

LORAIN COUNTY • ROOF EVALUATION 2011 REPORT

■ CRITICAL/URGENT (1-3 YEARS) ■ INTERMEDIATE (3-5 YEARS) ■ LONG TERM (5-9 YEARS) ★ RECOMMENDED 2011 ACTION

8/18/2011

COUNTY COURTHOUSE
308 Second Street
Elyria, Ohio

TOTAL BUILDING ROOF AREA .. 24,708± S.F.*

* Owner Provided Information

GUESSTIMATE COST FOR ROOF REPAIRS

Roof Section A and Section B:

★ **\$ 7,000 to \$ 10,000**

Roof Section C ("Porch") and Section D ("Porch"):

★ **\$ 20,000 to \$ 29,000***

(* Remove existing roof system and install APP Granular Modified Bitumen Roof System (2-Ply) with Liquid Flashing System.)

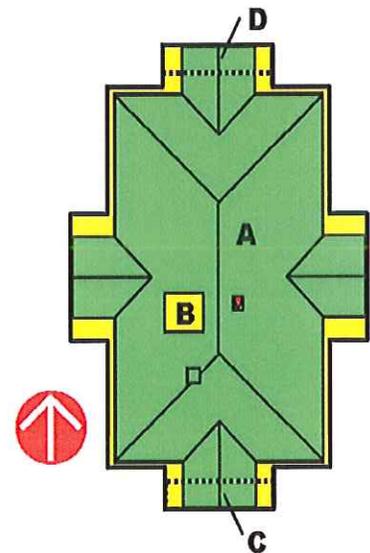
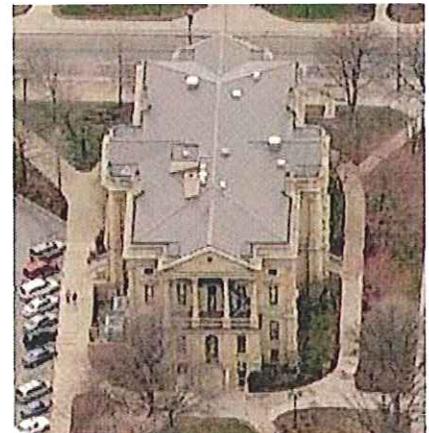
• RECOMMENDATIONS

Section "A" and "B":

■ Metal Standing Seam Roof: **10-20 YEARS**

■ Rubber Roofs & Gutters: **5-7 YEARS**

- **Recommendations;** Install proper seal at roof drains in box gutters and increase the opening size to allow for adequate drainage. These may require drain inserts.
- Inspect flat sections as well as box gutters and make repairs as necessary. Pay particular attention to any active leaks such as section 1.
- Clean all debris from box gutters.
- Install sealant where metal roof ties into stone coping.
- Remove all vegetation including stone areas that can be reached in a safe manner.
- Repair large hole in saddle
- Install a urethane sealant at termination bar on the exterior side of box gutters as needed.
- Install rubber tape to concealed splice plates at hip ridges or any other backwater laps that are discovered.
- Caulk window frame



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• FIELD EVALUATION: (8/8/11)

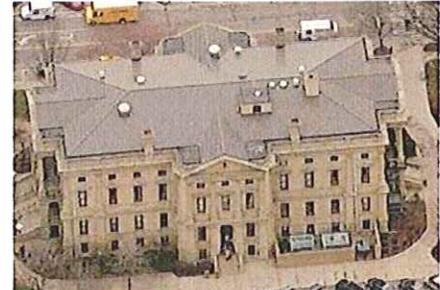
1. This roof was most likely a conventional built up roof and was then subsequently covered with a standing seam metal system with the box gutters and 8 flat sections covered with a poorly installed rubber roof system.
2. Drainage is to exterior box gutters that are poorly installed.
3. The rubber roofs and box gutters appear to have been installed first and then the metal panels were installed based on our observations.
4. The flashing detail at the box gutters does not have a proper seal at any of the roof drains. They just cut a hole in the rubber which is too small for proper drainage and is most likely letting water in due to no seal being present.
5. The exterior side of the box gutter utilizes a termination bar with sealant. While it appears to be generally watertight it should be inspected and repairs made as needed.
6. The box gutters need to be cleaned of all dirt and debris to facilitate drainage.
7. Where the metal roof joins the stone perimeter edge it was secured with termination bar and fasteners but we did not see any signs of sealant at this point
8. Much of the stone work has various openings that should be addressed. There are some areas where vegetation has taken root and these must be removed to prevent further damage to the structure. There is one area section 1 where a large piece of the stone has broken away and could be the source of the reported leak.
9. The metal roof is a hip design and at the hip ridges the cap metal was installed with concealed cover plates. This creates a backwater condition that allows water entry under the metal roof. The metal should have been lapped with the upper sections overlapping so there were no back water laps. This should be addressed after discussions regarding the desired life expectancy.
10. There is a porch roof located on the south side of the building that is in total failure and needs to be replaced. Due to the surrounding stone work and drainage careful consideration must be given as to the final replacement.



