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GAF ASPHALT SHINGLE ROOFING SYSTEM

TECHNICAL SPECIFICATION FOR NEW ZEALAND

Of work to be done and materials to be used in carrying out the works shown on the accompanying drawings.

1. GENERAL

This section relates to the supply and installation of GAF-Elk asphalt roof shingles installed over a plywood substrate and roofing underlayment to create a weather tight roofing system:

- complete with all roof underlays, flashings and accessories
- where the roof slope is 9° or greater
- available in various profile types and colours

The shingles and flashing accessories form a roofing system when installed over a plywood substrate and roofing underlayment and are supplied by Roofing Logistics NZ Ltd.

This section includes general clauses relating to the supply and installation of the required plywood substrate.

Related work

1.1 RELATED SECTIONS

Refer to RAINWATER SYSTEMS for rainwater disposal.

Include cross references to other sections where these contain related work.

This section does not include for rainwater gutters, spoutings and pipework.

Documents

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC B1/AS1 Structure

NZBC B2 Durability

NZBC E2 External moisture

AS/NZS 4680 Hot-dip, galvanized (zinc) coatings on fabricated ferrous articles

AS/NZS 2269 Plywood - Structural

NZS 3603 Timber structures standard

NZS 3604 Timber framed buildings

NZS 4203 General structural design and design loadings for buildings

BRANZ Appraisal Certificate 529 - GAF-Elk Asphalt Roofing Shingles

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

RELATED DOCUMENTS

Refer to the following related documents when preparing this section:

NZBC F2/AS1 Hazardous building materials

AS/NZS 4680 Hot-dip galvanised (zinc) coatings on fabricated ferrous articles

BRANZ BU 443 Timber shingles and shakes

AS/NZS 1170.2 Structural design actions - Wind actions

NZS 1170.5 Structural design actions - Earthquake actions - New Zealand standards

1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

GAF-Elk Product Brochures

GAF-Elk Construction Details for 'ELK Asphalt Shingles'

BRANZ Appraisal Certificate 529 - GAF-Elk Asphalt Roofing Shingles

Refer to website, www.gaf.com for GAF-Elk Shingle Styles and Colours

Copies of the above literature are available from GAF-Elk Asphalt Shingle Roofing

Web: www.gafroofing.co.nz

Email: mark@gafelk.co.nz

Mobile: 0274 776715

Telephone: 0800 423 355, 09 4262199

It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Requirements

1.4 NO SUBSTITUTIONS

Substitutions are not permitted to any specified GAF-Elk Asphalt Shingle Roofing products, components or accessories.

1.5 QUALIFICATIONS

Installation of all components and accessories supplied by GAF-Elk must be completed by GAF-Elk Asphalt Shingle Roofing approved installers.

Installation of components and substrates supplied by the building contractor must be completed by tradespersons with an understanding of roofing installation and in accordance with instructions given in GAF-Elk Asphalt Shingle Roofing Technical Literature and BRANZ Appraisal Certificate 529. Plywood to be F11 stress graded.

1.6 MAINTENANCE

GAF-Elk recommend that any roof should be routinely inspected at least once a year and older roofs more frequently.

Warranties

Supplier and manufacturer warranties are those that are freely offered by the supplier or manufacturer. They are usually in their standard form and subject to their terms and conditions. Check the general section WARRANTIES for the date of commencement of warranties; which is normally practical completion of the contract. Refer to the chosen conditions of contract as it may also contain information on warranties.

1.7 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

5 years: For installation

- Provide this warranty in the installer/applicator standard form.
- Commence the warranty from the date normally applicable for this part of the work.

Refer to the general section WARRANTIES for additional requirements.

1.8 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

- Shingles and flashing accessories
- Provide this warranty on the manufacturer's standard form.
- Commence warranties from the date of practical completion of the contract works.

Refer to the general section WARRANTIES for additional requirements.

Modify or expand the clause to suit project requirements.

