19 identify it in the predigital days of what time
20 the photograph was being taken.

21 I think there is two that are part of
22 the exhibit. One shows the slab more or less
23 after we arrived there, or as we arrived there and
24 one late in the afternoon in which the joints had
25 closed.

1 Q. All right. From your experience as
2 a structural engineer the south side of the
3 property was embedded in concrete. So if there
4 was an expansion of the slab towards the expansion
5 joint, would that be coming from both sides, from
6 the north to the south and from the south to the
7 north meeting in the middle?

8 A. Probably. I don't know.

9 Q. Were you able to take any
10 measurements to determine whether the slabs were
11 meeting directly over the centre of the expansion
12 joint?

13 A. No.

14 Q. And at that expansion joint, if I
15 might have S17 from the same exhibit? And if you
16 could zoom in, please, on section number 5? That
17 is a detail that deals with an expansion joint.

18 And am I correct that there is a
19 separate beam that is located under each end of
20 the core slabs?

21 A. Yes.

22 Q. Now normally I understand the
23 balance of the construction would be that the core
24 slabs would meet over a single beam.

25 A. Yes.

1 Q. And is there a requirement for there
2 to be a tab placed on top of the structural steel
3 for the slabs to butt up to?

4 A. On this joint?

5 Q. No, on all of the other joints?

6 A. On the other ones, yes. The typical
7 detail that the core slab shows, I'm not sure it
8 it's -- there is a series of metal tabs on the top
9 center of the beam that just provide a -- yeah,
10 essentially that the core slab is touching, if you
11 will.

12 Q. And that would generally be
13 fabricated in the shop and the beams would come
14 with that on top?

15 A. Yes.

16 Q. Were you able to observe any of
17 those tabs when you exposed the expansion joint?

18 A. We wouldn't have expected to see
19 them at the expansion joint because they wouldn't
20 -- the wouldn't have fit on the -- like the -- if
21 there was one at the center of the beam the
22 precast wouldn't be able to sit on the beam.

23 Q. Because the precast would go
24 directly over to the end?

25 A. Yes.

1 Q. Would extend.

2 A. Similar to what's shown here,
3 precast goes approximately to the edge of the top
4 flanges of the beam.

5 Q. Okay.

6 MR. MACRAE: If I could please have
7 Exhibit No. 63, please.

8 BY MR. MACRAE:

9 Q. This is a letter from yourself, Mr.
10 Meyer, and it's dated October 1, 1996. And it's
11 addressed to. I have to make sure I have the
12 right letter. May I have the second page of that
13 please? Thank you.

14 If I could draw your attention the
15 second last paragraph. Now Shahid, that's the
16 representative from Coreslab?

17 A. Yes, Shahid Shaihk.

18 Q. Thank you. If I could ask you to
19 review that paragraph. That talks about the
20 possibility that the building structure might have
21 moved slightly resulting in the gap. And you
22 indicated to Mr. Caughill, "You and I were not
23 able to identify any movement while we were on
24 site, but plan to do so in the near future."

25 And my question is, what did you do as a

1 result of that observation? What did you do in
2 the near future to deal with the possibility that
3 the building structure had moved slightly?

4 A. I don't recall at this point what we
5 did because unfortunately I don't see any
6 documentation to remind me of that.

7 Q. I can tell you where I'm going with
8 this and I'll continue with my questioning. Where
9 I'm going with this is that we've heard evidence
10 that -- and you've indicated today that the
11 original design of the building called for an
12 insulation to be placed on top of the core slab,
13 which would have put the core slab into the
14 building environment and not subject to such
15 drastic thermal expansion and contraction as it
16 experienced in northern Ontario.

17 A. That's what's shown on the
18 structural drawings, yes.

19 Q. Right. That there was to be
20 insulation on top. And working through this it
21 may be of assistance to the Commissioner, with
22 respect to a determination of what happened here,
23 that in fact the expansion of the precast slabs
24 wasn't taken properly into consideration in the
25 design of the building. because at the time that

1 the building was designed there was going to be
2 insulation on top of that.

3 So that's why I was interested in
4 whether you pursued the issue of the possibility
5 that the structural steel members might have moved
6 as result of this process?

7 A. And as I said, I wasn't sure what we
8 did to follow up on that. What would seem to make
9 sense would be to check and see if columns
10 remained plumb? Were there any signs of distress?
11 What was it that was moving? Was it all thermal
12 expansion?

13 It's hard to imagine the entire roof
14 slab slipped on the steel, that doesn't seem
15 possible.

16 So one of the questions was really,
17 Okay, is there something going on with -- is it
18 the steel that's moving or is it possible, which
19 you know, that the gap was never installed
20 properly in the first place, which is still a
21 possibility.

22 Someone said that he remembered from 15
23 years prior to that that yes they did it
24 correctly. But we weren't able to determine
25 whether that was the case either.

1 Q. Fair enough. But if the gap had
2 been installed correctly that would have -- it
3 would mean that for the gap to have closed
4 completely that the slab would have had to have
5 moved an inch, or at least more so if it was
6 moving in only one direction?

7 A. Yes.

8 Q. And that would be incremental, would
9 it not? You wouldn't expect that one slab would
10 increase that much. You would expect that there
11 would be an incremental increase that spread
12 across the deck and is taken up in the gap.

13 A. Depending on what -- not
14 necessarily. There's a bit of -- there's
15 potentially, and I think I mentioned in one of my
16 reports, that the grouted joints between the slabs
17 may have developed cracks because of some bigger
18 loads than were anticipated.

19 So there's a possibility that one slab
20 might be slightly further north than the slab
21 immediately adjacent to it, but not a huge amount.
22 But there could be a difference in how they moved.

23 THE COMMISSIONER: How about traffic?
24 You said that it was unlikely that the slab would
25 move relative to the steel. But what would the

1 effect of repeated traffic, perhaps at higher
2 rates of speed than anticipated, over a period of
3 time.

4 THE WITNESS: Well one of the things
5 that it could do, and I mentioned this, is that it
6 could potentially mean the joints between the
7 slabs were cracked; that the grout would still be
8 there but there would be a vertical crack to allow
9 for a bit of movement; say north-south of one slab
10 with respect to the other slab.

11 The other thing I was going to mention
12 --

13 THE COMMISSIONER: But would that not be
14 reflected in the expansion joint eventually?

15 THE WITNESS: Yes. Yeah. But you might
16 see when we did the repairs on the expansion joint
17 it wasn't every one of the pieces of precast that
18 needed to be repaired, some of them had obviously
19 pushed harder against the two pieces on the
20 expansion joint.

21 Some of them had cracked and broken,
22 others one weren't even in intimate contact. Some
23 of them -- I don't think it was a perfectly
24 uniform 2-inch gap the day it was installed. Some
25 of the slabs would have been a bit longer, some a

1 bit shorter, some may have moved over the lifetime
2 of the building, some would not have moved.