Courthouse looking South



Courthouse looking West



Courthouse looking East

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■ 2011 ROOF INSPECTION (By **RMCS** – 8/8/2011)

FIELD PHOTOGRAPHS (Cont'd) • (Photos 1 -4)



1-C Roof "C": View of porch roof that is in total failure and needs to be replaced. Note the tree growing not a good sign.



2-C View from opposite side. They have been using bentonite to try and stop the leak. Waste of time and money and makes things worse.



3-C Typical detail of outside the stone balustrade which will require some time to review and detail.



4-C View of the interior side of the roof which creates a flashing nightmare.

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FIELD PHOTOGRAPHS (Cont'd) • (Photos 5 -8)



5-C There are several opening that extend under the sandstone which again creates a flashing nightmare.



6-C These stairs need to be set on a pate rail to properly seal to the new roof.



7-C These supports need to be set off the roof to allow for proper flashing.



8-C This steel needs to be off the roof so they are properly flashed.

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FIELD PHOTOGRAPHS (Cont'd) • (Photos 9-12)



9-C One of several caulked joints that should be looked at and caulked as needed.



10-C This is the leak that is showing up under the porch roof.



11-A Top Roof (SE) - View of the rubber roof at the south east corner. This particular one has an active leak.



12-A Top Roof - There is a large piece of stone missing which should be reset and sealed which may be the source of the leak

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■ 2011 ROOF INSPECTION (By **RMCS** – 8/8/2011)

FIELD PHOTOGRAPHS (Cont'd) • (Photos 13-16)



13-A Top Roof - Large opening at the joint in the sandstone.



14-A Top-Roof - Where the metal roof is sealed to the sandstone there is no obvious sealant. I think it is needed.



15-A Top Roof - One of the box gutters that is located around the perimeter and drains the metal



16-A Top Roof (SE) - View of the rubber roof on the south side of the east dormer. We started in the southeast corner and moved along the east wall around the building.

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■ 2011 ROOF INSPECTION (By **RMCS** - 8/8/2011)

FIELD PHOTOGRAPHS (Cont'd) • (Photos 17-20)



17-A Top Roof - None of the roof drains were properly sealed. They cut a hole which is too small and this needs to be properly sealed. Not sure what the underside condition is.



18-A Top Roof - This is at the transition where the steep roof meets the flat roof with open sealant.



19-A Top Roof (NW) - View of the rubber roof on the north side of the east dormer.



20-A Top Roof - Again the drain was not properly sealed and the hole is too small to let enough water drain during heavy rains.

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■ 2011 ROOF INSPECTION (By **RMCS** – 8/8/2011)

FIELD PHOTOGRAPHS (Cont'd) • (Photos 21-24)



21-A Top Roof - View of the typical box gutter around the perimeter of the metal roof. This tree can cause serious damage if not removed.



22-A Top Roof (NW) - View of the rubber roof at the northwest corner of the building



23-A Top Roof - View of the rubber roof at the north side of the dormer on the west side of the building.

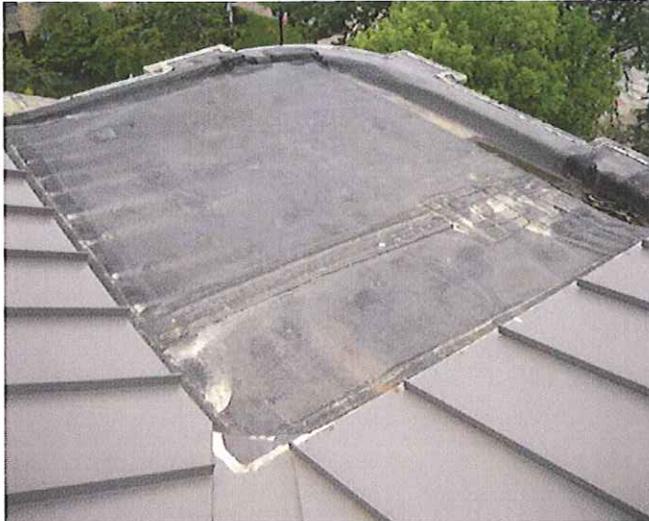


24-A Top Roof - This cricket has a major tear and must be repaired immediately if not sooner.

