Sika Canada Inc.

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Periodic Roof Inspection and Maintenance Program

Sika®

Sarnafil®

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This manual provides guidelines for planning and implementing a regular program of roof inspections and routine maintenance procedures.

Why Regular Inspection and Maintenance?

Roofs are constantly under attack by weather, structural movement and stresses, and chemicals present in the atmosphere. While "normal aging" will occur on all roofs, small problems stemming from neglect, abuse, contamination, error, or accident can result in extensive, costly repairs or premature failure of the roofing system if not detected.

A regular program of inspection and repair detects minor problems before they become serious, avoids interruptions of the internal functions within the building, and most importantly, protects the owner's investment by adding years to the life of the roof.

Planning and Starting a Program

Proper record keeping and documentation of changes and repairs are essential to a good inspection and maintenance program. Prior to the actual implementation of the program, a system for filing, accessing, and updating information should be put into place. This system should include the following information:

1. Plan(s) of the roof showing all penetrations, roof-mounted equipment, and other pertinent details.
2. Detailed drawings of the flashings, decks, and other construction details.
3. Specifications, manufacturer's brochures, and approved submittals for accessory products such as insulation.
4. Warranty information from Sika Canada Inc. and/or the installing contractor.
5. Existing inspection and maintenance reports including photographs.
6. Records of prior problems and repairs.
7. Details of any changes made to the roof or substrate subsequent to the original installation plus copies of notifications sent to Sika Canada Inc.
8. Records of any rooftop equipment installed subsequent to the original installation including dates of installation.

Scheduling Inspections

At least two (2) inspections should be made every year. Ideally, inspections should take place in the spring to check on damage that may have occurred in the winter, so repairs can be scheduled during the fair weather summer months. The second inspection should be in the fall to be sure the roof is in good condition for the coming winter. Inspections should also be made following any occurrences that might affect the roof; e.g. storms, construction activities, fires.

Equipment Needed for Inspection and Minor Maintenance Repairs

The inspector should take some basic equipment and materials onto the roof when making an inspection. These include:

Inspection Materials

- Roof Plans
- Record-keeping equipment such as inspection forms and writing instruments.
- Camera
- Grease Markers
- Measuring tape

Repair Materials*

- Approved cleaning solvent and rags
- Scissors
- Screwdrivers
- Protective gloves
- Hand held, hot air welding equipment*, and hand roller

**Hot air welding should only be performed by roofing mechanics trained by an authorized Sika Sarnafil Technical Representative.*

If cuts are to be made in the roof, the following should also be included:

- Plastic bags, tape, and labels for samples removed from the roof
- Insulation to replace any wet or damaged materials removed
- Membrane to patch openings

Conducting the Inspection

All components of the roofing system should be closely inspected and a record made of any signs of deterioration, unusual traffic patterns, poor drainage, accumulated debris, displacement or loss of ballast, scouring, or other conditions. The Sika Canada Semi-annual Maintenance Inspection Checklist should be used as a guide and for recording observations.

Outline of Inspection / Maintenance Procedures

I. REGULAR MAINTENANCE ITEMS

All pitch pan fillers, caulking, and sealants will require periodic replacement and should be observed during all regular inspections. (Note: These items are not covered in the Sika Canada guarantee and must be maintained by the owner.) Replacement should take place at first sign of deterioration. Also, drains should be cleared, and all debris should be removed during all inspections.

II. CONDITIONS OF STRUCTURE

Prior to a detailed inspection of the roof, it is desirable to make a visual inspection of the structure. The purpose of this inspection is to detect any settling or movement in the exterior walls, water staining, rusting or spalling of the deck visible from the interior, shrinkage, cracking, distortion or buckling of the deck, or opening of joints in precast decks.
It is also advisable to check any changes in the use or occupancy of the building that could create factors which would affect the roof system; e.g., chemical processes, machinery vibration, a significant change in interior humidity or temperature conditions. The inspector should also ensure that all water piping, particularly that in plenums above dropped ceilings, is insulated. Also any indications of leaking or water staining on ceilings, piping, ducts, decks or structural materials should be noted. Exterior walls in particular should be checked for open mortar joints, poor laps in metal siding, spalling, or efflorescence caused by porous masonry or leaking copings.
Finally, the overall visual inspection should note any signs of damage and any rooftop equipment or penetrations installed since the last inspection.