3 THE COMMISSIONER: But would traffic
4 patterns account for the uneven movement?

5 THE WITNESS: It could. The lateral
6 loads from vehicles can -- if someone is breaking
7 really hard.

8 The other issue when we talk about
9 thermal expansion is that depending upon -- and
10 I'm not as familiar with the City here, but
11 depending on when the expansion was going on, if
12 that was happening typically in the afternoons and
13 that was typically when there was a lot of cars
14 parked on the top of the mall, the areas where the
15 driving surface is normally doesn't have cars on
16 it so it would be subject to the sun for pretty
17 much the whole day. Whereas the areas where the
18 cars are parked wouldn't be seeing nearly as much
19 sun as the cars are absorbing the heat. So you
20 have differential movement and the driving lanes
21 would move more than the parking lanes. So it's
22 not a uniform movement.

23 The day we were there of course it was
24 because the entire surface of the roof was exposed
25 to the same sun so the expansion would have been

1 uniform, but that would be a less common
2 situation.

3 I can't remember if there was Sunday
4 shopping here back in 1985. But I would think
5 that most days there would be cars on the roof and
6 you would have one or a hundred or some number of
7 cars.

8 THE COMMISSIONER: We've also heard that
9 the roof -- the entire roof was used as a
10 shortcut. People weren't using the roof to park
11 there at all but were using one ramp going up,
12 cutting across and taking the other ramp off to
13 avoid some traffic congestion done below. And so
14 cars would have been traveling at greater speeds
15 and would not have been doing anything except
16 transiting.

17 I recognize that is conjecture on your
18 part, but whether that might have had an effect on
19 the movement of the slabs.

20 THE WITNESS: Eventually you get
21 different lateral forces and typically parking
22 garages don't see a lot of high-speed driving.

23 THE COMMISSIONER: Thank you, Mr.
24 MacRae.

25 MR. MACRAE: Thank you, Mr.

1 Commissioner. I would ask Ms. Kuka if you could
2 put up Exhibit No. 186. These are the Coreslab
3 shop drawings that I believe you are referencing
4 with respect to having reviewed the 1979 drawings.

5 BY MR. MACRAE:

6 Q. These details that are about to come
7 up, I can tell you in advance what I'm going to
8 suggests is that the ties may not have been -- the
9 rebar ties may not have been in place throughout
10 the entire surface.

11 A. And by which rebar ties I
12 recognize -- I can see what's on the drawing.
13 Are you talking about the ones over at the
14 expansion joint?

15 Q. Well, if we can deal with that
16 first. If you could expand that detail.

17 A. I can see it.

18 Q. This is the detail over top of the
19 expansion joint and it's detail 15 on Exhibit No.
20 186. And that shows that there is a 10, number 4
21 tie. 4-foot supplied and welded to beam by
22 Coreslab?

23 A. Hmm hmm.

24 Q. And that actually -- it's my
25 understanding that this is a requirement for that

1 rebar to be grouted into the section between the
2 core slabs. Well it would be probably bent
3 somewhere else and then actually tied in to the
4 beam and welded into the bottom?

5 A. Or on to the top surface of the
6 beam. There's a couple different ways of doing
7 it. The way that's sketched it looks like it's
8 actually being plug welded down on to the top
9 surface of the top flange.

10 Q. And when you say "plug welded" what
11 does that mean?

12 A. Just like that, a circle going
13 around it.

14 Q. Now it's my understanding there's
15 two purposes for that, and one is to provide a
16 lateral support to the beam, and I have questions
17 about that.

18 A. Okay.

19 Q. But also with respect to redundancy
20 being built in in order to assist in the event of
21 a collapse, and it not being a total collapse, not
22 being a brittle collapse but rather being a
23 controlled collapse that actually is routed into
24 the section between the core slabs.

25 A. I'm not sure how it affects the

1 failure because it's between the -- okay. Sorry.
2 You can elaborate.

3 Q. That's fair enough.

4 A. I'm missing how that works. Those
5 are relatively short pieces and they do ensure
6 that they -- I guess two things. They prevent the
7 slabs from moving, in this case in and out of the
8 page, and they would also, as you said, provide
9 some lateral support to the top surface of the
10 steel beam -- the top flange of the steel beam.

11 MR. MACRAE: And if we can then go to
12 detail number 9, please, Ms. Kuka.

13 BY MR. MACRAE:

14 Q. Now this would be a standard slab
15 where the beams actually meet. And there's a
16 requirement to grout that beam in?

17 A. Yes.

18 Q. Or rather the rebar. But you didn't
19 expose any of those types of joints, am I correct?

20 A. That's correct.

21 Q. The only joints that you exposed
22 during this process were the butt joints at the
23 expansion joint?

24 A. They were the ones that were exposed
25 when we did the investigation into the, as you

1 called it, the emergency or the urgent
2 investigation, yes.

3 Q. Well is that an accurate
4 description?

5 A. Oh yeah, well the rest of my family
6 is all medical so urgent and emergency mean
7 different things. But urgent -- certainly the
8 long weekend visit looking at the expansion joint,
9 that's the only cutting that was done through the
10 parking slab.

11 Q. All right, thank you. If I could
12 ask for Exhibit No. 1924 to be brought up. And
13 this is a letter, actually a memo to Coreslab from
14 yourself dated September 23, 1996. If you could
15 highlight the third paragraph. As I understand
16 from reading this this is a letter that's directed
17 to Coreslab dealing with issues that you were
18 dealing with in the expansion joint phase of your
19 involvement with the Algoma Central Railroad.

20 And I ask you, in the third paragraph
21 you also noted that 10M rebar anchors that were
22 supposed to be attached to the supporting steel
23 and grouted between the precast slabs were not
24 present?

25 A. At the construction joint, yes.

1 Q. And do you recall noting that?

2 A. I do now, yes.

3 Q. Do you have an independent
4 recollection of it? Do you remember at the time?

5 A. I know now that it's written there.
6 Other than that I don't --

7 Q. Okay. I didn't mean the cut you
8 off. You go on to say.

9 "I have not confirmed that the
10 reinforcing steel is missing at other
11 locations but it would explain some of the
12 cracking that is present in the concrete
13 toppings over support beams."

14 What did you mean by that? Are you able
15 to recall?

16 A. Well the reinforcing steel shown in
17 that detail 9 helps a little bit in terms of
18 limiting movement of the slabs and keeps them from
19 making a convex, bending over the beam. And
20 provides a bit of continuity across the top of the
21 beam.

22 Q. I'm going to deal with this further
23 in my further questions, but would you also agree
24 with me that it provides a very important piece of
25 lateral bracing for the steel beam that's under

1 the steel beam as well too?

2 A. The rebar?

3 Q. Being attached to the steel beam.

4 A. Well it certainly ensures that it's
5 there. Among myself and other structural
6 engineers there is always a certain question as to
7 how much lateral support is required to make sure
8 that the steel beam can be considered, for the
9 purposes of design, to be laterally supported.

10 There used to be a rule of thumb that
11 said if you looked at the force that was in the
12 top flange of the beam, if you could resist 2% of
13 that laterally you were going to be able to
14 stabilize the beam properly.

15 There's a much more detailed calculation
16 that's done now because people have computers and
17 they are able to make a better judgment of how
18 much force is required. When you do that
19 calculation you typically get somewhere between 1
20 and 2%. So just making up a number, if there's is
21 a 10,000-pound force in the top flange of
22 compression in the top of the steel beam,
23 somewhere between 1 and 200-pounds of resistance
24 is required to keep it from moving laterally.