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■ 2011 ROOF INSPECTION (By **RMCS** – 8/8/2011)

FIELD PHOTOGRAPHS (Cont'd) • (Photos 25-28)



25-A Top Roof (SW) - View of the rubber roof on the south side of the dormer on the west side of the building.



26-A Top Roof - There is numerous areas of debris that needs to be cleaned out so it does not block the roof drains.



27-A Top Roof (NW) View of the rubber roof at northwest of center dormer roof.

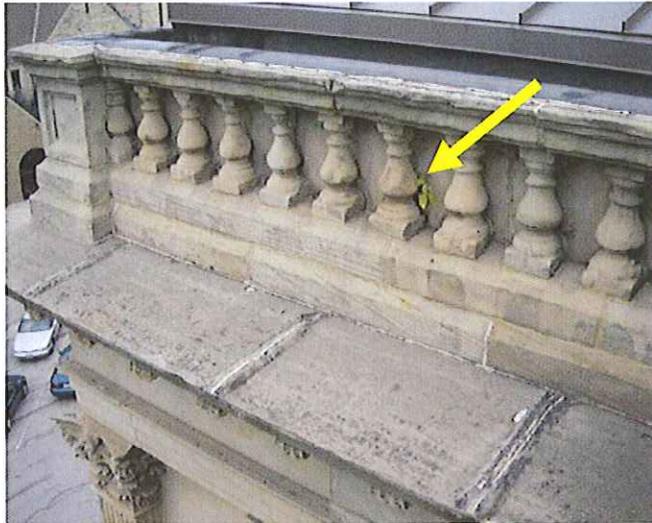


28-A Top Roof (SW) - View of the rubber roof at the southwest corner of the building

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■ 2011 ROOF INSPECTION (By **RMCS** – 8/8/2011)

FIELD PHOTOGRAPHS (Cont'd) • (Photos 29-32)



29-A Top Roof - View of the stone work on the outside of the building showing the balustrade and the ledge. Note the vegetation.



30-A Top Roof - While this is probably not leaking there are several issues here that should be sealed.



31-B Top Roof - View of the flat roof which appears to be in fair condition.



32-A Top Roof - View of the metal roof looking north. This roof appears to be in good condition.

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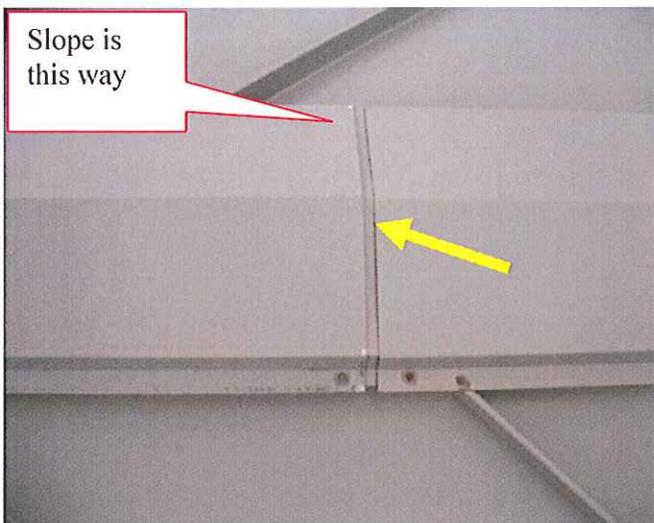
FIELD PHOTOGRAPHS (Cont'd) • (Photos 33-35)



33-A Top Roof - The window sill which is under the flat roof needs to be sealed with sealant.



34-A Top Roof - This gutter was full of water due to a blocked drain. We were able to find the drain and unblock but there is so much gunk in there that it may block up again.



35-A Top Roof - They used a concealed cover plate (Creating Back Water Condition). The downward seam is a direct path for water to get in under the metal roof.