The Warranty periods for the different profiles are listed below:

30 years: Royal Sovereign®

30 years: Marquis® WeatherMax®

30 years: Timberline® 30, NS 30 or HD 30

40 years: Timberline® HD 40

50 years: Timberline® Ultra, HD 50

40 years: Timberline® Grande 40

40 years: Capstone® 40 Designer

50 years: Camelot® Life-Time Designer

50 years: Grand Canyon™ Life-Time Designer

50 years: Grand Sequoia® Life-Time Designer

50 years: Country Mansion® Life-Time Designer

50 years: Grand Slate™ Life-Time Designer

50 years: Slateline® Life-Time Designer

Performance

1.9 ROOF LOADING

To NZBC B1/AS1 structure - Performance, to meet the requirements for loads arising from self weight, gravity loads, temperature, snow, wind, impact and creep.

1.10 SPECIFIC NAILING DETAILS

Installation to comply with GAF-Elk written installation instructions set up in the GAF-Elk Asphalt Shingle Roofing Technical Literature, current at the time of installation.

1.11 STRUCTURAL FIXINGS, EARTHQUAKE

Use fixings and methods to comply with GAF-Elk written installation instructions set up in the GAF-Elk Asphalt Shingle Roofing Technical Literature and BRANZ Appraisal Certificate 529.

1.12 CO-ORDINATE

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof. Refer to GAF-Elk Asphalt Shingle Roofing Technical Literature for substrate requirements and specifications.

The substrate is usually the responsibility of the main contractor unless agreed otherwise.

Refer to plywood manufacturer's technical literature for other options. Do not use hardboard or MDF board. Use F11 stress grade plywood.

1.13 PERFORMANCE

To NZBC B2 Durability, and to NZBC E2 External moisture. Accept responsibility for the weather-tight performance of the completed roofing system, including minor penetrations through the roof and junctions with walls and parapets. Penetrations through the roof to be the responsibility of the plumber or penetration installer.

2. PRODUCTS

Materials

2.1 ASPHALT SHINGLES

GAF-Elk Asphalt Roof Shingles, glass fibre reinforced asphalt shingles, surfaced with ceramic coated mineral chips available in various Series types. Refer to SELECTIONS for Series type and colour option.

Refer to website, www.gafelk.co.nz, for the wide variety of Series types and colours available; Royal Sovereign®, Marquis® WeatherMax®, Timberline® 30, NS 30 or HS 30, Timberline® HD 40, Timberline® Ultra, HD 50, Timberline® Grande 40, Capstone® 40 Designer, Camelot® Life-Time Designer, Grand Canyon™ Life-Time Designer, Grand Sequoia® Life-Time Designer, Country Mansion® Life-Time Designer, Slateline® Life-Time Designer.

2.2 FELT UNDERLAY ABOVE 15° ROOF PITCH

ASTM: D-226 #15 felt, standard bitumen impregnated roofing felt underlay, for under shingles and installed directly onto the plywood substrate minimum 100mm laps .

ASTM: D-226 #30 felt, is a thicker grade installed with HD40 and HD 50 year shingles, installed directly onto the plywood minimum 100mm laps.

2.3 FELT UNDERLAY BELOW 15° ROOF PITCH

ASTM: D-226 #15 felt, standard bitumen impregnated roofing felt underlay, for under shingles and installed directly onto the plywood substrate.

Use 2 layers of ASTM: D-226 #15 felt on pitches of 9° to 15° with 50% laps.

Or 1 layer of ASTM: D-226 #30 felt on pitches of 9° to 15° with 200mm laps.

2.4 SELF ADHESIVE UNDERLAYMENT

GAF-Elk Self Adhering Underlayment, a flexible, elastic, self adhesive membrane used to provide optional waterproofing on roofs with a pitch between 9° and 15°, also for snow. Can be used on lower pitches when water could pond. Use tantalized plywood in all instances with roof pitches between 9° and 12° and with all skillion roofing. Self Adhering Underlayment can also be used as a shingle starter strip.

2.5 SHINGLE STARTER STRIPS

Pre cut starter strip shingles for use at eaves to ensure straight edges.

2.6 SUPPLEMENT HIP AND RIDGE CAPPING

Z Ridge and Ridge Glass and Timbertex Hip and Ridge supplied as 335mm x 250mm shingle. Seal 'A' Ridge and Hip supplied as 305mm x 305mm shingle. These products are complimentary to the GAF-Elk shingle range and supplement hip and ridge capping.