25 So having said that, the friction of the

1 precast sitting on the beam is that able to
2 generate that force? In some cases it's
3 probably -- it would be conservative to always
4 say, Okay, it's not there, we wouldn't consider it
5 and I'll assume there's no lateral support.

6 But in other cases you have to look at
7 it and say, Okay, is it realistic to think that
8 this slab which is going to weigh a couple of
9 tons, sitting on that steel beam, is not going to
10 be able to generate enough friction to resist one
11 hundred or two hundred pounds of force.

12 So it's -- considering lateral support
13 or not is not, as I said, it's a bit questionable
14 as to whether it is or is not laterally supported.
15 Certainly the conservative thing to do is if you
16 don't have an absolutely direct connection to the
17 top flange you would consider it not supported.

18 Q. And is it not your evidence that
19 where you were able to see the rebar, where you
20 expected to see the rebar, that would have been
21 tied in to provide the lateral support for the
22 beam that you didn't see it there?

23 A. Didn't see it there.

24 Q. It was actually absent? Not that
25 you didn't see it but that it was absent?

1 A. That's what I've written, yes.

2 Q. All right. Thank you.

3 MR. MACRAE: I have a number of
4 questions, Mr. Commissioner, so I don't know if
5 you wish me to carry on to another section.

6 THE COMMISSIONER: Give me an estimate
7 as to how long you will be. Preferably we should
8 finish before taking the noon break. But if you
9 tell me you have 3 quarter of an hour left to go
10 we'll take the noon break now.

11 MR. MACRAE: I will be that.

12 THE COMMISSIONER: All right. We'll
13 take the lunch break, start again at 2:00.

14 --- Luncheon break taken at 12:45 p.m.

15 --- Upon resuming at 2:00 p .m.

16 THE COMMISSIONER: Mr. MacRae, go
17 ahead, please.

18 MR. MACRAE: Yes. If I could once
19 again, Mr. Kuka, have Exhibit No. 186.

20 If we could focus on detail number 15.

21 BY MR. MACRAE:

22 Q. Now for clarity, Mr. Meyer. My
23 understanding is that this detail has a number and
24 that number references back to another drawing --

25 A. Hmm hmm.

1 Q. -- to provide further detail. And
2 so if I could start this in the proper process
3 then I would like to have Exhibit No. 184. Now my
4 understanding of this exhibit is part of the
5 Coreslab drawings, most likely part of the
6 Coreslab drawings that you reviewed at the time?

7 A. Hmm hmm.

8 MR. MACRAE: And, Ms. Kuka, if you could
9 focus on the right hand side where the dark line
10 is going down.

11 BY MR. MACRAE:

12 Q. Can you see the number 150.

13 A. Yes.

14 Q. And is that the expansion joint that
15 you dealt with?

16 A. Yes.

17 Q. So when we look -- just for clarity
18 then, when we go back to Exhibit No. 186, detail
19 number 15.

20 MR. MACRAE: If you could zoom in on 15
21 once again, Ms. Kuka.

22 BY MR. MACRAE:

23 Q. So just for clarity, there are two
24 beams, that's because the joint is in this
25 particular location, the expansion joint?

1 A. Yes.

2 Q. And when the engineer designed that
3 there is a requirement that there be a 2-inch gap
4 between the butt ends of the core slabs, that's
5 the design. And would you agree with me that
6 there is a requirement for both of those slabs to
7 be welded by way of rebar to the bottom of the
8 beam?

9 A. Top of the beam.

10 Q. Top of the beam. To the bottom of
11 the top flange?

12 A. Well the drawing that's done with a
13 ruling shows the -- the number 10M bar being
14 welded to the top of the top flange. And then on
15 the left-hand beam there's a -- what's clearly
16 been drawn in my hand and indication showing it's
17 been welded to the bottom surface of the top
18 flange of the beam.

19 Q. And would you agree with me that if
20 it's to be welded as it appears on the right hand
21 side, the part that's drawn with the ruler, that
22 if it was welded on the top that would've had to
23 have been completed before the next slab could
24 have been placed?

25 A. Very difficult to get in there after

1 the next slab is placed because it's a tight Vee
2 in there.

3 Q. But that's what this particular
4 design calls for on that side of the beam?

5 A. Hmm hmm.

6 Q. And on the other side your point is
7 that it extends underneath the top flange of he
8 beam?

9 A. Yes.

10 Q. And they could be installed during
11 the installation of the beam and the grouting
12 process?

13 A. You still have the have the bar
14 there before you push the precast together because
15 -- and this is a bit -- I'm curious how they were
16 doing this, because the -- this implies that you
17 have a 10-millimeter gap between the bottom part
18 of each of the beams. Or way or another that bar
19 has to get down between the two.

20 Q. Or else they have to chip away --

21 A. You could notch a bit of the web of
22 the precast to make that fit.

23 Q. But you agree with me that they
24 would have to be installed -- the most efficient
25 way and the proper way to install them is during

1 the installation of the precast?

2 A. Yes.

3 Q. And then they would be grouted.

4 There's a keyway -- we've hared evidence
5 previously that there's a keyway on each side of
6 the core slab?

7 A. Yes.

8 Q. And that's to receive grout, but
9 also to minimize the movement between slabs.

10 A. Yes.

11 Q. Is there any other reason for that
12 keyway?

13 A. Well it allows the slabs -- I mean
14 you get a certain degree to which the grout or
15 the, you know, the fine concrete that's between
16 bonds to the side of that keyway.

17 Q. Yes?

18 A. And so it means not only to the
19 slabs not moving this way with respect to each
20 other, but it also provides a certain amount of
21 resistance to moving along their lengths as well,
22 sort of the slip this way. It ties them together
23 that way. Not as efficiently -- not as
24 effectively as the keyway that keeps them from
25 moving vertically differently, but it also allows

1 them to provide a bit of a diaphragm action for
2 the whole roof.

3 MR. MACRAE: And then, Ms. Kuka, if I
4 could ask you to bring up Exhibit No. 185, it's an
5 additional drawing from Coreslab.

6 BY MR. MACRAE:

7 Q. Now, Mr. Meyer, as I understand this
8 is again -- this is the second expansion joint
9 directly adjacent?

10 A. By the hotel.

11 Q. By the hotel. With detail number
12 13?

13 A. Hmm hmm.

14 Q. And if we could please return to
15 Exhibit No. 186, and detail number 13. Again that
16 requires that there be a number 4 rebar embedded
17 in the section between -- in the grout, and then
18 welded in this detail welded to the top of the
19 beam?

20 A. Yeah. Or what you'd likely do is
21 weld it -- you could potentially have welded all
22 of those pieces of rebar at four foot centers,
23 placed all of the precast between those rebars,
24 bent the bars down into the joints and then
25 grouted them after the fact as well.

1 Q. But would you agree with me that
2 wouldn't be a very practical way to do that?

3 A. Well believe it or not we've
4 actually just done one like that where we've done
5 them on a masonry wall and the rebar was there
6 before the precast was put in and then bent to put
7 it in place. So that would be another way to do
8 it.

