



Installing Vegetative Roof Systems Over Duro-Last Assemblies

SPECIFICATION

TABLE OF CONTENTS

INTRODUCTION	2
SYSTEM APPROVAL PROCEDURES	2
ROOF SYSTEM CONSIDERATIONS	2
System Approval Procedure / Pre-Project Approval Form	2
Mechanically Attached Systems	3
Fully Adhered Systems	4
Vegetative Roof As Ballast	4
Membrane Protection Considerations	4
WARRANTY	5
Pre-Project Approval Form	6

Introduction

Duro-Last Roofing assemblies may be used as the waterproofing component of vegetative roof systems. The requirements for using a Duro-Last assembly for this purpose are outlined in this section with reference to other specifications throughout this manual. It is important to keep in mind that a complete Duro-Last roofing system must be installed as outlined by the current specification for the type of roof system being used (e.g., “Mechanically Attached, Fully Adhered”). This section covers additional requirements that must be observed to receive a Duro-Last 15-Year Covered Roof Assembly Warranty.

Components for the vegetative roof system will be purchased and warranted separate from the Duro-Last roofing system. The vegetative roof system must be installed by an authorized agent of the vegetative roof manufacturer/supplier. The completed installation of the Duro-Last waterproofing system must pass inspection by a Duro-Last Quality Assurance Technician before the placement of the vegetative system.

Duro-Last cannot cover all the different installations of vegetative assemblies in this specification, although Duro-Last will consider all vegetative assemblies if properly investigated. If the overlay of the vegetative assembly is not covered here, contact the Engineering Services Department at Duro-Last to evaluate that particular vegetative system.

The installation of a vegetative assembly over a Duro-Last assembly for the purpose of a full warranty will be for commercial or industrial usage only. A vegetative assembly over a residential unit will qualify for a material warranty only.

System Approval Procedure / Pre-Project Approval form

Duro-Last must approve the use of a vegetative roof system prior to the system installation. Failure to receive pre-approval may result in denial of warranty for the Duro-Last roofing system.

A Pre-Project Approval form for Covered Roof Assemblies and Warranties is attached. This form must be signed by the Engineering Services and Quality Assurance Departments to validate the “15-Year Covered Roof Assembly Warranty”. Once submitted to Duro-Last, please allow 10 working days for review of the proposed assembly. Provide specific information regarding the vegetative roof system and manufacturer as well as detailed information regarding the building and Duro-Last roofing system to be installed.

Once the system has been approved, any proposed changes must be submitted to Duro-Last for consideration. Installation of a vegetative roof system that is different than the system described on the signed Pre-Project Approval form may result in denial of warranty of the Duro-Last roofing system.

Roof System Considerations

The minimum thickness of the Duro-Last membrane that is used as the waterproofing component with all vegetative roof systems is 50 mil (1.27 mm).

In all occurrences where the vegetative system will be installed over the Duro-Last membrane, a protective layer will be used to protect the Duro-Last membrane from static or dynamic pressures. This protective layer must be included in the components listed above the Duro-Last membrane on the "Pre-Project Approval for Covered Roof Assemblies and Warranties" form. This protective layer can be a .040 mil Duro-Last membrane or other compatible membrane with a minimum mil thickness of .045. Other materials can be used for the protective layer but must be approved by the Engineering Services Department.

Duro-Last, Inc. assumes no liability for the design of the proposed vegetative placed on the structure.

Consideration must be given as to the attachment method of the Duro-Last roof system which will be overlaid by the vegetative roof components. Acceptable methods are mechanically attached and fully adhered and, in some cases, the vegetative roof system can be used as ballast to hold the roof in place. Requirements for the use of each of these types of attachment are outlined in this section.

The expected wind load for a roof is a primary factor used to determine which attachment method is appropriate and must be determined as outlined in ASCE 7. Duro-Last's Engineering Services Department can assist with this calculation.

Parapet wall heights are also considered and the requirements are listed for each attachment type. If no parapet walls exist on the building under consideration, contact Duro-Last Engineering Services Department.

