

TECHNICAL SYSTEM AND DESIGN REPORT

ElaProof – liquid elastomeric membrane for roof refurbishment
Design basis for engineers, architects, contractors and clients
Version 1.2 | 1 January

Document status: Generic system and design basis. Project-specific conditions, existing roof build-up, drainage, falls, fire requirements, wind loads, details and warranty must be verified before execution.

ElaProof – Technical System and Design Report | Version 1.2

1. Purpose, application and scope

This report brings together the technical requirements, installation principles and inspection points that should form part of the design and execution of an ElaProof-based roof refurbishment. It is intended as a basis for approval and tendering so that designers and contractors have common requirements for substrates, details, system build-up, quality assurance, operation and warranty. ElaProof is used as a water-based, elastic membrane/coating for applications including roof refurbishment. The manufacturer's documentation includes installation instructions, technical specifications, maintenance guidance, detail drawings via ProdLib and a Site Report. [1][2][3]

Important: This report does not replace project-specific structural, hygrothermal or drainage design. Where the manufacturer's publicly available documentation does not specify an unambiguous solution or limit value, this is identified as a design requirement that must be defined and approved before execution.

Requirement and status categories

The categories are used throughout the report to distinguish documented manufacturer requirements from matters that must be defined, checked or agreed for the project.

Manufacturer requirement	Requirement documented in ElaProof instructions or technical documentation.
Design requirement	Matter that the designer must size, specify or define.
Contract requirement	Matter that must be clearly agreed in the tender, quotation or contract.
Project-specific clarification	Matter where the system, substrate or detail requires separate approval.
QA / documentation	Inspection, measurements, photographs, Site Report and other handover documentation.
Warranty / third party	Matter relating to the warranty provider, warranty conditions, inspection and any third party.

2. System build-up and product selection

A typical roof refurbishment system may consist of an existing suitable roof substrate, necessary repair/levelling, an appropriate primer, local reinforcement at joints and critical details, and ElaProof Classic H or ElaProof PRO S as a continuous membrane. Product and primer selection must be adapted to the specific substrate.

Layer / component	Function	Typical requirement	Inspection
Existing substrate	Sound substrate	Sound, clean, dry/within moisture limits, free from loose layers	Visual inspection, adhesion, moisture
Repair/levelling	Remove depressions and unwanted adverse falls	Compatible, dimensionally stable material with falls towards outlets	Levels/falls, curing, adhesion
Primer	Pore sealing/adhesion	ElaProof Primer on porous substrates; ROOF Primer on relevant mineral-/slate-surfaced roofing felt in accordance with the manufacturer's instructions	Coverage, dryness, no ponding
Detail reinforcement	Reinforcement of joints, cracks and penetrations	ElaProof Base Fabric or ROOF reinforcement fabric embedded in wet ElaProof	Full embedment, no folds/voids
Membrane	Continuous waterproof coating	Consumption/layer thickness according to selected product and substrate	Wet consumption, dry film, visual inspection

3. Substrate, preliminary assessment and cleaning

3.1 Preliminary assessment

Before tendering and execution, record the roof's existing build-up, material, adhesion, cracks, joints, corrosion, blisters, loose coatings, outlets, penetrations, flashings, falls and areas of standing water. Unknown or weak layers must not be incorporated without clarification.

3.2 Cleaning

Manufacturer requirement	QA / documentation
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The manufacturer requires the substrate to be thoroughly cleaned of dirt, sand, dust, free water, grease, loose/old paint and coating layers, and rust. High-pressure washing and/or brushing may be used; the Cool Roof guide recommends high-pressure washing at a minimum of 200 bar. After wet cleaning, the substrate must dry to the moisture level applicable to the substrate. [1][4]

Remove all material that may reduce adhesion, including chalking or poorly bonded layers.

Remove rust and corrosion back to a sound, stable substrate and apply the necessary corrosion protection where required by the system.

Do not vacuum/blow dust into open joints; finish with a clean surface free from loose particles.

Carry out a test area/adhesion test on doubtful or previously treated substrates before full application.

4. Application conditions: temperature, relative humidity and substrate moisture

Manufacturer requirement		QA / documentation
Parameter	Requirement / indicative limit	Comment
Air and surface temperature	ElaProof: above +10 °C	Manufacturer's general installation requirement. Cool Roof specifies application from +10 to +40 °C. [1][4]
Relative humidity	< 80% RH	Manufacturer's general installation requirement. [1][4]
New concrete substrate	Max. 90% RH at assessment depth A	The manufacturer refers to the Finnish RT card and recommends checking against local regulations. The surface must be drier than at the assessment depth. [1]
Subsequently moisture-exposed concrete	Max. 85% RH at assessment depth A and max. 75% RH at the surface	Stated in the manufacturer's installation instructions. [1]
Dense substrates, e.g. metal/roofing felt	Dry when coated	No free water, condensation or dew. [1]
Dew point	A safe margin must be designed and documented	The manufacturer emphasises that dew-point risk must be taken into account. [4]

Project requirement: The contractor must record air temperature, surface temperature, relative humidity and relevant moisture measurements in the Site Report at start-up and during significant weather changes. Work must not be carried out on frost, ice, condensation, wet or frozen substrates.

