

Roof Assessment Report:

**Pequis Pavilion
Kildonan Park
Winnipeg, Manitoba**

Prepared For:

Number TEN Architectural Group
310-115 Bannatyne Avenue
Winnipeg, Manitoba

Date of Submission: July 6, 2011
Consultant File #4371-11

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1.0 INSPECTION PARTICULARS

Mr. Larry Rech of Agassiz Consulting Group was the onsite inspector. The inspection was conducted on June 28, 2011. The weather conditions at the time of the inspection were temperature +15c, winds 10 km/hr, and 10% cloud cover. A complete visual inspection was done along with a single test.

2.0 ROOF HISTORY

The structure is estimated to have been constructed in the mid 1960's and the roof appears to have possibly been upgrade at sometime in the past. I expect that this may have been done in the late 1980's. The upgrade appeared to involve the removal of the existing membrane and the installation of additional fiberboard insulation and a new felt and asphalt membrane. The original roof still remains in place. There have been some obvious problems with ongoing leaks over the years. Numerous stains can be seen on the underside of the concrete deck where water has worked its way through fractures in the concrete deck. Patches have been applied to the roof in numerous areas. It also appears as though a resaturant was applied over top of the original roof at some point in the past and additional gravel cover applied at that time. Restaurants' are an emulsion style product as applied over top of the existing roof in hopes of prolonging the life.

3.0 GENERAL ANALYSIS

The roof has no structural slope or slope within the insulation system. A single roof drain is present on the building. The roof drain is located on the southwest corner of the building. Extremely poor drainage appears to occur on the roof. Large amounts of dead leaf debris and algae debris are present throughout the entire roof. This is an indication that some fairly significant ponding water does develop after rainfalls. No significant rainfall had occurred for a period of time prior to this inspection and no water was currently sitting on the roof.

The roof system was found to be in extremely poor condition. The roof appears to consist of mostly wet fiberglass and fiberboard insulation. The roof has obviously been leaking for numerous years for this amount of damage to have occurred. It usually takes a fair amount of time for water to migrate throughout a roof assembly. The underlying fiberglass insulation does allow the moisture migration to happen more rapidly than with other type of roof assemblies.

Given the current poor condition of the roof assembly, it should be scheduled for replacement as soon as possible. This roof is long past its useful service life and maintenance is no longer viable.

4.0 RECOMMENDED REPAIRS

The existing roof assembly should be removed in its entirety. This would also include for the removal of any loose old vapor barrier. Any loose vapor barrier must be removed to ensure good adhesion of the new vapor barrier and roof assembly. Any non-used mechanical equipment such as old chimneys or other such items should also be removed at this time. Any non-used electrical conduit and lightening fixtures should also be removed from the parapets themselves. There are also a couple of old flag poles, of which one does not appear to be any longer in use. This should also be removed if not required. The other flag pole would have to be temporarily removed to allow the installation of the new roofing.

The roof has extremely poor drainage. This is particularly the case of the one drain being installed so far off center of the main structure. I suggest the installation of two new roof drains, of which a sloped insulation system can be incorporated to provide positive drainage. This roof has fairly high concrete parapets and a sloped insulation can easily be incorporated into this structure. The enclosed roof plan indicates a suggested sloped insulation layout along with suggest roof drain locations.

The overall roof assembly should consist of a new torch grade modified bitumen membrane vapor barrier. This would be applied directly over top of the concrete deck and any old vapor barrier that is fully intact. This in turn should be followed by a layer of sloped expanded polystyrene insulation, a layer of polyisocyanurate insulation and a layer of asphalt recovery board. A 2 ply torch in place modified bitumen membrane can then be installed over top of this existing assembly. The entire insulation system can easily be adhered with polyurethane adhesive such as Millennium adhesive or Soprema Duotack. Both these are essentially the same adhesives and do bond the insulation system extremely well. This type of adhesive can also be used under most weather conditions.

The new membrane should also be carried up and onto the top of the parapets. Lumber blocking should first be installed on the top of the parapets to provide a good substrate to fasten any the metal flashing. A new sheet metal cap flashing should then be installed. Some fractures are present down the face and on top of the parapets and it would be best to carry the membrane up and over to ensure that the parapets are watertight and to reduce the chance of further freeze/thaw action.

5.0 BUDGET

The cost to replace the existing roof assembly with an average R-25 sloped insulation system and modified bitumen membrane as described above will be approximately \$105,000.00 plus applicable taxes. This is based on current market conditions.

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Photo # 1
This photo shows a front view of the building.



Photo # 2
This photo shows the rear and east elevations of the building.

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Photo # 3

This photo shows some of the staining occurring on the underside of the concrete roof deck as the result of excessive moisture in the insulation system.



Photo # 4

This photo shows a partial view of the existing roof.



Photo # 5

This photo shows the remaining portion of the existing roof. The buildup of dead leaves on the roof indicates some severe ponding water occurs.



Photo # 6

This photo shows a view of the central chimney structure.



Photo # 7
This photo shows two existing old chimneys. No proper flashing or storm collars have ever been in place.



Photo # 8
This photo shows one of the fan units. Notice the conduits come up right against the unit and merely sealed with mastic. They should always penetrate the roof a minimum of 12" away so a proper pitch box can be installed.



Photo # 9
This photo shows another fan unit with a proper pitch box in place.



Photo # 10
This photo shows a location of the single roof drain. The roof drain is no where the middle of the roof and proper drainage does not occur.



Photo # 11
This photo shows some of the plant growth on the roof.



Photo # 12
This photo shows some of the numerous past repairs done on the roof.



Photo # 13
This photo shows a view of the typical overflow scupper.



Photo # 14
This photo shows a fracture in the concrete parapet. The new roof should have the membrane carried up and over the parapet and a metal flashing installed.

