Roof Survey

13-31 Elm Street
Springfield, MA

Prepared for: Mr. Dan Dodge & Mr. Brian Connors
Prepared by: Mr. Chuck Gray
September 28, 2011
Inspection Date: September 27, 2011

Weather Conditions: Partly cloudy, 70 degrees

Existing Roof: Coal Tar Gravel Surface Built up Roof

Square Footage: Approximately 15,340 square feet

Existing Insulation: N/A

Existing Drainage: The roof drains to (8) roof top drains.

Building Construction: Masonry walls.

Perimeter Construction: Parapet walls with stone, painted metal and copper copings.

Deck: Wood

Existing Conditions

The existing roof as illustrated with the enclosed photos would rate as poor. No records were available at the time of the inspection to determine the age of the roof. The existing main roof is a gravel surfaced coal tar built up roof installed directly over a wood deck. The thickness of the wood deck was not confirmed and pull out tests should be performed before a mechanically attached roof system is installed to ensure that the deck will meet the manufacturers minimum requirements. The perimeter details are failing and have pulled apart, rusted through and in some areas blown off.

The roof has an area of approximately 1100 square feet that has been repaired with a white single ply membrane. There are multiple areas where the roof has split and repairs have been attempted. Almost all of the base flashings and perimeter flashings have had repairs attempted.

All of the roof drains are missing clamp rings and strainers, allowing for any roof top debris to fall into the drain pipes.
Recommendations

The existing roof should be removed to the existing wood deck. The deck can be inspected once the roof is removed and any deficient decking can be addressed at that time.

There is not any roof insulation and currently the wall height on several wall sections are only between 4” to 6”. If new isocyanurate insulation is installed on this roof, some of the parapet walls may need to have additional nailers installed to raise the wall height to allow for proper base flashings to be installed. A calculation of the buildings insulation will need to be done and compared to the current Massachusetts energy code requirements for commercial buildings to determine the R-value needed for the roof. (Isocyanurate has an LTTR r-value of 6 per inch)

Pressure treated nailers to be installed on an “as needed basis” only where the existing nailers may have rotted.

The roof substrate should be prepared to accept the new roofing system by mechanically attaching a minimum 1/2” approved recovery board over the existing deck.

Install a 60 mil TPO roof system as manufactured by Genflex, Carlisle or Firestone Building products according to manufacturers specifications.

Install new TPO membrane up and over parapet walls and install new 24 gauge prefinished coping or copper as required to meet existing conditions.

Flash all pipes with TPO flashing membrane according to manufacturers specifications.

Install new drain clamps, bolts and strainers.

Install new prefinished 24 gauge metal counterflashings in reglet for all brick wall flashings.
Install 60” wide walkway pad in front of all doorways.

A decision needs to be made as to whether the chain link fence along some of the parapet walls will need to be replaced with new.

A decision needs to be made whether a new fall protection needs to be installed over the open skylight.

The base flashings for the sided buildings on this roof tie in to the built up roof so coordinating the roofing project with any siding work will need to be done.

Some of the damage to the copper copings and the copper roof may be attributed to the tornado and it is worth investigating whether the insurance company may share some of the cost of replacing these areas. The vacuum that a tornado cause sometimes will cause roof uplift which will separate the roof from the deck and in some cases can pull the decking up from the supports.

An argument could be made that some of the splits in this roof may have been caused by the tornado and the uplift of the roof.
The photos on the left show the condition of the metal coping and the base flashing for detail A.
Detail B:
The existing coping is a stone cap and metal was installed over the back side of the stone and the top of the cap was sealed with an asphalt base sealant. The back wall has a metal siding that has rusted and will need to be replaced. When using a single ply roofing membrane, the material can be ran completely up the wall thereby eliminating the need to install a similar metal siding product.
Detail D:
The existing metals are in disrepair. The mortar in the brick wall has deteriorated completely in areas. This wall section may be able to be addressed in a similar fashion to detail B. As opposed to utilizing a base flashing along with the coping detail, a single ply membrane can totally encapsulate the brick wall and seal the top of the wall below the new coping.
More photos of detail C showing the breakdown of the mortar.
Detail D:
Showing the existing condition of the coping, holes in mortar beyond, chain link fence.

Detail D to E
Existing siding on roof top buildings. The existing exposure on these panels are approximately 5 1/2”x8 1/2”. Berridge makes a matching prefinished panel that has an exposure of 8”x12”.