Membrane Protection Considerations

Concentrated loads from installation equipment will cause deformation of insulation and possible damage to the membrane if proper protection is not provided. This protection should allow for equal distribution of weight of the installation equipment and should be provided from the staging area to its final destination. A protection course and/or sleepers must be used to prevent damage to the membrane and insulation.

Mechanically Attached

The roof system must be installed as outlined in the Mechanically Fastened Systems specification or the Duro-Last Duro-Roof System specification, published in the current Duro-Last Roofing Specification Manual, and these additional requirements.

1. Vegetative roof systems are not allowed to be installed in areas with basic wind speeds in excess of 110 mph as determined by ASCE-7.

2. Expected wind load as determined using ASCE-7 must not exceed -45 lbs of uplift pressure.
3. Roof height not to exceed 70 ft.
4. Parapet details will be evaluated by Duro-Last Engineering Services Department to ensure application is acceptable with Duro-Last and with the vegetative system manufacturer.
5. Duro-Last two-way breather vents are not required in the area where the overburden will be placed.

Fully Adhered

The roof system must be installed as outlined in the Duro-Last Adhered Systems specification, published in the current Duro-Last Roofing Specification Manual, and these additional requirements.

1. The expected wind loads as determined using ASCE-7 must not exceed -60 lbs of uplift pressure.
2. If the expected wind speeds exceed 110 mph as determined by ASCE-7, the Duro-Last Engineering Services Department will evaluate the proposed vegetative installation for any additional enhancements.
3. Roof height not to exceed 150 ft.
4. Check with Duro-Last Engineering Services Department for adequate parapet height.
5. Duro-Last two-way breather vents are not required.

Vegetative Roof System as Ballast

The roof system must be installed as outlined in the Duro-Last Paver Systems specification, published in the current Duro-Last Roofing Specification Manual, and these additional requirements.

1. The weight of the vegetative roof system must be greater or equal to 10 pounds per square foot.
2. Vegetative roof systems are not allowed to be installed in areas with basic wind speed in excess of 90 mph per ASCE-7 basic wind speed maps.
3. Expected wind loads as determined using ASCE-7 must not exceed -30 lbs of uplift pressure.
4. Roof height not to exceed 40 ft.
5. Install the vegetative roof in the field of the roof only if the gravel stop or parapet is 2 inches or less than the height of the growth media. The exposed roof shall be protected with pavers or special design edge treatment to protect the components of the vegetative roof and growth media from the wind. Follow the current SPRI RP-14 Wind Design Standard for Vegetative Roofing System recommendations for gravel stop or parapets, as outlined in the document section 2.10.3 titled "Limitation" for any additional information.
6. Duro-Last two-way breather vents are not required.

Warranty

The following requirements must be satisfied in order for the Duro-Last roofing system to receive the 15-Year Covered Roof Assembly Warranty. The warranty will cover only the Duro-Last roofing system.

1. The roof assembly (Duro-Last roof system and vegetative roof system) must be pre-approved by Duro-Last, in writing, as outlined above.
2. Minimum membrane thickness must be 50 mil (1.25 mm).
3. The Duro-Last roofing system must be installed per the requirements of the Duro-Last roof system specification for the attachment method used and the additional requirements set forth here.
4. The Duro-Last roof system must be inspected and approved, in writing, prior to application of the vegetative roof system.
5. The Duro-Last installer must be present during installation of the vegetative roof system to ensure that any damage to the Duro-Last roof system is repaired per Duro-Last specifications.

Note:

Pursuant to the Duro-Last 15-Year Covered Roof Assembly Warranty, letters c, d and e state,

- c. "The Owner allows Duro-Last's employees or agents or its Contractor access to the roof including, if necessary, the removal and replacement by Owner at Owner's expense of any and all rooftop gardens, earth, soil, pavers, decks, patio and walking surface materials, photovoltaic paraphernalia and other overburden;"
- d. "Duro-Last authorizes the repair, and,"
- e. "At Duro-Last's option, either Duro-Last's own employees or agents or a Contractor makes the repair".