9 Q. And it would have to be welded
10 directly to the top of the beam then?

11 A. It could be welded to the top or the
12 bottom. As long as the bars were there before the
13 precast was there. You'd have the bar sticking up
14 vertically with a piece of precast on either side.
15 As you said, potentially notch on either side to
16 get the precast in.

17 You could in fact have had all of the
18 reinforcing steel in place prior to placing the
19 precast at four foot centers. Because this is a
20 -- in one sense it's a very simple design. I
21 think I saw a sign there was 108 pieces of precast
22 in a row. So you know they're coming in at 4-foot
23 centers, you could actually field weld them all in
24 at 4-foot centers and put the precast in after the
25 fact.

1 Q. But you'd agree with me that if
2 there's going to be any variation with respect to
3 the placement of the core slabs that's going to be
4 difficult to accommodate that if they've gone
5 ahead and welded the rebar to the top flange?

6 A. Once you've got the first one in in
7 theory you can put them all in at 4-foot centers.
8 And the precast is pretty good, they're 4-feet
9 wide. It would fit.

10 Q. But your evidence earlier was that
11 while there's a keyway, there's also an intention
12 for the top and the bottom of the core slab to
13 touch each other?

14 A. The bottom. The keyway is a Vee
15 shape, so the bottom -- so generally comes into
16 contact with each other, the top is open. That's
17 how you put the grouting in. So it's a -- it's
18 essentially a Vee in a cross-section.

19 Q. And getting back to the discussion
20 we were having before we broke. Would you agree
21 with me that a component of that rebar is to
22 provide lateral support to the beams upon which
23 they rest?

24 A. It very explicitly ties the top
25 flange of the steel beam into the core slab.

1 Q. And from your experience is there a
2 substantial difference between the load bearing
3 capacity of the structural beam when it's tied in
4 and laterally supported as to when it's not
5 laterally supported?

6 A. If you don't have the lateral
7 support at all like an overhead crane, where it's
8 clear there is no lateral support. Depending on
9 how long the beam is, there will likely be a
10 reduction in the bending moment capacity because
11 there is another mode of failure for the beam.

12 Q. The bending moment capacity, can you
13 explain that?

14 A. Essentially the beam is going to
15 fail by sort of -- if it's a very stiff beam it
16 will generally -- the top flange will crush, but
17 it will stay in the same shape.

18 If you have a long beam without the top
19 flange supported what can happen is the beam will
20 actually fail by what's called lateral torsional
21 buckling, and it will twist slightly and turn.
22 And the top flange will be moving sideways and
23 downwards and kind of rotate about an axis called
24 the sheer center, but essentially the beam kind of
25 falls over.

1 Q. And would you agree with me that the
2 tieing in of the rebar is designed to prevent that
3 from happening?

4 A. It helps resist it, yes.

5 Q. Thank you very much. With respect
6 to the rebar I wonder if we might turn to Exhibit
7 No. 2117. The photographs -- part of the
8 photographs that you had provided.

9 Now this photograph we haven't seen
10 before but I wonder if you would be able to
11 identify what's going on in this picture? I
12 understand this is a picture you took?

13 A. Yes. And I read the caption on it
14 and realized there is a spelling mistake. I think
15 there's a spelling mistake. We're not blowing out
16 the duct, is what it's labeled as. They're
17 blowing out the dust from where the cut was. They
18 have a compressed air jet and they're -- having
19 made some of the cuts you see in the photograph
20 they're blowing out the concrete dust that
21 accumulates during the cutting procedure.

22 Q. And then I had a discussion with you
23 earlier this morning and asked you some questions
24 with respect to the missing rebar. And you
25 indicated that at that time that you weren't able

1 to recall that. Does this picture provide you
2 with any additional assistance in recalling where
3 the missing rebar was?

4 A. Well in some of the joints where we
5 had the severe cracking we were able to see down
6 between the joints, so those other two photographs
7 we looked at this morning. And there wasn't, at
8 least from what I could see, there wasn't a piece
9 of rebar welded to the steel beam and up into the
10 grout joint.

11 Q. Okay.

12 A. But that would be in -- I believe
13 there were five places where we made the repairs
14 so we didn't see it in those places. Whether it's
15 in any of the other ones I wouldn't be able to
16 know.

17 Q. All right, thank you. I would like
18 to deal now with the effects of the building
19 components with respect to the expansion of the
20 core slab.

21 MR. MACRAE: And this isn't an exhibit
22 at this point in time, Mr. Commissioner, but I
23 would ask -- it's on Relativity. It's document
24 number 785.

25

1 BY MR. MACRAE:

2 Q. And that's -- are you familiar with
3 this document that's back in the 1970s?

4 A. I was going to say I was still in
5 high school, but that document with that title has
6 been updated right until 2010 on a pretty regular
7 basis. So there are commentaries issued when a
8 new Building Code is issues.

9 MR. MACRAE: I wonder if we might make
10 that an exhibit, Ms. Kuka?

11 MS. KUKA: 2140

12 EXHIBIT NO. 2140: Manual - Commentaries on
13 Part 4 of the National Building Code of
14 Canada.

15 MR. MACRAE: Then if we could turn to
16 document 787, and if we might make that an exhibit
17 as well.

18 MS. KUKA: 2141.

19 EXHIBIT NO. 2141: Manual - Commentary D,
20 Effects of Deformations in Building
21 Components.

22 BY MR. MACRAE:

23 Q. And if you could go to the second
24 page of that document, please. Could you increase
25 the size of the first four paragraphs? If I could

1 see the top as well please.

2 The effects of deformations in building
3 components. And it talks about -- the first
4 paragraph talks about structural effects. And
5 when building -- I'm reading from it. "When
6 building materials expand and contract due to
7 temperature changes, considerable forces may be
8 produced in restrained structural elements." Now
9 is an example of that where the core slabs were
10 coming together at the expansion joint?

11 A. Certainly looked as if -- as I said,
12 when we were cutting the holes, the expansion of
13 the concrete during the day did bring them into
14 contact. So that's one of the suspected causes of
15 the core slabs crushing against one another, yes.

16 Q. And that's mentioned in the second
17 paragraph where it says,

18 "In addition to expansion and
19 contraction, temperature changes may
20 produce differential deformation or
21 warping of materials as a result of a
22 gradient in temperature through the
23 thickness of materials and assemblies."

24 A. Well that's more changing shape than
25 length. That would be the case, for example, like

1 if this was happening and we had the -- let's say
2 the precast was cold on the bottom and hot on the
3 top there would be tendency for it to develop a
4 hump. So the top had expanded and the bottom
5 hadn't.

6 Q. Is that something that would happen
7 commonly in core slab construction?

8 A. It depends on how much of a
9 temperature difference you can get. I haven't
10 seen it as being a big effect. Just describing
11 what that was talking about is the differential
12 deformation.

13 Q. Going back up to the first
14 paragraph, in the fourth line down there is a --
15 the sentence actually begins on the third line and
16 says, "Often these forces are compounded with
17 those produced by shrinkage, by creep and by
18 moisture content changes..."

