

**TOWN OF INGERSOLL
PARKS AND RECREATION DEPARTMENT
2009 ARENA ROOF STRUCTURE & ROOFING MEMBRANE REPORT
POW PETERMAN CONSULTING ENGINEERS**

Report No. R-137-09

Approval Date: September 14, 2009

Mayor Holbrough and Members of Council:

1. Purpose of Report

The purpose of this report is to provide Council with the life expectancy of the Arena Roof Structure and Roofing Membrane at Ingersoll & District Memorial Centre. The report also provides estimated costs to undertake recommended upgrades to the roof structure.

2. Report

On August 6, 2009, Mr. Bob Peterman from Pow Peterman Consulting Engineers provided Council with his comments and review of the Arena Roof Structure – see attached letter dated August 6, 2009 – Reference # 09-05-0050.

At the August 2009 Council meeting staff was asked to contact Mr. Peterman to obtain a “life expectancy” of the Arena Roof Structure and cost estimates for recommended upgrades.

Attached to this report is a letter from Mr. Bob Peterman dated September 9, 2009 – Reference # 09-05-0050 with the requested information.

3. Recommendation

THAT Council receive for information purposes the letter dated September 9, 2009 from Bob Peterman, Pow Peterman Engineering regarding the “life expectancy” of the Arena Roof Structure & Roofing Membrane;

AND FURTHER THAT staff be directed to include the cost estimates for recommended upgrades in the 2010 Operating Budget for Council’s consideration.

Respectfully submitted,

Bonnie Ward, Director
Parks and Recreation Department

POW PETERMAN

Consulting Engineers



September 009, 2009

Reference: 09-05-0050

Corporation of the Town of Ingersoll
Department of Parks and Recreation
355 Wellington Street
Ingersoll, Ontario N5C 1T2

ATT: BONNIE WARD

Dear Sir:

RE: INGERSOLL AND DISTRICT MEMORIAL CENTRE

Further to your request for comment on the life expectancy of the structure and roofing membrane and the budget costs for the structural upgrades noted in our August 06, 2009 letter, we would offer the following:

1. The life expectancy of the structural is somewhat indeterminate. The masonry exterior walls are in good condition and should provide many years of service provided drainage and exposure to moisture is controlled to prevent deterioration of mortar and freeze/thaw damage to the components. The top of the roof support masonry columns were rebuilt and protected in the roof upgrade program in 1991 and appear to be performing well.

The roof structure was reinforced to upgrade to the requirements of the Ontario Building Code and concerns with the Trofdeck roof deck deterioration. Our recent review did not reveal any signs of distress or deterioration. We noted some minor upgrades in our letter report which we would not consider onerous from a practical or cost perspective.

The only concern with the structure deteriorating to the point of major rework would involve any hidden deterioration or the continuing rusting of all of the metal components such as connector plates and bolts. However, we saw no evidence that the metal components have lost significant section or capacity.

Therefore, from a structural and serviceability viewpoint, we would indicate that significant expenditure or the "point of no return" is more than 5 years away and less than 15 years. Mechanical and refrigeration life expectancy have not been addressed since the 1999 condition report. The need to "upgrade" the arena may be driven by increased occupancy, use, barrier standards, etc.

With regard to the roofing membrane, the membrane over the ice surface is a PVC membrane and is 27 years old. In 1999, our review suggested a further life expectancy of 5 to 8 years. This type of membrane is reputed to last 30 years or more. Base on the exposure and patching evident, we would suggest that the roof has reached the end of its life expectancy and might fail at any time or may last with some maintenance for a few more years. The expectation of 10 years without major expenditure is not realistic. The type of replacement membrane and the related cost would depend on the required life expectancy. A high quality roof membrane would be approximately \$200,000.00. The roofing membrane over the auditorium was replaced and should last the life of the building.

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Pow Peterman, Consulting Engineers
50 Samnah Crescent
Ingersoll, Ontario N5C 3J7

Division of PPA Engineering Technologies
Phone: 519 425 5000
Fax: 519 425 5001

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September 009, 2009

To undertake the upgrades noted on our recent report for Items 2 to 4, we would suggest budget costs of \$19,000.00 including professional fees for design of the brackets and reinforcing of the cross-bracing.

In the meantime, should you require further discussion in the above regard, please do not hesitate to contact our office.