5. 90-degree junctions – horizontal to vertical

Design requirement	Project-specific clarification
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The transition between the horizontal roof surface and a vertical upstand is a critical detail and must be executed as a continuous, reinforced membrane connection. The manufacturer's installation documentation describes sealing vertical joints, cracks and penetrations with ElaProof Classic H and ElaProof Base Fabric or ROOF reinforcement fabric, with the reinforcement embedded in the wet material and subsequently covered with additional ElaProof. [1]

5.1 Installation principle

The substrate on both the horizontal and vertical surfaces must be cleaned, repaired and primed according to material type.

Sharp edges, open joints and voids must not simply be covered over. They must be filled/repared so that the reinforcement can lie without voids or folds.

Apply a wet coat of ElaProof in the detail zone. Fully embed the selected reinforcement fabric in the wet material and press it down so that there are no wrinkles, dry areas or air pockets.

Run the reinforcement continuously across the change in plane with sufficient bearing on both sides.

Joints in the reinforcement must be made with the specified overlap and must not coincide with other critical joints.

Cover the reinforcement with ElaProof so that the fabric texture is fully encapsulated. After drying, apply the specified field coating with an uninterrupted transition to the detail.

Connection height, termination against façade/upstand and any mechanical flashing must be defined in the project detail, taking account of the roof build-up and applicable Danish requirements.

Approval point: The manufacturer's public documentation reviewed for this report does not specify one universal dimensioned 90° detail with a fixed overlap or upstand height. A project-specific detail drawing (e.g. from ElaProof/ProdLib or the consultant) must therefore be available before execution.

6. Correction of adverse falls, depressions and requirements for ponding areas

Design requirement	Contract requirement
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6.1 Design principle

ElaProof is a membrane/coating and must not be used as a material for geometrically levelling larger depressions or creating falls. According to the manufacturer's FAQ, uneven, porous or pitted substrates should be levelled with a suitable levelling/repair material before coating. [4]

6.2 Wedges for correcting adverse falls

Adverse falls must be identified by levelling/level survey and corrected before membrane application. Wedges must be formed from a substrate-compatible, dimensionally stable repair/levelling material suitable for exterior use. The material's adhesion to the existing roof and compatibility with the primer/ElaProof must be documented.

The wedge must terminate robustly without a feather edge if the repair material's product data does not permit one. The transition must be sanded/levelled smooth.

Wedges must not create new areas of ponding at outlets, edges, rooflights or penetrations. The finished falls must be checked before priming.

6.3 Correction of depressions

Areas of standing water must be marked after rainfall/a water test or by levelling.

Loose and weak material must be removed. Prepare the substrate in accordance with the repair material manufacturer's instructions.

The depression must be filled and shaped towards the nearest outlet. The repair material must be fully cured and sufficiently dry before the ElaProof system is applied.

After levelling, inspect the surface visually and with a straightedge/level survey; if required, carry out a new water test before membrane application.

6.4 Requirements for depressions/ponding areas

Design requirement	Contract requirement
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No manufacturer-defined maximum depth, diameter or permitted duration of standing water was found in the publicly available ElaProof material reviewed. The acceptance criterion should therefore be defined on a project-specific basis. As a design requirement, it is recommended that the finished substrate has no local depressions that cause persistent ponding after normal drainage and that the roof falls/drainage are documented by the designer.

Not a product requirement: A specific tolerance, e.g. millimetres under a straightedge or number of hours to drain, must not be stated as an "ElaProof requirement" unless it can be documented in a project-specific manufacturer instruction. Define it in the tender documents based on the roof type and applicable Danish design requirements.

7. Layer thicknesses, consumption and application

Manufacturer requirement	QA / documentation
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For ElaProof Classic H, the manufacturer's technical specification states a typical consumption of 1.0–1.2 l/m² on dense/smooth substrates and 1.5–1.8 l/m² on porous/rough substrates. The stated dry film thickness is 0.6–1.0 mm at 1.0–1.8 l/m². Sufficient layer thickness is essential for durability. [5]

Item	Manufacturer data	Project requirement	Documentation
ElaProof Classic H – smooth/dense	1.0–1.2 l/m ²	Final system consumption to be defined according to substrate and detail	Area + buckets used; wet-film control
ElaProof Classic H – rough/porous	1.5–1.8 l/m ²	Adapt to roughness/porosity	Area + consumption; visual coverage
Classic H dry film	0.6–1.0 mm	Must not be specified below the documented system requirement	Spot check/consumption control
Base Fabric detail	Approx. 0.15–0.2 l/linear m for 100 mm fabric (technical data)	Full embedment and covering coat	Photo + material consumption
ROOF reinforcement fabric detail	Approx. 0.6–0.8 l/linear m for 150 mm fabric (technical data)	Full embedment and covering coat	Photo + material consumption