III. CONDITION OF ROOFING

Referring to the checklist, report the general appearance of the roof and the surface conditions of the membrane.
General appearance is primarily a function of housekeeping. Debris, poor drainage, or ponding are evidence of physical damage (See Part 1, Regular Maintenance Items.)
Any discolouration, cracking or splitting, as well as punctures, should be noted.
Seams should be observed for open joints, fishmouthing or ridging.
On fully adhered systems, it is important to note any unadhered areas. On mechanically fastened systems, a check should be made to be sure that there is no evidence fasteners backing out or popping. On ballasted systems, the weight and depth of stone ballast should be checked against the design specifications.
Any signs of scouring should be noted and all gravel redistributed evenly.
If increased foot traffic becomes necessary, to be sure to provide walkways.
The following troubleshooting guide identifies some problems and the most probable source of each:

Problem	Probable Source
Discolouration of membrane	Chemical or atmospheric contamination
Fishmouthing or open joints	Improper seam welding
Loss of adhesion in fully adhered system	Interiaminar separation between insulation and facing indicating failure of insulation Separation between membrane and insulation indicating improper application of adhesive. Call the Sika Sarnafil Technical Department immediately.
Loose fastening in mechanically fastened system	Fasteners not properly installed Fasteners too short Buckling, warping, shifting or corrosive deterioration of deck or structure Heavy foot traffic
Movement of ballast in loosely laid system	Ballast too small for wind uplift conditions Foot traffic
Ridging or buckling of membrane at insulation joints	Movement of substrate due to moisture or thermal effects

IV. CONDITION OF FLASHING

Terminations and connections between horizontal roof surfaces and vertical surfaces, such as curbs and parapets, should be carefully inspected. In fully adhered systems, these joints are susceptible to loss of adhesion due to differential movement between the two surfaces. In mechanically fastened systems, they are often the terminal anchoring points for the entire roof system and, as such, may be subjected to higher than normal fastener stresses.
Counterflashings, copings, and wall flashings should also be carefully checked.
The following troubleshooting guide describes some problems and their probable sources:

Problem	Probable Source
Sagging membrane	Improperly fixed into reglet or under counterflashing Loss of adhesion
Loose mechanical fasteners	Inadequate fastener length Fasteners not properly spaced Corrosive deterioration of fasteners
Looseness at reglets	Inadequate receiver design
Loose fascias	Inadequate securing Wind or mechanical damage
Open lap seams	Improper hot air welding
Damaged copings at parapets and expansions joints	Structural movement, thermal expansion, or mechanical damage
Loose flashings at mortar joint	Movement of wall or flashing Deteriorating mortar Inadequate depth of metal in mortar joint
Water backup at drains	Clogged drains

V. EMERGENCY REPAIRS

If repairs are necessary, a Sika Canada technical representative must be contacted to arrange joint inspection. In an emergency, contact a recognized Sika Canada applicator.
Avoid electric and water hazards to personnel by closing off dangerous areas or shitting off electrical service.
For safety, two-person teams should be used. Before going onto the roof, a check should be made for fallen electrical lines or other dangers. If the roof is in danger of collapse due to water, snow or ice, evacuate the building immediately.
Examine drains and clear the strainers. Be careful not to remove strainers to reach into drain pipes. Sudden clearing of the popes can cause dangerous suction.
Check for toppled equipment, missing hatch covers, loose guy wires, or other conditions that could cause membrane puncture.
Lower the water level on the roof using brooms, pumps, syphons, etc. Observe interior leaks as the level drops to isolate leaky areas. Care should be observed when using shovels, as they may damage the membrane.
Wind-torn or displaced roofing will require battens, sandbags, concrete blocks or other ballasting to prevent increased damage. On steel or nailable decks, wood-batten strips can be fastened directly through the membrane. Tarpaulins or other covers may have to be applied and ballasted to seal areas where the membrane has been lost. Look for missing fascia metal, displaced copings, or other perimeter damage, as wind effects usually are most severe at corners and perimeters of roof areas.
In wet conditions, temporary repairs should be made immediately with permanent repairs as soon as conditions allow.
Dry out the surfaces as much as possible. Even “wet-patch” materials have a better chance of success if surface water is removed. If necessary, dam water flow to repair area with sand, sandbags, cement, mortar, lime, etc.
Area should be wiped clean with rags, then cleaned with M.E.K. solvent (wear gloves), dry with hot air gun, and hot weld patch over problem area. (Observe caution when using electrical devices in wet area.)
Use THF solvent for temporary and emergency welding if hot air is unavailable due to power problems.
After the emergency is under control, record the location of the temporary repairs, contact Sika Canada Roofing Technical Service and schedule permanent repairs as soon as possible.

