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The following sections are taken from the Canadian Roofing Contractors Association (CRCA) Roofing Preventative Maintenance Manual. IKO endorses these repair recommendations in conjunction with a good roofing practice and the recommendations contained in this manual.

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16.01.1 CRCA BUR Repair Recommendations

A. Holes, splits, tears, or abrasions:

1. **Remedial action:** Mechanical damage to the membrane can be caused by falling objects and/or rooftop traffic:
 - a. Determine the extent of moisture ingress into the roof assembly;
 - b. Remove and replace wet insulation and other materials; and
 - c. Patch the membrane to return the membrane to a watertight condition, as required.

B. Ridges, buckles, and wrinkles:

1. Some minor ridging is present in all built-up roof systems as the felts naturally expand and contract in response to thermal changes. Unlike blisters, ridges are hard, but they are not usually serious unless they expand to the point of allowing slippage of the protective top pour. Exposed ridges, through repeated weather cycling, will eventually crack and allow moisture into the roof systems.
2. **Remedial action:** Monitor the situation over time.

C. Surface coating deterioration:

1. If the gravel or protective coating has eroded, the underlying bitumen and felts will deteriorate. Erosion in the form of wind scour is common in the corners of the roof subject to the prevailing winds. Erosion can also result from water flowing over the surface, foot traffic, ice action, and forced air discharged from ventilators.
2. **Remedial action:** Recoat the membrane and reapply the surfacing material.

D. Dry side laps:

1. **Remedial action:** Poor adhesion of felt edges exposed above the gravel surfacing may allow wicking of moisture into the roof membrane when covered with water.
 - a. Cut away the unbonded felt edge.
 - b. Apply an additional layer of reinforcing felt, compatible coating, and surfacing.

E. Blisters:

1. **Remedial action:** Monitor the blisters over time. Smaller blisters are best left unattended. Larger blisters should be repaired promptly by patching or other remedial measures.

- F.** Debris, vegetation, or other contaminants:
- Remedial action:**
 - Remove the contamination from the roofing surface and inspect for damage; and
 - Repair the damaged membrane.
- G.** Excessive ponding water:
- Remedial action:** Repair/add drains in low areas, sumps, through-wall scuppers, or tapered insulation and/or crickets.
- H.** Alligatoring or eroding surface:
- Remedial action:** Apply a compatible surface coating and surfacing.
- I.** Membrane flashing deterioration:
- Remedial action:**
 - Remove metal counterflashing as required to expose membrane flashings;
 - Apply a compatible coating and reinforcement; and
 - Reinstall or replace metal counterflashing.
- J.** Pitch Pans (pitch pockets) deterioration:
- Remedial action:** A potential source of trouble, these high maintenance items should always be filled and “crowned” with a durable, flexible, and non-slumping sealant. Their waterproofing ability depends on keeping them full and free of cracks.
- K.** Blocked drains:
- Remedial action:**
 - Clear away any debris that may impede their function. If they are clogged and cannot be readily cleared, get professional help.
 - Make sure that any drain installed is still in place and functioning as intended.
- L.** Chemical contamination, effluence:
- Remedial action:** Chemical contamination from rooftop spills and effluence can result in the rapid deterioration of the BUR membrane. The affected areas should be repaired as soon as possible.
 - Scrape back the contaminated surfacing to the felts;
 - If necessary, remove the felts down to the substrate;
 - Apply new built-up membrane in the affected area in hot asphalt or cold mastic; and
 - Apply the topcoat and resurface.

M. Deteriorated gravel stop:

1. **Remedial action:**

- a. Scrape back the existing gravel to the felts;
- b. Prime the surface;
- c. Install the new reinforcing felts (fabric) in hot asphalt or cold mastic; and
- d. Apply the topcoat and resurface.

16.02.1 CRCA Modified Bitumen Repair Recommendations

A. Holes, splits, tears or abrasions:

1. **Remedial action:** Mechanical damage to the membrane can be caused by falling objects and/or rooftop traffic:

- a. Determine the extent of moisture ingress into the roof assembly;
- b. Remove and replace wet insulation and other materials; and
- c. Patch the membrane to return the membrane to a watertight condition, as required.

B. Ridges, buckles, and wrinkles:

1. Some minor ridging is present in all the modified bituminous membrane roof systems as the sheets naturally expand and contract in response to thermal changes. Unlike blisters, ridges are hard, but they are not usually serious unless they expand to the point of allowing slippage of the protective top pour. Exposed ridges, through repeated weather cycling, will eventually crack and allow moisture into the roof systems.

2. **Remedial action:** Monitor the situation over time. Where the protective surfacing has worn away at peaks of ridges, a roof coating should be applied and new surface material embedded or a membrane patch should be applied.

C. Surface coating deterioration:

1. If the protective coating has eroded, the underlying bitumen and reinforcing will deteriorate. Erosion can result from water flowing over the surface, foot traffic, ice action, and forced air discharge from the ventilators.

2. **Remedial action:** Recoat the membrane and reapply the surfacing material.

D. Unbonded laps:

1. **Remedial action:** The poor adhesion of overlaps may allow water to penetrate into the roof membrane systems.
 - a. Cut away the unbonded overlap edge;
 - b. Apply the compatible coating and additional layer of modified bitumen membrane; and
 - c. Alternatively, heat-apply the membrane patch.

E. Debris, vegetation, or other contaminants:

1. **Remedial action:**
 - a. Remove the contamination from the roofing surface and inspect for damage.
 - b. Repair the damaged membrane.

F. Blisters:

1. **Remedial action:** Monitor the blisters over time. Smaller blisters are best left unattended. Larger blisters should be repaired promptly by patching or other remedial measures. Blisters that compromise seams or impede drainage should be repaired.

G. Excessive ponding water:

1. **Remedial action:** Repair/add drains in low areas, sumps, through-wall scuppers, or tapered insulation and/or crickets.

H. Chemical contamination, effluence:

1. **Remedial action:** Chemical contamination from rooftop spills and effluence can result in the rapid deterioration of the modified membrane. The affected areas should be repaired as soon as possible.
 - a. Remove the membrane down to the substrate, as required.
 - b. Apply the new membrane in the affected area with heat, or in hot asphalt, or cold adhesive.

I. Deteriorated or loose side or base flashing:

1. **Remedial action:** Minor blistering or ridging should be monitored. Large blisters or areas of the unbonded membrane that compromise seam integrity or wind uplift resistance should be repaired.
 - a. Cut away the loose MBM flashing.
 - b. Heat-apply the patch or apply in cold adhesive.

J. Penetration Pocket (pitch pockets) deterioration:

1. **Remedial action:** A potential source of trouble, these high maintenance items should always be filled and “crowned” with a durable, flexible, and non-slumping sealant. Their waterproofing ability depends on keeping them full and free of cracks.

K. Blocked drains:

1. **Remedial action:**
 - a. Clear away any debris that may impede their function. If they are clogged and cannot be readily cleared, get professional help.
 - b. Make sure that any drain installed is still in place and functioning as intended.