ElaProof H may be applied in one or more coats. If several coats are applied, the first coat must be sufficiently dry and the surface clean before the next coat is applied. Drying time depends strongly on temperature, relative humidity and substrate. Classic H is stated to be touch-dry after approx. 3–4 hours at +20 °C, 50% RH and 1.5 l/m²; full curing is stated as approx. 1 week and full mechanical properties as approx. 3 weeks under the same reference climate. [5]

8. Quality assurance and Site Report

Manufacturer requirement	QA / documentation
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The manufacturer requires a Site Report to be completed during installation and states that performance cannot be verified if the installation conditions and method are not correctly documented. [1][2]

Inspection point	Minimum documentation	Acceptance
Substrate	Photos, material type, damage, adhesion	Sound and suitable
Moisture/climate	RH/moisture measurement, air and surface temperature, ambient RH	Within system requirements
Cleaning	Method and photos before priming	Clean, sound, free from loose layers
Falls/depressions	Levels/falls or water test	No unaccepted ponding areas

Details	Photos before/during/after reinforcement	Continuous, fully embedded
Materials	Batch no., product, quantities, area	Traceable and within shelf life
Layers/consumption	Consumption per area/layer	According to the specified system
Final inspection	Photos, defect list, any adhesion tests	Continuous membrane without visible defects

9. Operation and maintenance

Manufacturer requirement	Contract requirement
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ElaProof recommends that a coated roof be inspected regularly at least twice a year, typically in spring and autumn. Dirt and leaves must be removed from roof surfaces, channels and the rainwater system. In the event of external damage, the damaged coating must be removed, the area repaired with ElaProof H and, where necessary, reinforced with Base Fabric or ROOF reinforcement fabric. [3] Schedule regular inspections at least in spring and autumn and after unusual storms/events. Keep outlets, gutters/channels, gullies and overflows clear. Avoid sharp objects and unnecessary mechanical loading of the membrane. For washing, use water and a soft brush. The manufacturer advises against using a pressure washer for maintenance cleaning, as high pressure may damage the coating. [3] Record repairs with date, location, cause, photograph and products used.

10. Warranty statement and third-party review

Contract requirement	Warranty / third party	Project-specific clarification
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No general warranty scheme was found in the publicly available ElaProof sources reviewed that automatically requires or includes third-party inspection of the roof before a warranty statement is issued. Instead, the manufacturer emphasises documentation through the Site Report and provides technical documentation, detail drawings and a contractor network. [1][2]

Warranty conditions must therefore be clarified for the specific project and in writing before contract/execution. The following should be required as part of the approval documentation:

Name of warranty provider: manufacturer, Danish supplier/distributor, installing contractor or a combination.

Warranty period and exact scope of cover: material defects, installation defects, watertightness, consequential damage and any exclusions.

Conditions for warranty: authorised/approved contractor, specified products, minimum consumption/layer thickness, documented climate/moisture conditions and a fully completed Site Report.

Handover inspection requirements: who inspects, which measurements are carried out, and who approves defects/shortcomings.

Whether an independent third party is required. If the client requires third-party review, the scope, competence, inspection plan and acceptance criteria must be described in the tender documents and agreed with the warranty provider.

Operation and maintenance requirements as a condition of warranty, including six-monthly inspections and documentation of repairs.

Contract requirement: A warranty statement should not be accepted solely as generic product wording. It must be project-specific, identify the roof area and system build-up, and state the start date, duration, responsibilities, exclusions and inspection requirements.

11. Documentation required before approval and execution

Contract requirement	QA / documentation
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Project-specific system description with product names and substrates.
Dimensioned detail for 90° horizontal/vertical transitions, upstands, terminations, outlets and penetrations.
Plan for correcting adverse falls and depressions, including material selection and falls/levels.
Acceptance criteria for finished falls and any remaining depressions/ponding areas.
Cleaning and pre-treatment method and requirements for test areas/adhesion.
Climate and moisture requirements and measurement method.
System build-up, minimum consumption and target dry-film/wet-film thickness.
Inspection plan and completed ElaProof Site Report.
Operation and maintenance instructions for handover.
Project-specific warranty statement and written clarification of any third-party inspection.

12. Suggested hold points

QA / documentation			
HP	Stage	To be approved	Release
HP1	After cleaning/preparation	Substrate, damage, moisture, falls/depressions	Consultant/supervision
HP2	After levelling	Wedges, repairs, falls and outlets	Consultant/supervision
HP3	After detail reinforcement	90° junctions, penetrations, overlap/embedment	Supervision/manufacturer if agreed
HP4	Before final coat	Consumption, coverage, dryness between coats	Contractor QA/supervision
HP5	Handover	Site Report, photos, O&M, warranty, defects	Client/consultant

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