19 Can you explain what is meant by the
20 word "creep"?

21 A. Creep would be a gradual deformation
22 over time of a building material. So not
23 necessarily an elastic change. It would be
24 something where it's -- it's deforming in a
25 plastic way, so it's a nonrecoverable deformation.

1 So it's not like a spring. It's a piece of putty
2 that sinks a bit and is not going to go back up.

3 So that's something that can occur over
4 time and different materials do that to some
5 extent. You hear the stories about the ancient
6 stained glass windows that they're thicker at the
7 bottom than the top that's because gradually
8 things have deformed over time.

9 Q. Is concrete subject to creep?

10 A. Can be.

11 Q. Are concrete, prestressed slab as
12 well?

13 A. Well with the prestressed concrete
14 slabs one of the things that happens is that the
15 force which is caused by the prestressing cables
16 to some effect counteract that, because they put
17 the concrete into compression on a permanent
18 basis.

19 If you do cast-in-place concrete where
20 you put the rebar down and pour concrete around
21 it, you don't get any strength around the beam
22 until it has to move a bit so that the steel is
23 placed into tension.

24 In the case of prestressed slabs the
25 cable is already in tension before the concrete

1 arrives. It's actually held in a huge, you know,
2 a huge form with big clamps on either end. And
3 there is tension in the cables so that when the
4 concrete hardens, and then the slab is taken out
5 of what holding the cables, there's a tendency for
6 the cables to spring back. So there's a lot less
7 creep on something that is prestressed because the
8 concrete starts off already being compressed by
9 the steel. So there's less tendency for it to be
10 able to move.

11 Q. Thank you for that answer. That's
12 been a question for a while exactly what creep is
13 and how it affects the particular core slabs.

14 In the third paragraph of this
15 commentary it deals with, "If these forces are not
16 properly considered, the stresses resulting from
17 such forces can lead to serious failure (usually
18 cracking) in materials and structural members."

19 And would you not agree with me that
20 something happened on that roof that caused the
21 slabs to move substantially. They were originally
22 going to be insulated from the top in the original
23 design, they weren't. They were insulated from
24 the bottom.

25 And would you agree with me that there

1 was some time of deformation that occurred because
2 of the very existence of the problem that you went
3 down to Elliot Lake to resolve?

4 A. Certainly the temperature
5 differential or the temperature changes
6 day-to-day, season-to-season would have changed
7 the lengths of the precast. And that was one of
8 the effects that we are pretty sure caused the
9 production joint the close -- or the control joint
10 to close.

11 Q. Thank you. Now if I could ask
12 you -- I'll turn actually to document number 784
13 and ask that it be made an exhibit.

14 THE COMMISSIONER: 2142.

15 EXHIBIT NO. 2142: Manual - the Building
16 Code Ontario Regulation 925/75.

17 BY MR. MACRAE:

18 Q. Now this is -- my understanding is
19 that this is the Building Code that was in effect
20 when this building was designed and erected, does
21 that make sense to you?

22 A. Yes. Up to 19 -- yeah, it's updated
23 up to 1978 so that would seem very close in time.

24 MR. MACRAE: And then if I might, Ms.
25 Kuka, go page 157 of the document but page 2 of

1 the exhibit.

2 BY MR. MACRAE:

3 Q. I'm drawing your attention to
4 subsection 4.1.2 Design Loads and Effects. And
5 the section begins by reading at one (1).

6 "Except as provided for in article
7 4.1.2.2 the following loads, forces and
8 effects shall be considered in the design
9 of a building and its structural members
10 and connections."

11 And then dropping down we see "T" for
12 thermal being,

13 "contraction or expansion due to
14 temperature changes, shrinkage, moisture
15 changes, creep in component materials,
16 movement due to differential settlement or
17 accommodation thereof."

18 Would you agree with me that at the time
19 that the building was designed that this factor
20 should have been considered by either the design
21 engineer -- or the structural engineer rather, or
22 by the architect?

23 A. They'd also look at three paragraphs
24 down and that would be where they'd have to make a
25 judgment as to whether the effects of the "T" are

1 likely to be significant or not. And based on
2 what we know about the design today we know that
3 the top surface of the concrete was going to be
4 exposed to the elements and subject to atmosphere
5 and temperature, and it would seem likely that
6 that would be an issue for the precast.

7 Q. Well that's what I was going to move
8 on to. That there is an exception and that's
9 section 4.1.2.2 sub (2) where it says.

10 "If it can be shown by engineering
11 principles, or if it is known from
12 experience, that neglect of some or all of
13 the effects due to T do not affect the
14 structural safety and serviceability, they
15 need not be considered in the
16 calculations."

17 But would you not agree with me that
18 that exception doesn't apply when you're with a
19 situation where the core slabs are exposed to the
20 elements.

21 A. The top surface there is going to
22 see a wider range of elements. The question would
23 be whether the -- and I don't know whether the
24 engineer who did the design was counting on those
25 stresses not being -- that there was no restraint

1 on the slab because of the control joint -- or the
2 expansion joints. That's why the expansion joints
3 would be to ensure that those forces don't
4 develop.

5 Q. But would you agree with me that it
6 has to be taken into the design? That has to be
7 considered by the structural engineer or by the
8 architect, according to the Building Code at the
9 time that the building was completed?

10 A. In terms of effects I would say that
11 -- you wouldn't necessarily generate a load or a
12 force if you weren't resisting -- if the expansion
13 or contraction isn't restrained in some way. You
14 know if a pipe is lying on the ground it gets
15 warm it gets a little longer, if it's cold it get
16 little shorter. There's no forces generated in
17 the member.

18 So they have to look at that as part of
19 the design and say, Okay, I'm going to have a
20 bigger piece of concrete. How am I going to deal
21 with that? Am I going to resist those forces? Am
22 I going to provide for expansion using a joint?
23 How will I make that work?

24 Q. Well let me take you back to this
25 event as compared to some hypotheticals. Would

1 you agree that when you appeared on the site the
2 thermal expansion was so substantial, the gap was
3 closed completely closed and it was cracking the
4 ends of the slabs?

5 A. It was in contact when we were there
6 and we could see the cracks, yes.

7 Q. Okay, thank you. Then I had one
8 other section I would like to deal with from the
9 National Building Code Supplement and that deals
10 with sag and deflection. Because I have some
11 questions with respect to the placement of roof
12 drains on the building. Not specifically but I'm
13 just wondering if you can help generally with
14 respect to that.

15 MR. MACRAE: And I would ask, Ms. Kuka,
16 if you could turn to Exhibit No. 2140. Page 49 of
17 that section.

18 BY MR. MACRAE:

19 Q. No this deals with under
20 "Deflections", and I'm reading from the text.

21 "Excessive structural deflections can
22 create a variety of problems: cracks or
23 crushing in nonstructural components such
24 as partitions, lack of fit for doors..."

25 And in the design -- am I correct, in

1 design of the core slabs there's an arch built in
2 to the core slab because of the tension that's
3 placed into them with the prestressed steel, is
4 that correct?

5 A. Generally speaking yes.

6 Q. Generally speaking?

7 A. They will tend to go up. The amount
8 that they go up is going to be a function of how
9 many pieces of wire are in the precast and how
10 long it is.