2.7 PROPRIETARY RIDGE VENTS

Trimline, GAF-Elk High Point Ridge and Cobra Ridge Vents, sectional ridge vents 10mm to 15mm wide installed continuously along the ridge, used to create a cross flow at the ridge in conjunction with the 10mm air gap at the gutter fascia, Cobra Ridge Vents supplied in approximately 6m lengths.

2.8 ADHESIVE

Henry 208 Adhesive, Shell Tixophalte or similar modified bitumen based adhesive/sealant for additional bonding of shingles at the gutter line and barge where wind uplift is the most severe. Use for supplementary bonding/sealing around valley intersections, chimney and vent penetrations, skylights etc.

2.9 SHINGLE NAILS

Stainless steel gun nails or hot dip galvanized, smooth or semi ring shanked, 32mm or 25mm x 3mm diameter shank with 9mm head. For ridge ventilation capping stainless steel gun nails 45mm x 3mm diameter shank with 9mm head.

2.10 STEP FLASHINGS AND APRON FLASHINGS

Butyl rubber membrane flashings, 300mm x 200mm x 1mm thick, for flashing raking sides of walls, chimneys or dormer roof penetration including turnouts and apron terminations.

2.11 DRIP EDGE AND BARGE FACIA DRIP FLASHINGS

Folded metal flashings made from alloy or pre-painted steel barge coil, 60mm wide with a right angle bend 50mm from one edge and a deflector bend 5mm from the other, 2.4 to 4 metre lengths. On eave use 70mm wide flashing with an open angle bend of 25mm or greater from one edge and a deflector bend 5mm from the other or similar, 2.4 to 4 metre lengths.

2.12 BOOT FLASHINGS

Rubber boots installed over vent pipes, chimney or penetrations to seal between the shingle surface and the penetration, installed using stainless steel screws and the Henry 208 Adhesive Sealant or RTV exterior grade silicone sealant. Range of sizes available to match requirements.

Accessories

The following accessories used with the system maybe supplied by the building contractor.

2.13 PLYWOOD SHEATHING

Plywood minimum 15mm thick, To AS/NZS 2269 Plywood – DD Structural, in general use untreated plywood for ventilated roof cavities above 12°, H3 CCA to be used on roofs areas below 12° and on all skillion roof areas. Plywood substrate should never be used as a bracing element.

2.14 PLYWOOD FIXINGS

Ring shanked, galvanized, flooring grade nails 64mm long and have a 3mm diameter shank with 7mm x 5mm 'D' head. Hot dip galvanizing to comply with AS/NZS 4680. Comply with plywood manufacturer's specifications. Usually the plywood fixings used with the system are supplied by the roofing contractor.

3. EXECUTION

Conditions

3.1 STORAGE GENERAL

Handling and storage of all materials supplied by Roofing Logistics NZ Ltd, whether on or off site to be under the control of the Roofing Logistics NZ Ltd approved installer. Materials must be handled and stored in accordance with the relevant manufacturer's instructions.

3.2 STORAGE AND HANDLING PLYWOOD SHEETS

Transport and handle with care to avoid damaging the pre finished surface. Store sheets in stacks clear of the ground, supported without sagging on evenly spaced horizontal bearers. Protect from damage and weather. Handle sheets carefully and reject those with damaged faces or edges. Comply with plywood manufacturer's specifications.

3.3 STORAGE AND HANDLING SHINGLES

Transport and handle with care to avoid damaging the pre finished surface. Long term storage of shingles and accessories must be under dry, ventilated cover. For short term storage on site, shingles must be stored flat, no more than two pallets high and off the ground.

3.4 BEFORE COMMENCING WORK

Main contractor to check framing is suitable for laying plywood substrate and is true and level. Roof framing must comply with NZS 3604, or be to a specific design in accordance with NZS 3603 and NZS 4203. Timber roof framing must be treated to NZS 3602.

Roof design must take into account any requirements for areas subject to regular snowfalls as per the requirements of NZBC E2/AS1, paragraph 1.3.

Application - plywood sheathing

3.5 FIXING PLYWOOD SHEETS - GENERAL

Fix sheets to the plywood manufacturer's requirements. Rafters or trusses to be at 600mm, 800mm or 900mm maximum centres, for 15mm thick plywood. Lay sheets with staggered offset joints in a brick bond pattern, face-grain of sheet at right-angles to support with sheets in square, true alignment and plane. Fully support edges and joints on square edged sheets. Tongue and groove plywood edges must be but jointed with no gaps between the sheet edges. Square plywood edges must have a 2-3mm gap between the sheet edges. Plywood should not extend past the outside front face of the fascia to limit plywood exposure to the gutter area.

