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Natural Finish Metallic Coatings – Attractive but not Architectural

Architects and Specification Writers are increasingly selecting unpainted metallic coated steels for architectural roofing and cladding applications on building exteriors where they want a “Silver” metallic finish. This is occurring more frequently, and even on “prestige” type projects. The Canadian Sheet Steel Building Institute whose fabricator members manufacture a wide variety of building panel profiles for roofing and cladding applications, are being asked to supply unpainted (natural finish) galvanized or resin coated 55% Aluminum-Zinc coated steel for these architecturally exposed end uses. Oftentimes, these materials are specified because the designer finds the natural finish of these products very appealing and sometimes because of material cost savings opportunities.

This Fact Sheet has been developed to provide guidance in material selection and provide information on the Architectural Metallic Finishes that are available for highly visible steep slope roofing and cladding applications.

The recommended product for these applications is prepainted steel available in a wide variety of metallic finishes that are consistent in colour, gloss, reflectivity and overall appearance from panel to panel, regardless of the building elevation. A selection of metallic colours is shown in Figure 1. It is important to note that the actual colours and finish may vary from these printed samples. If an exact colour match is required, contact a CSSBI Fabricator Member.

Prepaint Coatings

Prepaint coatings are applied to steel by a continuous coil coating process under strict quality control conditions. These Architectural (exposed quality) finishes are offered in a variety of metallic colours including, for example, Bright Silver. Depending on the end use requirements, metallic colours are available with either fluorocarbon (Kynar) or polyurethane paint systems to match silver, copper, bronze, aluminum, zinc or other metallic finishes. The prepaint systems are designed to match a colour standard and quality control measures during the paint process provide consistency across the width of the coil, along its length and from coil to coil. Each new batch of paint is also produced to the same colour standard to minimize batch to batch variation. Even with these quality control procedures in place, caution should still be exercised if more than one production order must be used for the same building. For recommendations, see Appendix A2 of CSSBI 20M-99 “Standard for Sheet Steel Cladding for Architectural, Industrial and Commercial Building Applications”.

Architectural prepaint systems also come with an exterior weathering performance specification that specifies a maximum colour change, chalking and film integrity as long as 35 years.

Architectural prepaint systems have proven and predictable weathering performance. They provide a consistent colour match to metallic finishes and should be the product of choice for applications that require uniform appearance.



Natural Hot Dip Metallic Coatings

The most common hot dip coatings used for building products like roofing and cladding are zinc and 55% aluminum-zinc alloy coatings. Both products are produced by the continuous hot dip galvanizing process. The quality control measures provide for good coating adhesion necessary for forming into profiles, and coating weight (thickness) to meet the appropriate ASTM coating designation for long service life.

Although there are manufacturing process metrics to control surface appearance, there is always normal variation in spangle size from coil to coil and within a coil. The natural metallic finish can therefore vary depending on steel substrate thickness and chemistry, pot chemistry and temperature, and other operating parameters as well as the roofing or cladding panel orientation (see Figure 2). Unpainted hot dip coated steels are also passivated with a very thin inorganic or organic system to provide protection against storage stain. In spite of this, the weathered appearance of the metallic coating can become non-

uniform over time and would not be consistent with an architectural finish.

In summary, unpainted natural finish hot dip metallic coatings are attractive and are used for a variety of commercial, industrial, and agricultural buildings for roofing and cladding. However, they are not considered to have an exposed architectural finish. If a uniform visual appearance is required over the long term, prepainted steel should be specified. A wide selection of prepainted steel having metallic finishes are currently available and new or unique metallic colours can be quickly developed to suit high profile projects.