11 So a very short piece might not come up
12 with very much camber, which is the term that
13 would be there. A very long piece might actually
14 end up having a negative or might have a higher
15 camber.

16 Q. So how would you -- if there's a
17 possibility of it going either way how would you
18 design for that in the design of the building
19 using precast?

20 A. It's one of the reasons why the
21 topping is often used is if you're trying to
22 achieve a level floor. The hotel I'm saying it
23 uses a hollow core precast but the floor is dead
24 level, so the topping is one of the ways you can
25 achieve that for the top surface of the precast.

1 And so the thickness wouldn't necessarily be
2 uniform across the entire precast. It might be
3 thicker or thinner in the middle than it is at the
4 edges in order to achieve a flat surface.

5 Q. The flat surface being?

6 A. The top surface of the topping.

7 Q. And then you have deflection in the
8 beam -- or rather you have a sag in the beams as
9 well too, would you not, that you have to consider
10 if you have a 40-foot span of a beam that's
11 holding up that core slab?

12 A. Once it's loaded it will deflect.
13 On long spans you would potentially have a camber
14 deliberately put into the beam so that when it
15 arrives on site it would have a bit of a camber to
16 it.

17 Q. In your review of the structural
18 designs are you able to provide any information to
19 the Commission with respect to whether at this
20 particular site there was a camber built in?

21 A. I'm not aware if there was or not.
22 I don't know. And I don't remember if it was show
23 on any of the drawings.

24 Q. Is that something that you would
25 consider when determining where best to place the

1 roof drains or drainage for that area?

2 A. The roof drains are typically
3 designed by the mechanical engineers. Within the
4 engineering profession the assumption is that
5 always do it to try and thwart us and they always
6 put it at the columns and that way they stay nice
7 and dry and not be affected by rain.

8 Q. That was my point. Where the
9 columns generally what happens --

10 A. That's where the rain water leaders
11 are, you put the shortest piece of pipe and they
12 put them at the columns.

13 Ideally you'd want to locate the drain
14 at what you expect will be the low point of the
15 roof structure. If it's a dead flat roof, which I
16 believe the parking area might have been, I can't
17 recall, or you work with the architect and try and
18 ensure that you either have a positive slope to
19 the roof to ensure that water always goes towards
20 the drains. That's certainly something we look at
21 now in our designs.

22 Q. And if the drains are located close
23 to the column the issue is that generally there
24 isn't much of a sag in that area, it's further out
25 into the beam area?

1 A. That's correct.

2 Q. I have one last question. When you
3 finished this project for the ACR, did the Algoma
4 Central Railroad ever contact you again about any
5 follow up whatsoever with respect to the issues
6 you had raised?

7 A. Not -- well it wasn't that much
8 longer after we had finished this, we were
9 finishing most of this throughout late 1996 and it
10 was in the Fall of 1997 when I relocated to BC.

11 Q. Up until the time --

12 A. Between there we had some
13 interaction. I think -- and I'm, you know, I'm
14 sorry I don't have the records. I know we had
15 done a few things together because we'd gotten to
16 work with each other and I do recall doing some
17 upgrades at the Station Mall. I don't recall
18 coming back to Elliot Lake.

19 Q. When you say you don't recall is
20 that because you didn't or because you don't
21 recall?

22 A. I don't remember having done so.

23 Q. Okay. Thank you very much, those
24 are my questions.

25 MR. MACRAE: Thank you Mr. Commissioner.

1 THE COMMISSIONER: Thank you. Mr.
2 Richler, you have some questions?

3 CROSS-EXAMINATION BY MR. RICHLER:

4 Q. Good afternoon. My name is Robert
5 Richler and I'm Counsel for Algoma Central. And
6 I'm going to ask you a few questions today on a
7 few of the things you've talked about. The first
8 thing I want to touch on is the collapse at the
9 Station Mall that you talked about.

10 You went in and you investigated it.
11 And I just wanted to confirm, it's correct that
12 what happened there is not the same as what
13 happened at the mall here in Elliot Lake?

14 A. No.

15 Q. It's a different mechanism --

16 A. The cause of failure was -- I mean,
17 yes. The roof fell down but the underlying cause
18 was at the Station Mall was a change made to
19 open-web steel joists. The ends were modified in
20 the field in such a way that it reduced their
21 strength. And once the big -- the 50 year snow
22 load happened during the monster storm there was
23 enough snow on the roof that it broke one joist
24 and then there was a very quick progressive
25 failure of all of the other joists. It had

1 nothing the do with corrosion, which is becoming
2 very clear which was the problem here at the Algo
3 Center.

4 Q. Yes, thank you. Now the purpose of
5 your investigation, it was to determine whether
6 the design of the Algo Mall was appropriate and
7 met the relevant Building Code, correct?

8 A. Yes. And with a particular focus on
9 the fact that it was a Gerber girder system
10 similar to what had been used for a large part of
11 the phase 3 of the Station Mall.

12 Q. Yes. And of course Algoma had some
13 concerns about that because of the failure that
14 had happened at the Station Mall?

15 A. Well the failure also resulted in
16 people -- and I believe it was Zellers, hiring an
17 independent investigators to look at their store.
18 Because there aren't that many structural
19 engineers at Sault Ste. Marie, and I was busy with
20 the collapse and so they hired another engineer.
21 He had a look at their design, wasn't really happy
22 with it, contacted me to review it, which is what
23 he should have done.

24 We reviewed it. I pointed out a few
25 things to him that he may have missed in if

1 design. We determined that the design in the
2 Zellers area was acceptable and we didn't feel
3 there was any imminent danger.

4 There was some upgrades done later to
5 sort of belt and braces and to increase the
6 capacity of the roof.

7 In explaining that to the people from
8 your company and trying to explain, Okay, you've
9 got not an unusual design but not a standard
10 design in this Gerber girder system.

11 We tried to explain to them okay here's
12 why pattern loading on the roof is an issue. And
13 that I think is what probably triggered them to
14 say, Gee, well pattern loading on a roof is
15 exactly what a parking garage looks like. We've
16 go tthe Algo Center. Maybe we should have someone
17 have a look at that

18 Q. Fair enough. And when you came up
19 to Elliot Lake you of course provided a report to
20 Mr. Caughill and Algoma. And I'm just wondering,
21 the format of your report, which is sort of an
22 introduction, summary of your observations,
23 analysis, conclusions and recommendations. Is
24 that just the standard type of report that all
25 your reports have?

1 A. Yeah, I would think so. Yeah. It's
2 meant to be a fairly formal report. It's not an
3 extensive, you know, detailed structural survey or
4 something like that. It's intended to provide a
5 fairly good structure to say, Okay, here's the
6 problem. You know, it's a scientific method.
7 Here's the problem. Here's what we saw. Here's
8 our conclusions and recommendations for further
9 actions. Is a fairly standard format for an
10 engineering report.

11 Q. Fair enough. And it's been said
12 before, but I just want to make a point. The
13 report that you did it was something that Algoma
14 had come up with the idea on their own. It's not
15 like some company or government organization said,
16 Algoma, you have to go out and get this report.
17 It was something of their own initiative, correct?