Metal roof edge that blew off. Most likely attributed to the tornado.
Detail D:
Showing the condition of the coping along with the repair that was made to the roof. Broken glass and debris is scattered all over this roof.
This is an open skylight that goes to a roof section several stories below. The roof section below was not accessible at the time of the survey but the condition of this roof is assumed to be in the same condition as the rest of the roof and will need to be addressed in a similar manner. The drainage of this roof will need to be addressed to make sure that there is not any ponding water.
Detail G1:
Showing the distressed coping details along with debris on the roof.
Detail G2: Showing the distressed perimeter detail along with the roof drain that is missing clamps and strainer.
View of the exterior portion of the building showing the distressed coping details and the tuck pointing issues.
Detail H1:
Photos on the left show the interior and exterior views of the copper coping and exterior dental detail.
The photos on the left show the damage to the copper copings on the south side of the building that were most likely damaged during the tornado.
Detail H2:
Copper copings looking from the south to the north. The copings have had repair attempts made by smearing asphalt.
Detail I: Showing the stone cap and the termination attempt of the metal on the back side.
Detail J:
Showing the chain link fence and the coping detail.
Building #2: Before and after the tornado
Building #3: The siding on this building has severe rust and the edge metal has partially blown off on the east side.
Building #4: 
Appears to have a concrete roof deck. The roof on this building was not accessed at the time of the inspection. The concrete walls have several cracks and repairs have been attempted.
Building #5:
Has a metal hip roof and siding similar to building #3
Building #6:
This building has a sloped roof and is partially brick and has an addition that has broken windows and appears to have asbestos siding.
The photos on the left show more of the damage caused by the tornado. A window was blown out, shingles laying on the roof and fascia metal has been blown off.
Wall Height ~ 4'
Wall Width ~ 2'

Existing Detail A

Gravel Surface
Bur

Reglet
Brick

Existing Metals
Painted Metal

Brick

Reglet
Gravel Surface
Bur
Existing Detail B

Wall Height ~ 6'
Wall Width ~ 4'

Existing Metals
Painted Metal

Gravel Surface
Bur

6" Metal Flashing

Metal Cap
Asphalt Sealant
Stone Cap

Metal Siding Panels

Existing Metals

Customer:

Sales Person:

Project:

Drawing Number:

Drawn by:

Scale:

Factor:

Date:

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Existing Detail C

- Brick
- Reglet
- Gravel Surface Bar
- Metal Flashing

Existing Metals
Painted Metal

Wall Height ~4'
Wall Width ~2'

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Existing Detail D

*Note: These Wall Sections have a Chain Link Fence Installed to the Painted Wall.
Existing Detail F

Typical Brick Counterflashning

Brick
Reglet
Metal Flashing
Gravel Surface Bur
Existing Detail G1

Wall Height~ 6"  
Wall Width~ 15"

Existing Metals  
Painted Metal

Metal Coping

Metal Flashing

Gravel Surface

Bur

Existing Metals

Painted Metal

Wall Height~ Varies 6" to 24" @ roof Drains

Wall Width~ 15"

Existing Detail G2

Existing Metals

Painted Metal

Wall Height~ 6" to 24"  
Wall Width~ 15"

Metal Coping

Metal Flashing

Gravel Surface

Bur

Existing Metals

Painted Metal

Wall Height~ 24"  
Wall Width~ 15"

Existing Detail G3

Existing Metals

Painted Metal

Wall Height~ 6" to 24"  
Wall Width~ 15"

Metal Coping

Metal Flashing

Gravel Surface

Bur

Existing Metals

Painted Metal

Wall Height~ 24"  
Wall Width~ 15"

Existing Detail G4
Existing Detail H1

Existing Copping ~ Copper
Wall Height ~ 2' @ Roof Drain
Wall Height goes to Approx. 4”
In 40’ + Runnes @ 4”
To the End of Detail

Copper Dental
Molding

Existing Detail H2

Existing Copping ~ Copper
Wall Height ~ 4”
Copper Dental
Molding
Existing Detail

Gravel Surface

Bur

Metal Flashing

Asphalt Sealant

Wall Length: Stone Cap ~ 40"
Metal Cap on stone ~ 16"
Wall Height ~ 2'

Existing Metals
Painted Metal

Customer:

Sales Person:

Project:

Drawing Number:

Drawn by:

Scale:

Factor:

Date:

110930

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City of Springfield

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Existing Detail J

- Gravel Surface
- Bur
- Metal Flashing
- Metal Cap
- Asphalt Sealant
- Stone cap