Sika Sarnafil PVC Membrane – Basic Repair Technique

- Clean, wipe with solvent if necessary to remove contaminants
- Hot air weld patch
- After sheet cools, inspect carefully with blunted screwdriver to be certain edges are sealed
- Use a heat gun and roller to seal any loose edges.

Regular inspections and maintenance can add years of service to a roof system. Good housekeeping and keeping a roof free of debris and vegetation are also important. Damage, if detected early, can usually be repaired economically, thereby avoiding expensive repairs or early replacement costs.

Semi-annual Maintenance Inspection Checklist

Building Name: _____ **Date:** _____

Address: _____ **Inspector:** _____

ITEM	CONDTITION			LOCATION	ACTION	DATE OF REPAIR
	OK	Problem				
		Minor	Major			
I. REGULAR MAINTENANCE ITEMS						
A. Pitch pans						
B. Caulking						
II. CONDITION OF STRUCTURE (Observe from both interior and exterior of building)						
A. Walls						
1. Movement						
2. Settling						
3. Water staining						
4. Open mortar joints						
5. Poor laps in siding						
6. Spalling						
7. Efflorescence						
B. Roof Deck						
1. Rusting						
2. Spalling						
3. Cracking						
4. Buckling						
5. Open joints						
6. Staining						
7. New penetrations/equipment						
C. Building Usage Record any changes. (include interior temperature, relative humidity, chemical processing, machine vibration, etc.)						
D. Summary and General Evaluation	☐ There are no observable problems: ☐ The following conditions could present problems: ☐ The following conditions could require immediate attention:					
III. CONDITION OF ROOFING						
A. General Appearance						
1. Discolouration						
2. Crackling						
3. Ponding Water						
4. Debris						
5. Physical damage						
6. Punctures						

ITEM	CONDTITION			LOCATION	ACTION	DATE OF REPAIR
	OK	Problem				
		Minor	Major			
B. Roof Deck						
1. Open joints						
2. Fishmouths						
3. Ridges						
C. Fully Adhered Membranes						
1. Unadhered areas						
2. Insulation fasteners backing out						
3. Other (describe)						
D. Mechanically Fastened Membranes						
1. Loose Fasteners						
2. Insulation fasteners backing out						
3. Other (describe)						
E. Ballasted Membranes						
1. Displacement of stone						
2. Other (describe)						
IV. CONDITION OF FLASHING						
A. Base Flashing						
1. Deterioration						
2. Punctures						
3. Attachment						
4. Riding/Sagging/Wrinkling						
5. Other (describe)						
B. Counterflashing						
1. Punctures						
2. Attachment						
3. Rusting						
4. Other (describe)						
C. Coping						
1. Open Furnaces						
2. Punctures						
3. Attachment						
4. Drainage						
5. Other (describe)						
D. Walls						
1. Mortar joints						
2. Spalling						
3. Movement cracks						
4. Other (describe)						
V. MISCELLANEOUS						
A. Expansion Joint Covers						
B. Walkways						
C. Penetrations						
D. Drains						
E. Other (describe)						

COMMITMENT

Sika Canada Inc. is committed to providing technically superior roofing systems along with the highest industry technical knowledge and advice to our customers.

The Sika Sarnafil roofing system that has been selected for this project will offer many years of trouble free protection for your building.

The professional roofing contractor who was contracted to install this roof is also committed to provide the highest quality workmanship and employing the most modern and efficient application techniques and equipment.

Sika Canada Inc.

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