18 A. I was contacted by Rod. Certainly I
19 think what was in everyone's mind is do we have
20 another situation like the Station Mall? So I
21 think it was pretty clear it was coming from
22 Algoma.

23 Q. Fair enough. And if you'd seen or
24 identified any problems during your trips to the
25 mall you would have alerted Algoma to the

1 problems, correct?

2 A. We did. In fact that was the --
3 when asked to look at the -- I keep getting the
4 name wrong, the control joint, we determined that
5 it was a problem. And the fact right then and
6 there we said, This needs to be fixed now. We
7 have a long weekend and we're all staying here for
8 the long weekend.

9 Q. And speaking of the control joint.
10 What's your understanding of what the purpose of a
11 control joint is?

12 A. It allows a portion of the structure
13 to move independently of other portions of the
14 structure to avoid the problems we were just
15 discussing, which is stresses developing because
16 of un -- of restrained expansion or contraction.

17 Q. And so if I understand what you're
18 saying correctly it's a design feature of the
19 building, there's knowledge what there's going to
20 be some sort of potential movement and that's why
21 they put in the control joint?

22 A. Yes.

23 Q. And what kind of movement would be
24 expected that they put the control joint in for?

25 A. Thermal is the biggest one. At the

1 time there was no requirement for seismic design
2 in northern Ontario because the assumption was
3 that the Canadian Shield hasn't gone anywhere so
4 it's not going to.

5 That's changed since. But so -- the
6 only real potential sources of movement would be
7 largely thermal expansion and contraction.

8 Q. Were you aware, and I think your
9 report indicates that you were, but were you aware
10 that the roof had a history of problems related to
11 leaking?

12 A. Not to the extent that I've learned
13 over the last while.

14 Q. But you were aware that there was
15 some leaking?

16 A. Certainly they were replacing the
17 joint and I had heard, Okay, we're replacing the
18 joint again on this roof. It had been done a
19 number of times in the past. But I wasn't aware
20 that they had an ongoing water leakage problem.

21 Q. Fair enough. And in your report you
22 said that they require ongoing monitoring and
23 prompt repairs of cracks that develop?

24 A. Yeah.

25 Q. Dealing with that issue. And you

1 advised Algoma that they should continue with this
2 procedure? That was in your report?

3 A. Yeah, in order to keep water from
4 entering the building they needed to stay on top
5 of that.

6 Q. So as far as you could tell, and I
7 understand that this may not have been your scope
8 of your work, but as far as you could tell the
9 procedures they were doing were appropriate and
10 definitely -- and if you noted anything that
11 seemed inappropriate you would have said that
12 rather than saying, Keep doing what you're doing?

13 A. At the time, and I have to think
14 back 16 years because I have -- I have learned a
15 few things even in the interim. But I would say
16 at the time my primary focus would have been on
17 the structural engineering. And I didn't have as
18 -- I didn't have and wouldn't necessarily have a
19 lot of knowledge about the building envelope or
20 the waterproofing necessary. That would be
21 something that's more of an architectural
22 function. And so I wouldn't have known a lot
23 about what the actual system was that they were
24 using.

25 Q. Okay.

1 A. So I wouldn't be able to sit there
2 and say, Gee, that's a good system or a bad
3 system.

4 Q. You had an opportunity when you were
5 up at the mall to look at some of the beams
6 underneath, and we talked about that earlier
7 today.

8 A. Okay.

9 Q. You didn't see any signs of loss of
10 section when you were looking at the beams did
11 you?

12 A. No.

13 Q. And that's something that you would
14 have noted if you'd seen it?

15 A. Yes. Is the term loss of section --
16 does everyone understand that? Loss of section?
17 That's all clear? Okay. That's is techy talk to
18 me.

19 Q. I think we're all learning more and
20 more about it.

21 A. Yeah. The strengths of the beams
22 would not have been compromised by corrosion.
23 There would be a tiny bit of surface corrosion
24 that would have had no effect on the actual
25 strength of the beams themselves.

1 Q. And your report in effect said that
2 as far as you could tell from your investigation
3 the building had been properly constructed and
4 there weren't any significant defects?

5 A. Well the only ones that were showing
6 up -- in terms of the construction I didn't see
7 any obvious things, you know, where okay the
8 drawing says this should be here, as has been
9 identified the core slab pieces of rebar don't
10 seem to have been there in the places where we
11 could see them. But other than that it looked
12 like fairly conventional steel construction.
13 There wasn't any obvious signs of damage or signs
14 that things had been significantly modified.

15 Again with a mind to what had happened
16 at Station Mall, the idea was, okay, has someone
17 done something really -- to significantly change
18 the steel after it left the fabrication shop? And
19 we didn't see anything like that.

20 Q. Fair enough. Going to switch gears
21 a little bit now.

22 Wanted to talk about your
23 recommendations, that's the last thing in your
24 report is about installing a permanent barrier at
25 the top of the ramp to the mall?

1 A. Yeah. And part of the concern was
2 when I had done the analysis it had been based on
3 this 50-pounds per square foot live load that the
4 core slab was able to support in addition to the
5 dead load. And that it was fairly important to
6 ensure that the only things that could get up on
7 the roof were light vehicles, pick-up trucks and
8 cars. And so the suggestion was, okay, we want to
9 make sure that that doesn't happen.

10 I did speak to the fire department, and
11 I think I mentioned that in my report. And he
12 confirmed at the time that they didn't need to get
13 on to the roof, which is why I assumed that the
14 removable gates were present is for emergency
15 access. And he confirmed they wouldn't take fire
16 trucks up on the roof. And so I said, Well why
17 don't we just make these barricades permanent then
18 so that when, you know, Rob retires, and Bob
19 retires, and I retire someone doesn't forget that
20 this is a requirement.

21 Q. So I actually wanted to ask you
22 about this because I may not have understood from
23 your report exactly what your recommendation was.
24 And I think this morning you clarified it. So
25 your recommendation in effect, if I understood

1 evidence this morning correctly, is that they
2 should put these permanent barriers at the top and
3 remove the ones below? Was that what you were
4 recommending?

5 A. No, just to make them permanent or
6 to ensure that there is a permanent barrier. And
7 I don't have it in front of me, did I say at the
8 top of the ramps or just to block off the ramps?
9 Either way the intention would be to have
10 something that would not be easily --

11 Q. Fair enough. And I don't want to
12 misquote you?

13 MR. RICHLER: So perhaps Ms. Kuka we can
14 pull up his report, which I believe is document
15 1667. Exhibit No. 65. My colleague tells me it's
16 tab 51 in your document.

17 BY MR. RICHLER:

18 Q. And particularly I direct you to
19 your recommendation on the last page.

20 A. Okay. At the top barriers, yeah.

21 Q. And you said a comment this morning
22 which in effect was -- and it's not a direct
23 quote, but you drove by and saw that the temporary
24 barriers are still there. So I wasn't sure from
25 your saying that comment whether -- and this is

1 what I was getting at before, whether you were
2 saying that your recommendation had in essence
3 been, Get rid of those temporary barriers and put
4 permanent ones at the top instead, or put them in
5 addition to the ones that were existing?