Where LOSP treated plywood is used, the solvents must be allowed to evaporate off for at least one week before installation of the shingle underlayment. LOSP is currently not available.

Refer to the plywood manufacturer's literature for details and requirements.

3.6 FIT FLASHINGS

Fit metal gutter flashing over plywood substrate to form drip edge at gutter. Hang drip edge past the plywood termination into the gutter. Fit metal barge flashing on top of underlay. Confirm roof penetrations are in place and flashed to the deck surface.

Application

WARNING: Choose the underlay type depending on roof pitch and to suit the project specified.

Contact Roofing Logistics NZ Ltd for further advice and project specific recommendations. NOTE: #30 Underlayment is used HD40 and HD50 shingles.

3.7 ROOF DECK REQUIREMENTS

Apply shingles to minimum untreated 15mm thick plywood, F11 stress grade.

3.8 LAY UNDERLAY - ABOVE 15° ROOF PITCH

For roof slope over 15°, tightly lay one layer of ASTM: D-226 #15 or #30 felt underlayment horizontally across the roof and completely cover hips, ridges (except where ridge vents are used), and valleys. Lap the upper sheets by at least 100mm over the lower sheets. Only sufficient fasteners temporarily to hold the underlay in place need to be used.

3.9 LAY UNDERLAY - BELOW 15° ROOF PITCH

For roof slope between 9° and 15°, either lay one layer of ASTM: D-226 #30 felt underlayment, or two layers of ASTM: D-226 #15 felt underlayment lapped by 50% the width of the roll plus 25mm (resulting effectively in a double thickness of underlayment). Tightly lay horizontally across the roof and completely cover hips, ridges (except where ridge vents are used), and valleys. End laps must be at least 200mm. Only sufficient fasteners temporarily to hold the underlay in place need to be used. Do not apply shingles below 9° slope. For roofs with a pitch between 9° and 15°, cold climate areas and for and snow an adhesive backed underlay may be required.

3.10 LAY SELF ADHESIVE UNDERLAYMENT – BELOW 15°, SNOW

For roof slope 9° or steeper use GAF-Elk Self Adhering Underlayment. Lay horizontally across the roof and completely cover hips, ridges (except where ridge vents are used), and valleys. End laps must be at least 200mm. Provides extra waterproofing on roofs with a pitch between 9° and 15° in snowy conditions.

3.11 FASTENING

Fix shingles in 'Low' and 'Medium' building wind zones by 4 stainless steel or hot dip galvanized nails per shingle, one of which is located 25mm in from each edge. Fix shingles in 'High' and 'Very High' building wind zones by 6 evenly spaced stainless steel or hot dip galvanized nails per shingle, one of which is located 25mm in from each edge. Ensure the fasteners are driven straight and are flush with the shingle surface. Nails to be of sufficient length to penetrate 20mm into the deck, or through the thickness of the decking, whichever is the less.

3.12 INSTALL FLASHING

Use corrosion-resistant metal or alloy flashing.

3.13 INSTALL SHINGLEVENT

Install ShingleVent over shingles to GAF-Elk Asphalt Roof Shingle installation requirements.

3.14 INSTALL RIDGE AND HIP CAP SHINGLES

Use compatible GAF-Elk ridge and hip cap shingles to suit shingle series specified, cut to shape for hip, ridge caps.

Completion

3.15 COMPLETE

Ensure the work is complete with all flashings, underlayment, valleys, ridges and hips properly installed so the finished roof is completely weathertight.

3.16 CLEAR

Clear trade rubbish and unused materials from the roof and surrounds regularly during the work and At completion. Sweep down the completed roof and flush out spoutings, gutters and rainwater pipes.

3.17 REPLACE

Replace damaged or marked elements. Remove unused materials from the site.

4. SELECTIONS

Select the shingle type to suit the project specified. Royal Sovereign, WeatherMax, NS 30 or HS 30 Timberline shingles are considered as lightweight roofs and all the other options are considered as heavyweight roofs.

For technical assistance call 0800 GAFELK or visit www.gafroofing.co.nz