Yours truly,

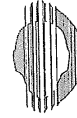
POW PETERMAN,
Consulting Engineers

A handwritten signature in black ink, appearing to read 'R.D. Peterman', with a stylized flourish at the end.

R.D. Peterman M.A Sc., P. Eng.
RDP/sp
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POW PETERMAN

Consulting Engineers



August 6, 2009

Reference: 09-05-0050

Corporation of the Town of Ingersoll
Department of Parks and Recreation
355 Wellington Street
Ingersoll, Ontario N5C 1T2

ATT: DAN ST-AMAND

Dear Sir:

RE: INGERSOLL AND DISTRICT MEMORIAL CENTRE

Further to our review of the arena structure at your request, we would comment as follows:

1. We examined the roof framing August 5, 2009, for signs of distress or deterioration by means of a man-lift. The majority of the roof deck and retro-fitted trusses are covered by the reflective ceiling. Where access was obtained, no signs of distress were noted.
2. We noted a high frequency of loose nuts on the clamping brackets for the retro-fitted parallam wood members.
3. We noted loose connections of the bottom chord bridging to the mainframes.
4. The bridging cross bracing is notably bowed and segmented.
5. With regard to the walls and foundations, we did not note any significant signs of distress.

We recommend that Item 2 be reworked before the next snow season. The additional items can be phased in as the schedule allows.

In the meantime, should you require further discussion in the above regard, please do not hesitate to contact our office.

Yours truly,

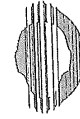
**POW PETERMAN,
Consulting Engineers**

R.D. Peterman M.A Sc., P. Eng.
RDP/sp
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POW PETERMAN
Consulting Engineers



August 6, 2009

Reference: 09-05-0050

Corporation of the Town of Ingersoll
Department of Parks and Recreation
355 Wellington Street
Ingersoll, Ontario N5C 1T2

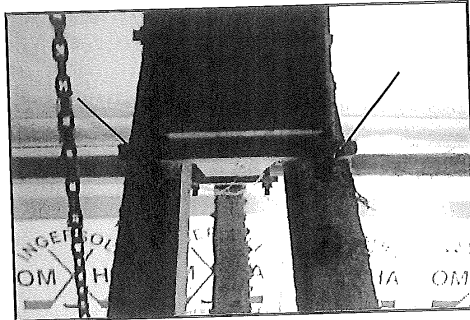
ATT: DAN ST-AMAND

Dear Sir:

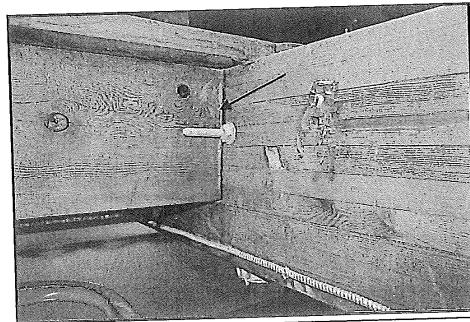
RE: INGERSOLL AND DISTRICT MEMORIAL CENTRE

Further to our review of the arena structure August 5, 2009, we recommend the following items be upgraded:

Check and tighten the clamping nuts on the parallam blocking at all locations to 30 foot-pounds. Penetrating oil should be utilized based on the surface rusting existing. Add nuts to the studs to double nut the connection. Undertake this work before the next snow season.



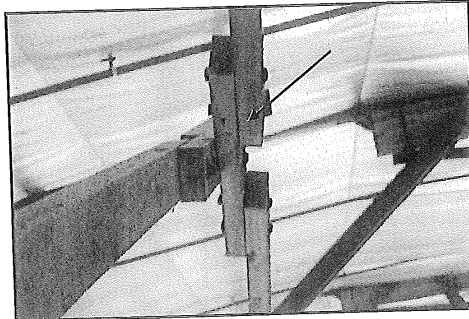
Add angle clip connections to the horizontal bridging members at three locations on each bottom chord of each mainframe.



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Rework/reinforce the bridging cross bracing in 6 locations to compensate for the bowing and discontinuity.



In the meantime, should you require further discussion in the above regard, please do not hesitate to contact our office.

Yours truly,

POW PETERMAN,
Consulting Engineers

R.D. Peterman M.A Sc., P. Eng.
RDP/sp
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