6 A. It would just be in addition to the
7 ones that were at the bottom.

8 Q. Okay. And this of course was a
9 recommendation, it wasn't something that you said
10 you have to do this or else the building is going
11 to fail, or something like that?

12 A. Well I thought I was pretty clear
13 that it's important not to have anything other
14 than -- to make sure that we were limiting the
15 access of anything other than -- to nothing other
16 than essentially passenger vehicles.

17 Q. Fair enough. And would you agree
18 with me then that if the system that was in place
19 was working and people weren't circumventing the
20 temporary barriers then they would be as effective
21 as permanent ones?

22 A. That is a big "if", yes.

23 Q. You don't have any information to
24 suggest that they were being circumvented,
25 correct?

1 A. I never saw it.

2 Q. And in fact in your report you say
3 that the evidence is that it had happened in the
4 past, that there had been some buses?

5 A. I had heard that at one point there
6 was a bus stop up on the -- up on the parking
7 garage, but I have no way of knowing if that's
8 actually true or not.

9 Q. Fair enough.

10 A. Put it this way, I didn't see any
11 heavy vehicles up there. Certainly when the
12 workers were doing the work with sawing, they
13 still could only get up there with their small
14 vehicles as well. There wasn't the typical, you
15 know, 5-ton construction truck. None of those
16 were up there.

17 Q. And Mr. Caughill testified a few
18 weeks ago and he mentioned one of his concerns
19 that he had with having barriers at the top as
20 opposed to at the bottom was the issue that if,
21 say an RV or something didn't have the barriers at
22 the bottom and drove up to the top they'd suddenly
23 get stuck there and have to --

24 A. And try backing up. Yes, I read
25 that in his testimony.

1 Q. And he said that among other things
2 was one of the reasons why they chose to keep the
3 barriers at the bottom.

4 And would you agree with me that if Algo
5 Center's policy was not to allow large vehicles on
6 the roof, and they had been successful in doing
7 that, then the barriers at the bottom would have
8 been just as effective as the ones at the top?

9 A. Provided they're always locked. You
10 lock them and throw away the key, effectively they
11 are a permanent barrier.

12 Q. Fair enough. And your concern was
13 the issue of people circumventing the temporary
14 barriers, correct?

15 A. Hmm hmm.

16 Q. And of driving on the roof?

17 A. Yeah. And I think -- and this is --
18 I think something I'm remembering, if that's a
19 reasonable phrase, is that the rationale for
20 putting them at the top is that the ramps
21 themselves there weren't any structural issues
22 with those. So from a, You need to do this.
23 Putting the permanent barriers at the edge of the
24 elevated slab it guarantees, Okay, nobody can go
25 up there. Unlikely that maybe a new fire chief

1 comes in and they says, You know what, what we'd
2 really like to do is right drive up to -- we'd
3 like to drive up the ramp and park there. There
4 was really nothing wrong that. And so that would
5 be why, Okay, we'll put the permanent barriers at
6 the top. And never thought that it would be
7 necessary to take the ones out at the bottom. But
8 it was just another way of saying, Okay, this
9 absolutely ensures that no one gets on the roof
10 with a large vehicle.

11 Q. Fair enough. And similarly I would
12 suggest to the you that if the system was working
13 and cars weren't getting up there then --

14 A. Trucks weren't getting up there.

15 Q. Sorry, heavy trucks and whatnot
16 weren't going up there that the barriers at the
17 bottom, whether or not they were locked, were
18 being just as effective as ones on the top?

19 A. If no one is opening them up, yeah.

20 Q. Just one last question, with regards
21 to the Trow report, I just wanted to confirm --
22 you've now had a chance to look at them. But if
23 they'd been offered to you at the time, if I
24 understood your evidence correctly, you were in
25 effect saying that you wouldn't have looked at

1 them before you did your report, and may not have
2 looked at them at all because it would have
3 potentially biased your decision and your review
4 as opposed to getting sort of a clean slate?

5 A. Well what I was looking at, again,
6 is doing the design check from a structural
7 standpoint. The Trow report I now know didn't, as
8 I recall, focus too much on the design. It had a
9 lot more to do with -- it actually focused quite a
10 bit on the waterproofing and the overall system
11 rather than just, Is the structural steel frame
12 here strong enough to support things? I believe
13 it indicates that it is.

14 But within the scope of what I was
15 looking at I'm not sure that most of what they
16 were reporting on would have been -- would have
17 affected my analysis. It might have led to more
18 discussions between me and the owner at the time
19 and saying, Gee, you've got a building that's got
20 a lot of leaks here. But certainly at the time I
21 was a structural engineer only and really wouldn't
22 have been able to do a, you know, other than a
23 reasonably smart person with an engineering
24 background, I wouldn't be able to really have a
25 level of expertise on waterproofing that it

1 appears the people from Trow did.

2 Q. All right. Thank you very much
3 those are my questions.

4 A. Thank you.

5 THE COMMISSIONER: Okay. Anybody else?
6 Mr. Carr-Harris then.

7 MR. CARR-HARRIS: I have no
8 re-examination, Mr. Commissioner.

9 THE COMMISSIONER: All right. Mr.
10 Meyer, thank you very much, your evidence has been
11 very useful. We wish you a safe trip back to an
12 area where seismic considerations are probably
13 more worrisome than they are here.

14 THE WITNESS: Thank you.

15 THE COMMISSIONER: Thank you very much.
16 Have a safe trip back.

17 THE WITNESS: I shall. And I just want
18 to say that I feel very, very sorry for the people
19 who were hurt by this. Just wanted you to know,
20 and I shared this with the Counsel, the first
21 thing we did after we heard about this collapse is
22 the Civil Structural Department at Trail where I
23 work, we had 18 people. We all got together and
24 did a fairly thorough review of what we think
25 happened here, and it served as very much a

1 lessons learned on much of the stuff that we deal
2 with.

3 THE COMMISSIONER: Yes, it's too bad
4 that the lesson had to be learned at such a cost.
5 And obviously the Commission is looking forward as
6 well and looking to ensure that in the interest of
7 all Canadians we can make recommendations that
8 will be useful and that will prevent this kind of
9 thing hopefully from happening again, so thank you
10 again, sir.

11 That's all the evidence you have to
12 offer this afternoon, Mr. Carr-Harris?

13 MR. CARR-HARRIS: It is, Mr.
14 Commissioner.

15 THE COMMISSIONER: We'll rise then until
16 tomorrow morning at 9:00 a.m.

17
18 --- Whereupon the Inquiry proceedings
19 adjourned at 2:50 p.m.

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REPORTER'S CERTIFICATE

I, HELEN MARTINEAU, CSR, Certified
Shorthand Reporter, certify;

That the foregoing proceedings were
taken before me at the time and place therein set
forth;

That the testimony of the witness and
all objections made at the time of the examination
were recorded stenographically by me and were
thereafter transcribed;

That the foregoing is a true and
accurate transcript of my shorthand notes so
taken.

Dated this 9th day of April, 2013.

Helen Martineau

PER: HELEN MARTINEAU
CERTIFIED SHORTHAND REPORTER

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