GREENCOAT®
COLORFUL STEEL

Nordic quality steel

for harsh weather and greener living

Inspection and maintenance of color coated steel

Roofing, façades and rainwater systems

SSAB

GreenCoat – Greener, better
Premium steels and high quality coatings

GreenCoat® is SSAB's brand for innovative, eco-conscious, color coated steel solutions for the building industry and other components. It is the greenest product portfolio of high quality color coated steel for exterior building applications. Additionally, GreenCoat is also one of the most comprehensive high quality product portfolios of color coated steels for roofing, façades and rainwater systems. GreenCoat products provide high color retention and long-lasting finishes in any weather.

Most of our GreenCoat products feature a Bio-based Technology (BT) coating with a substantial portion of the traditional fossil part replaced by a bio-based component – for greener living and increased performance. This brochure provides inspection and maintenance advice for color coated steel sheet. If correctly maintained, GreenCoat products will retain their properties for a very long time.

Bio-based Technology
BT PATENT PROTECTED

This publication is aimed at anyone who is entrusted with the responsibility for the maintenance of buildings with color coated steel for roofing and cladding.



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INSPECTION AND MAINTENANCE

By specifying GreenCoat, you will have taken an important step towards cutting future expenses for your property. You can carry out the inspection and maintenance yourself, but you can also entrust the work to specialized companies. Regular inspection and maintenance make good economic sense. If correctly carried out, this will ensure the longest possible useful life of the steel sheet.

SEVERAL PAINT SYSTEMS

All GreenCoat products have a core of metal-coated steel sheet and are available for a number of applications. By using an appropriate paint system, GreenCoat can be produced to suit various environmental conditions and quality demands.

FACTORS THAT AFFECT THE USEFUL LIFE OF GREENCOAT

The environment around a building determines how the paint will age, although its durability varies with the paint system and also with the color of a given paint system. Solar radiation, weather conditions and proximity to the sea are factors that cause paint to age, although the paint is also affected by pollutants in the environment. If the paint coat is damaged, the protection it provides to the steel sheet against environmental attack will be greatly reduced. Handling damage during installation or damage caused by a fitting or tool dropping onto the sheet may cause minor damage to the paint coat. However, the useful life of GreenCoat will be maintained if such damage, regardless of its size, is quickly touched up. The sun affects the ageing of the paint coat in two ways: By ultraviolet radiation accelerating the ageing, and by the paint being heated by the sun. The color selected will therefore also affect the useful life – light colors will last somewhat longer than dark colors. The useful life also depends on whether the material is used for wall cladding or roofing. South-facing roofing with a shallow pitch is affected more seriously by the sun than north-facing surfaces. The useful life of the paint coat also depends on the environment to which the steel sheet is exposed. Steel sheet used in areas close to the coast is exposed to salt water, and its useful life will therefore be shorter than steel sheet on buildings further inland. In addition, local industrial emissions, traffic and emissions from oil-fired plants also affect the useful life of the surface coating.

TWO MEASUREMENTS FOR USEFUL LIFE

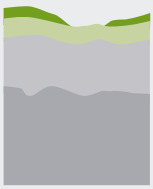
If regularly maintained, a steel sheet roof may last 150 years, or even longer. Some Swedish buildings with steel sheet roofs date back to 1832, and the steel sheet is still in good condition due to the regular inspection and maintenance it receives. There are two different ways to measure the useful life of color coated steel sheet – the aesthetic and the functional.

In our guarantee documents you can find the minimum aesthetical life length you can expect from an undamaged surface in normal conditions. These periods can be extended by regular inspection and maintenance. If used as roofing, there is always some risk of damage by scratching, and corrosion may then occur in such damaged areas.

THE AESTHETIC USEFUL LIFE is the period up to the time when the appearance of the color coating has changed to such an extent that it no longer meets the demands. The degree of discoloration considered acceptable on a building depends on the person who does the assessment and the building to which the steel sheet is fitted.

THE FUNCTIONAL USEFUL LIFE is the period up to the time when the steel sheet can no longer protect the load-bearing structure of the building or the insulation behind the steel sheet. The time varies widely depending on the coating applied to the steel sheet, the type of metal coating and its thickness and, most importantly, the environment to which the steel sheet is exposed.