For More Information

For more information on sheet steel building products, or to order any CSSBI publications, contact the CSSBI at the address shown below or visit the web site at www.cssbi.ca

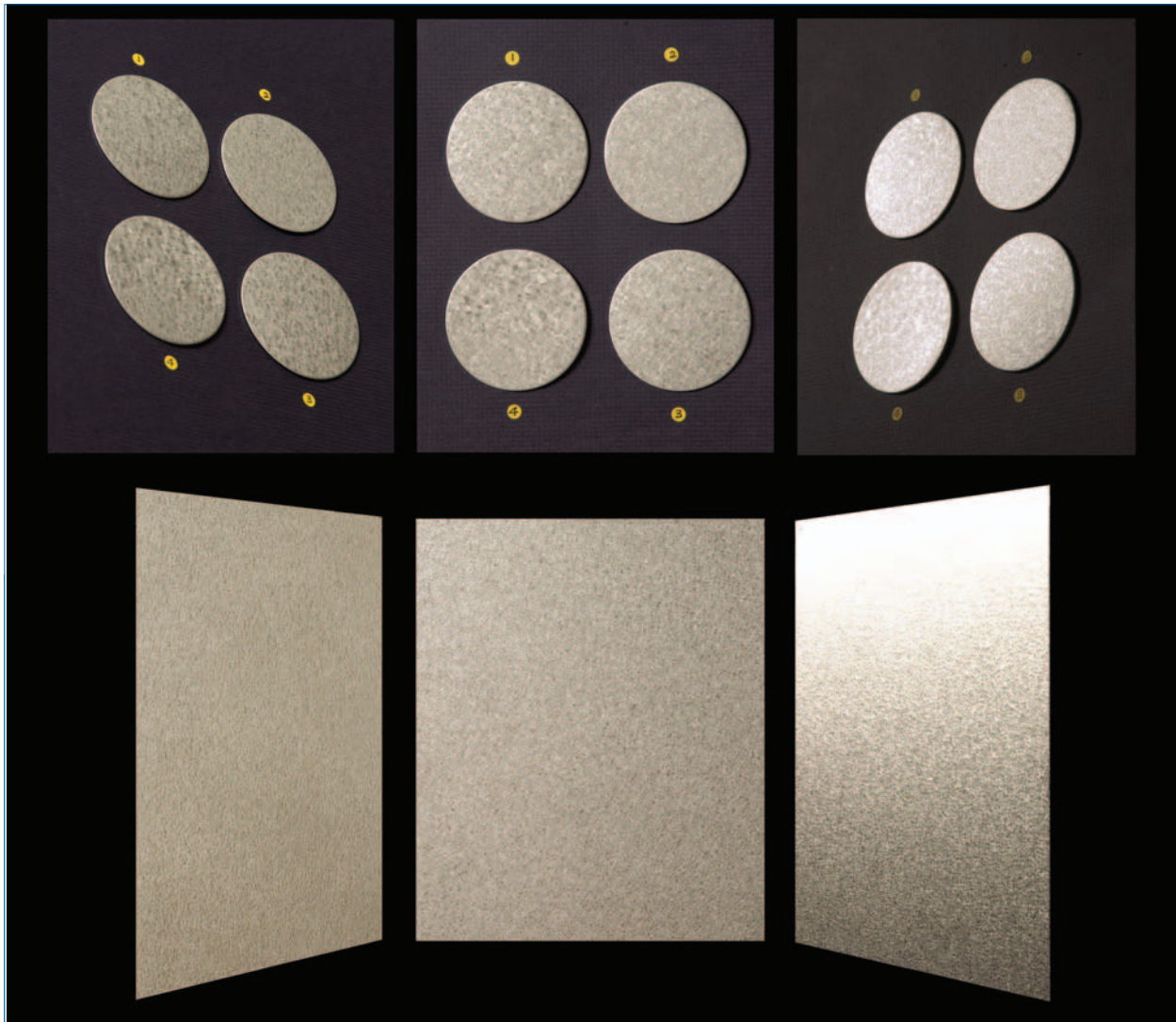


Figure 2: Variations in Surface Appearance Caused by Viewing Angle