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Photo # 15

This photo shows some items mounted on the parapet which would have to be removed to replace the roof.

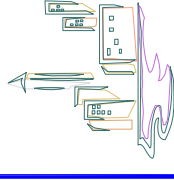
GRAPHIC LEGEND

- Parapet
- Gravel stop
- Gas line
- Control joint
- Expansion joint
- New insulated drain pipe
- Photo vantage point
- Area Label

= attic vent X = leak

KEYNOTE LEGEND

- 1 core sample
- 2 chimney
- 3 AC unit
- 4 vent hood
- 5 ventilator
- 6 vent pipe
- 7 roof drain
- 8 skylight
- 9 eavestrough
- 10 firewall
- 11 antenna
- 12 ladder
- 13 stub column
- 14 roof hatch
- 15 scupper
- 16 pitch box
- 17 HVAC unit
- 18 capped curb
- 19 flag pole
- 20 electrical mast
- 21 cooling tower
- 22 splash pad
- 23 splash pan
- 24 downspout/rainwater leader
- 25 back slope
- 26 cant
- 27 increase slope to drain
- 28 cricket
- 29 parapet/wide flashing
- 30 life line anchor



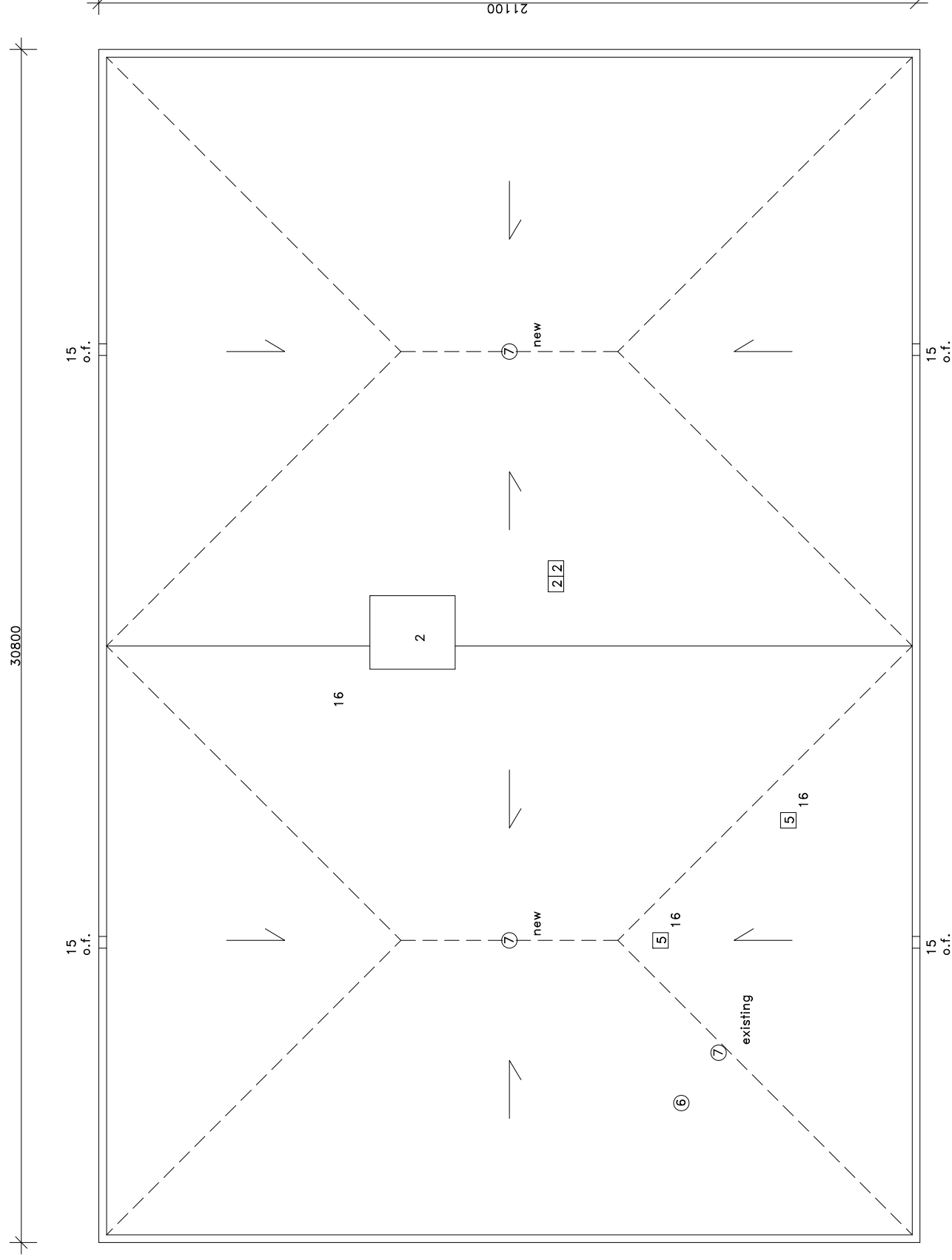
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Project: Peguis pavilion Building
Kildonan Park
Winnipeg, MB

Date: July 12, 2011

Drawing No. R-1

File no: 4371-11 Scale: 1:150



Note: slope layout is only suggested

Approx. Area
653 sq.m.

Roof Construction
cast concrete deck
felt vapor barrier
3" fiberglass
2" fiberboard
4 ply felt and asphalt
gravel
resaturant
gravel

Notes:
.01 Contractor is responsible for the site verification of all dimensions
.02 Drawings are not to be scaled for estimating purposes
.03 All areas given are approximate
.04 Contractor is responsible for site verification of existing roof constructions
Stated scale is when in 11x17 format