AGEING OF THE PAINT COAT

	1. 	2. 	3. 	4. 
Stage	New steel sheet.	Binder residues appear on the surface in the form of chalking, which makes the surface lighter. The paint coat is still intact, but is thinner.	The primer is becoming visible. The top coat has been partially eroded away.	The primer and top coat have been partially worn away and the metal coating is visible.
Actions		If the chalking is considered unacceptable, it can be washed away.	The existing coating can be cleaned and then painted over.	Clean the surface and remove any loose paint residues, paint with a wash primer and finish with a top coat.

TO RESTORE THE SURFACE COATING

Restoring of the color coating may consist of measures aimed at:

- cleaning the surface coating
- touching up minor damage
- repainting the whole surface
- treating any corrosion damage

CLEANING

Rainfall is often sufficient to keep the steel sheet clean. Any deposits of dirt that rainwater cannot wash away can be removed by means of a soft brush and water or by high pressure washing. Take extra care when cleaning surfaces that are sheltered from rain and thus cannot be washed clean by rainwater. In polluted areas, a detergent solution may be needed to get the sheet clean. An ordinary dishwashing detergent or an industrial detergent may be used. Dose the detergent in accordance with the maker's recommendations. Then rinse thoroughly or use a high-pressure washer.

WASHING ADVICE

- Stronger solutions than those recommended may damage the paint.
- Rinse thoroughly, so that all detergent residues are removed.
- Avoid organic solvents or abrasive cleaning products.
- Apply the cleaning agent from the bottom upwards. Rinse from the top downwards.
- Work with caution. Excessive washing may do more harm than good.

TOUCHING UP

If the color coating has sustained minor damage by scratching, it can be repaired by touching up. A narrow paint brush can then be used to paint only the area that has been scratched. Use air-drying paint. However, since this paint can be expected to gradually discolor differently from the paint applied at the factory, it is important to apply the paint only where it is actually needed.

CORROSION

Treat corrosion damage as follows:

1. Scrape or grind away any loose organic material.
2. Remove all rust by rubbing down the sheet to the bare metal in the damaged area. Clean with an alkaline degreasing agent, such as a 5% caustic soda solution, with some dishwashing detergent added to it. Carefully rinse the surface with water and allow to dry.
3. Paint with a anti-corrosion primer.
4. Paint with a top coat as described on the following pages.

TREATMENT OF EDGE CORROSION

Edge corrosion does not usually occur in normal environments. However, it may occur in aggressive environments and should then receive attention to ensure that the steel sheet will remain intact. The work described in 1–5 below should then be done. In aggressive environments, it may be advisable to protect exposed cut edges when the sheet is first installed.

1. Rub down or scrape away all loose paint or corrosion residues. Rub down a narrow area of adjacent original paint.
2. If there is red rust on the edge, rub away all such red rust down to the bare metal.
3. Clean with an alkaline degreasing agent, such as a 5% caustic soda solution with some dishwashing detergent added to it.
4. Paint the prepared surface with an anti-corrosion primer.
5. Paint with a top coat, also onto the rubbed-down surface. If edge corrosion has occurred, take special care to ensure that the paint encloses the cut edge all round (the paint around the edge should be similar in shape to the head of a match).

On overlapping steel sheets, edge corrosion may be more difficult to treat in the way described above, since the underside is not accessible for cleaning. This can be solved by sealing the edge, i.e. cleaning as described above and then applying a jointing compound over the joints.

REPAINTING

Repainting of a sheet surface may be found necessary due to discoloration, or corrosion, or simply in order to change the color. Repainting of external steel sheet must always be done in a professional manner, using thoroughly proven paint systems. Suppliers of repainting systems provide instructions for how repainting should be carried out when their particular systems are used. If the work is done by an experienced painting contractor, they will have all of the necessary knowledge for carrying out the work from the inspection to the finished painting. Before any decision is made to completely repaint whole surfaces, it must be checked that there are no local damages and that the adhesion of the coating to the base is good. If significant localized damage is found, or the coating has faded unevenly, it is best to consult an expert to establish and plan a repainting scheme. The following rules should be used for guidance:

1. a) If the zinc coating has been worn away, paint the sheet with an anti-corrosion primer.
   b) If the paint has been worn away, but the zinc coating is undamaged, paint the sheet with a wash primer.
2. Paint with a top coat. If the previous paint is intact, it can first be washed to ensure that the adhesion is good, and the top coat can then be applied.

REPAINTING OF PVDF

PVDF is fluoropolymer like for example Teflon® and therefore it is very difficult to achieve good adhesion, and we recommend professional help. GreenCoat Hiarc products are in most cases PVDF type of coatings. Please contact SSAB if you need support to clarify coating type.

REPAINTING OF GREENCOAT PRODUCTS (EXCEPT PVDF)

The method of over painting of GreenCoat products is different whether the sheets have been exposed to outdoor environments or if the sheets are new or unexposed. The top coat has a little content of wax to make the sheet easier to form. This can cause adhesion problems when over painting. For an aged GreenCoat product, this wax layer on the surface is vanished through weather exposure. Cleaning could then be done by simply washing. It is essential that this is considered before painting. Follow the general recommendations below for treating the sheet surface before painting.

1. Clean the surface, by using an alkali cleaner and a Scotch Brite sponge.
2. Rinse with water.
3. One layer of primer.
4. One or two layers of top coat.

The coating supplier should give detailed recommendations for the pretreatment before painting.

PAINTING WORK

When repainting an entire roof, it is important to follow the paint supplier's recommendations carefully. This is especially important for cleaning and pretreatment, but also concerning the status of the existing roof. When repainting minor damages, it is important to paint as small area as possible. Even if the repair paint looks very similar to the original color, there is a risk that the aging will effect the paints differently and that they will end up looking quite different over time. Use a thin brush when repainting small areas.

ANNUAL INSPECTION

The steel sheet surfaces of the building must be inspected annually to enable effective maintenance to be carried out. The following should be checked during the annual inspection, and the necessary action should then be taken.

Check	Action
Condition of the paint, signs of chalking, discoloration or surface cracking, particularly where rainwater cannot keep the surface clean.	Evaluate the condition and assess whether washing, cleaning, treatment of edge corrosion, touching up or repainting is necessary.
Dirt in the gutters. Blocked gutters increase the risk of corrosion and consequent water leakage into the building.	Remove the waste from the gutters, since this binds moisture and corrosive substances.
Accumulations of waste on the sheet increase the risk of corrosion, since the surface under the waste is kept continually humid.	Remove the waste, so that the sheet surfaces can dry out.
Damage to the color coating increases the risk of corrosion. Check whether there is damage, even if the building is new.	Consider whether touching up, repainting or changing of individual sheets is necessary, depending on the extent and type of damage.
Loose fasteners, pop-rivet stems, drilling swarf or other metal objects resting directly on the roof could cause corrosion.	Remove the swarf and/or metal objects.
Wrong or incorrectly fitted fasteners could cause both leakage and corrosion.	Replace the incorrect fasteners. If the thread is stripped, change to the next larger size.
Edge corrosion at cut edge of overlapping sheets and sheet ends. The corrosion can spread unless treated in good time.	Clean thoroughly the corroded edge and repaint as described earlier.

Inspection protocol

The building's designation _____

Address _____

GreenCoat, type roof _____ color _____

GreenCoat, type wall _____ color _____

GreenCoat, type rainwater system _____ color _____

Surrounding environment _____ Year and month of installation _____

INSPECTION DATA FIRST INSPECTION

Date _____ Inspected by _____

Comments (executed actions) _____

ANNUAL INSPECTIONS

Date	Comments and executed measures	Inspected by

SSAB is a Nordic and US-based steel company. SSAB offers value added products and services developed in close cooperation with its customers to create a stronger, lighter and more sustainable world. SSAB has employees in over 50 countries. SSAB has production facilities in Sweden, Finland and the US. SSAB is listed on the Nasdaq OMX Nordic Exchange in Stockholm and has a secondary listing on the Nasdaq OMX in Helsinki. **www.ssab.com**

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